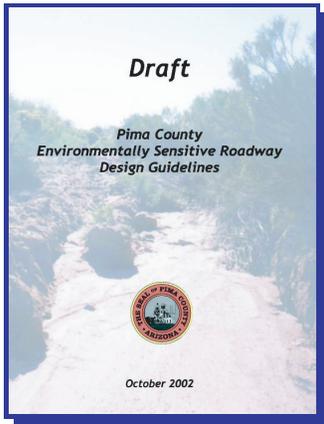


# Colossal Cave Road Improvement Project: Acacia Elementary School to Old Vail Road

## Environmental Assessment and Mitigation Report *Volume I*



Submitted to:  
Pima County  
Department of Transportation

Submitted by:



September 27, 2005

**COLOSSAL CAVE ROAD IMPROVEMENT PROJECT:  
ACACIA ELEMENTARY SCHOOL TO OLD VAIL ROAD  
W.O. #4VRISP**

**ENVIRONMENTAL ASSESSMENT  
AND MITIGATION REPORT  
*VOLUME I***

**Prepared for:**

**PIMA COUNTY DEPARTMENT OF TRANSPORTATION**

**Prepared by:**

**Parsons Brinckerhoff  
177 North Church Avenue, Suite 500  
Tucson, Arizona 85701**

**September 27, 2005**

## EXECUTIVE SUMMARY

### Project Overview



The *Environmental Assessment and Mitigation Report* (EAMR) was prepared following the *Pima County Roadway Design Manual* (RDM), Second Edition, December 2003. The report presents the results of assessments conducted to determine potential adverse impacts to the recommended alternative identified in the *Colossal Cave Road Improvement Project Final Design Concept Report* (DCR), approved by the Pima County Department of Transportation Director on July 1, 2005. This Executive Summary provides highlights of the project and the potential impacts and proposed mitigation measures.

**Project Name:** Colossal Cave Roadway Improvement Project

**Project Number:** W.O. #4VRISP

**Project Location:** Colossal Cave Road, Vail, Arizona

**Project Limits:** From Acacia Elementary School to Old Vail Middle School a distance of approximately 0.9 miles or 4,700 feet. See attached Location Map, Figure ES-1.

**Estimated Cost:** The construction cost estimate for the recommended improvements is \$2,865,8000, excluding the cost of right-of-way (ROW) acquisition.

**Funding Sources:** This project is included in the current “Pima County Development Impact Fee Ordinance” (effective 7/7/2003) and is to be funded through impact fees that are collected from ongoing development in the project area.

### Construction

**Fiscal Year:** The start of construction is dependent on the rate of impact fee collection, but is currently estimated to be in Fiscal Year 2011.

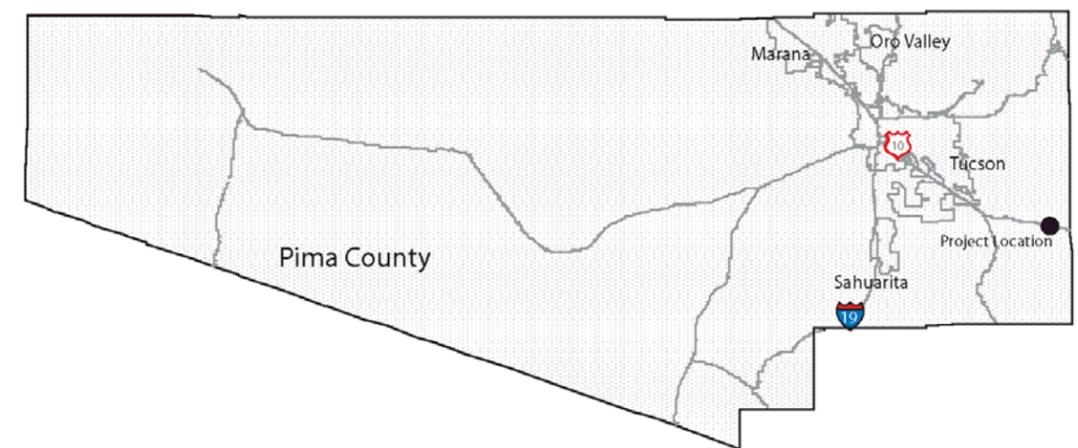
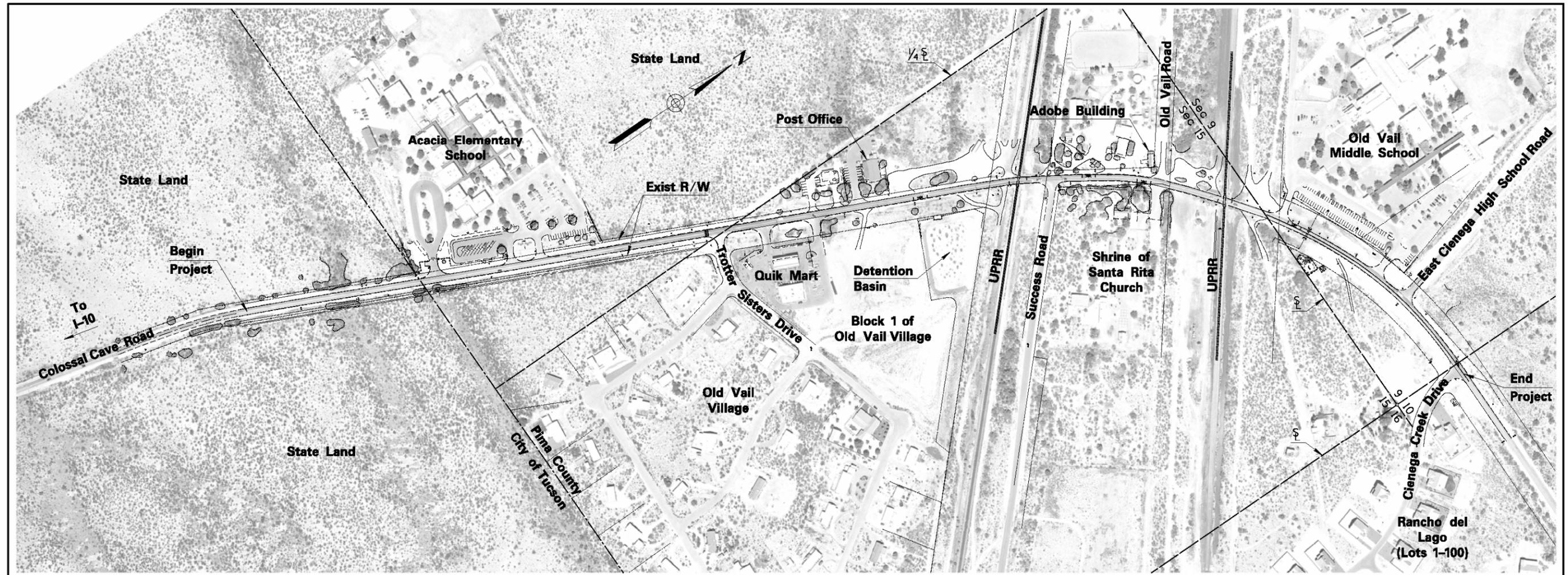
### Project

**Designation:** Colossal Cave Road is identified as a scenic route in the Pima County Major Streets and Routes Plan and, as such, meets the criteria of an Environmentally Sensitive Roadway (ESR) as defined in the RDM, Chapter 4, ESR Design Guidelines, revised December 2003. These Design Guidelines state that a roadway defined as an ESR “should be designed and constructed to minimize disturbances to the area resources.”

### Other Reports

**Completed:** In addition to this EAMR, separate project reports were prepared, including the *Preliminary Drainage Concept Report* (December 2004), the *Design Charrette Summary* (November 2004), the *Design Partnering/DCR Charrette Report* (March 2005), the *Draft Design Concept Report* (2004), the *Final Design Concept Report* (2005), and the *Draft Final Drainage Concept Report* (June 2005).

Figure ES-1  
Project Location and Area Maps



## **Project Purpose and Need**

The purpose of this Pima County roadway project is to improve operations on Colossal Cave Road within the project limits while being sensitive to the surrounding environmental features and land uses. The focus of the project is on the addition of a two-way left-turn lane that will widen the existing two-lane section through a majority of the project segment. This turn lane will enhance traffic flow by eliminating stop delays from left turns. Project improvements will also include pedestrian facilities in conformance with guidelines of the Americans with Disabilities Act (ADA), bicycle facilities, landscaping and other streetscape amenities, drainage upgrades, and utility relocations.

Colossal Cave Road is presently a two-lane roadway with a curvilinear alignment that crosses two sets of high volume Union Pacific Railroad (UPRR) tracks; provides access to three Vail School District schools, two of which front directly onto the roadway; passes between two historic resources (a historic adobe building and the Shrine of Santa Rita in the Desert); and provides access to local community businesses, facilities and residential neighborhoods. Colossal Cave Road serves as a commuter route between Interstate 10 (I-10) and the expanding residential development areas of Rancho del Lago and the Rincon Valley. Daily traffic volumes have nearly doubled in the last five years with increases not only in through traffic, but also in peak hour demands for left and right turns to adjacent facilities and side streets. Coupled with both marginal geometrics and a lack of separate turn lanes and pedestrian facilities, the traffic volume increases have resulted in congested conditions with safety and operational concerns.

## **Project Elements**

In keeping with the ESR Design Guidelines, the recommended alternative limits the impacts outside the existing ROW while improving the stopping sight distances at the substandard locations within the project limits. The design features of the recommended project alternative, as identified in the approved DCR, are highlighted below:

- Two 11-foot travel lanes with six-foot paved shoulders throughout the length of the project.
- An 11-foot-wide two-way center left-turn lane from the Acacia Elementary School frontage to the southern UPRR crossing and from the northern UPRR crossing to the end of the project.
- A two-lane roadway section between the railroad tracks, similar to the existing section in this area, to minimize impacts to the adjacent historic adobe building and the historic Shrine of Santa Rita and to complement the character of the Vail center, often referred to as the “town between the tracks.”
- A sidewalk on the east side of the road extending from the southern to the northern project limits. The sidewalk will be in compliance with ADA standards.
- A multiuse path on the west side of the road extending from just beyond the southern boundary of the Acacia Elementary School to the northern project limit. The multiuse path will be in compliance with ADA standards.
- Two school crosswalks in the same locations as the two existing crosswalks on Colossal Cave Road within the project limits: one at Trotter Sisters Drive and the other at the Old Vail Middle School.

- Two southbound right-turn lanes at the Acacia Elementary School to limit conflict points at the school driveways and to separate general school traffic from school bus traffic.
- Existing drainage crossings improved but maintained as dip crossings to minimize upstream and downstream impacts except where profile improvements are made. Culverts will be installed at these latter locations.
- Maintenance of the existing 35 mph speed limit.
- Addition of a right-turn lane to the Old Vail Middle School.
- Upgrade of the existing railroad grade crossing traffic control devices to accommodate a three-lane roadway cross section.
- A landscaping plan that acknowledges the different land use zones, and provides some entryway treatments to mark the historic area between the tracks.
- Minor roadside grading and replacement of soil to alleviate standing water along the roadway after heavy rains.
- Assistance with the evaluation and documentation of the historic adobe building and the Shrine of Santa Rita property to determine their eligibility for nomination to the National Registry of Historic Places.
- If warranted, a crosswalk on Colossal Cave Road between the tracks.
- If economically feasible, consolidation of the overhead telephone and electric utility lines and relocation of the utilities to the east side of Colossal Cave Road.

### **Project Impacts and Recommended Mitigation**

The design team worked closely with a wide range of stakeholders – including the community, local businesses, utilities, the UPRR, and others – to design a project that avoids impacts to the greatest extent possible and where that was not possible minimizes impacts. Potential impacts of the project are on the historic adobe building; the historic Shrine of the Santa Rita property during construction on biological resources, utilities, access, traffic operations, noise, and air quality.

Table ES-1 provides a summary of the environmental categories considered, potentially adverse impacts identified, mitigation measures recommended, agency coordination and consultation required, and parties responsible for implementing the mitigation ultimately approved.

### **Agency Coordination**

As noted above, Table ES-1 identifies agency coordination efforts, including those that have been or will be undertaken during the course of this project. In addition to individual efforts called out in each environmental category, the project included two four-hour design charrettes, as well as a design charrette follow-up session that brought both agency and public stakeholders together to discuss project issues, identify constraints and opportunities, and ultimately develop several alternative design concepts for study and documentation in the DCR.

**Table ES-1  
Impact and Mitigation Summary**

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Biological Resources</b>			
Removal of both native and non-native vegetation	<ul style="list-style-type: none"> <li>• <i>Pygmy owl</i>: Conduct two consecutive years of pygmy-owl surveys prior to construction. Preserve large trees and columnar cacti. Salvage native plants.</li> <li>• <i>Pima pineapple cactis</i>: Conduct full coverage pedestrian survey no sooner than two years before construction. Fence the pima pineapple cactus identified on May 21, 2004, as well as any other pima pineapple cactus that is identified during the survey to avoid impact during project construction. Avoid any other pima pineapple cactus that may be identified during construction to the extent possible. Mitigate any impacted pima pineapple cacti through compensation or off-site habitat banking.</li> <li>• <i>Abert's Towhee and Rufous winged Sparrow</i>: Schedule construction outside breeding season (March – April and June – August) wherever possible.</li> <li>• <i>Swainson's Hawk</i>: Schedule construction outside the breeding season (March-April) where possible to avoid nesting efforts.</li> <li>• <i>Merriam's Mouse</i>: Impacts to xeroriparian washes, which serve as breeding habitat for this species, should be avoided to the maximum extent possible.</li> <li>• <i>Needle-spined pineapple cactus</i>: Translocate impacted individuals to a similar microsite outside of the disturbance footprint.</li> <li>• Preserve in place all native plants to the extent practicable</li> <li>• Relocate on-site healthy, viable trees, shrubs, yuccas, and barrel cactuses to the extent practicable</li> <li>• Coordinate with Arizona Department of Agriculture (AZDA) for other potential salvage efforts.</li> <li>• Implement a revegetation plan</li> </ul>	U.S. Fish and Wildlife Service Arizona Game and Fish Department	Pima County Department of Transportation and Contractor AZDA
<b>Drainage/Section 401/404, Section 402/Clean Water Act Sections 404 and 401 and Section 402</b>			
<u>Re 401/404</u> : No impacts to “waters of the United States.”	No permit required.	Pima County submitted a request for determination on jurisdictional delineation to the Army Corps of Engineers on May 9, 2005. On July 5, 2005, the Army Corps replied that the agency had determined that it did not have jurisdiction in the project site and, therefore, no 404 permit was needed.	—
<u>Re 402</u> : Disturbance of one acre or more.	In 2002, Arizona received authorization from the Environmental Protection Agency (EPA) to operate the National Pollutant Discharge Elimination System Permit Program (Section 402 of the Clean Water Act) on the state level. Because one or more acres will be disturbed by this project, an Arizona Pollutant Discharge Elimination System (AZPDES) permit will be required, including a Stormwater Pollution Prevention Plan (SWPPP), a Notice of Intent (NOI), and a Notice of Termination (NOT). The SWPPP will identify measures to be undertaken to minimize pollutant discharge from the site.	Arizona Department of Environmental Quality	Pima County and Contractor will be responsible for submitting Notices of Intent (NOIs) and Notices of Termination (NOTs) to the Arizona Department of Environmental Quality (ADEQ).
<b>Floodplain</b>			
Disturbance of 1/3 acre of riparian area at each of two drainage crossings.	If a floodplain permit is needed, a mitigation plan will be developed.	Pima County Floodplain Division and ADEQ.	Pima County Department of Transportation

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Air Quality</b>			
<p>Because this project is not a roadway capacity project (i.e., no additional through lanes), the project is not anticipated to affect air quality adversely in the long-term.</p> <p>During construction, disturbances equal to or over one acre.</p>	<p>No long-term mitigation measures proposed.</p> <p>Air Quality Activity Permit from Pima County Department of Environmental Quality (PDEQ) will be required since an acre or more will be disturbed. Short-term measures to mitigate air quality during construction are identified in this table under "Construction."</p>	<p>PDEQ</p>	<p>Contractor</p>
<b>Noise</b>			
<p>Because this project is not a roadway capacity project (i.e., no additional through lanes), the project is not anticipated to affect noise quality adversely in the long-term. Some noise will be generated during construction activities.</p>	<p>No long-term mitigation measures proposed.</p> <p>In keeping with general practice, Pima County will use rubberized asphalt to help address overall vehicular noise levels.</p> <p>Short-term measures to mitigate noise during construction are identified under "Construction."</p>	<p>Pima County Department of Environmental Quality Vail School District  Roman Catholic Church Diocese</p>	<p>Contractor</p>
<b>Utilities</b>			
<p>Twelve utilities have been identified as having facilities within the project limits. Some facilities will need to be adjusted and some relocated as a consequence of this project.</p>	<p>Continue to work with the utilities to determine what will need to be relocated and who is responsible for cost and work.</p> <p>Pima County is talking to Tucson Electric Power and Qwest about the possibility of consolidating their lines on one set of poles on one side of the road if economically feasible.</p>	<p>The following utilities are being consulted with: Cox Communication; El Paso Natural Gas; Kinder-Morgan Energy; Level 3 Communications; MCI/Worldcom; Qwest; Southwest Gas; Tucson Electric Power; Union Pacific Railroad; Vail School District; Vail Water Company; and Wiltel Communications.</p>	<p>Pima County Department of Transportation and Involved Utilities</p>
<b>Hazardous Materials</b>			
<p>A Preliminary Initial Site Assessment (PISA) was undertaken. No evidence of recognized hazardous environmental conditions was found within the surveyed area.</p>	<p>No mitigation measures are recommended at this time. If, however, suspected hazardous materials are encountered during construction, work shall cease at that location and the County Engineer will be contacted to arrange for proper assessment, treatment, or disposal of those materials.</p>	<p>The PISA was conducted in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice. No direct coordination or consultation was identified as needed or required.</p>	<p>Contractor</p>

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Construction</b>			
<p>Disruption of traffic flow Generation of dust; generation of noise</p>	<p>Standard industry practices will be utilized during construction activities. These include, but are not limited to:</p> <p><i>For traffic flow</i> : Establishment of appropriate traffic controls needed to maintain an adequate flow of traffic, and maintenance of access to crossroads and adjacent properties, with particular emphasis on traffic, pedestrian, and bicycle flow and access to the Acacia Elementary School and Old Vail Middle School.</p> <p><i>For construction-related air quality impacts:</i> Use of water or dust palliatives on exposed dirt areas; limitation of vehicular speeds on unpaved surface; covering of stockpiles; removal of particulate matter from roads and other paved areas to prevent water entrainment and from building or work areas to prevent particulates from becoming airborne</p> <p><i>For construction-related noise impacts:</i> Restriction of large equipment use to hours between 6:00 am and 6:00 pm. Night work may occur if Pima County determines that such issues as cost, safety, traffic flow, etc., are best served by doing so.</p> <p>In addition, Pima County Department of Transportation will work with the Vail School District and the Roman Catholic Church Diocese to develop a plan that will minimize construction noise effects to the schools and church.</p>	<p>Vail School District</p>	<p>Contractor</p>
<b>Cultural Resources</b>			
<p>A Cultural Resource Survey was conducted. Potential impacts to the historic adobe building on the west side of Colossal Cave Road between the tracks were identified. A Building Assessment Report identified the following potential issues:</p>	<p>Potential measures to shore up the historic adobe building are under review.</p> <p>Construction methods to limit vibration in the area of the historic adobe building will be considered.</p> <p>If previously unidentified cultural resources are encountered during 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. The County will immediately arrange for the proper treatment of the resources.</p>	<p>State Historic Preservation Officer.</p> <p>Also coordination with owner of the historic adobe building and with the Roman Catholic Church Diocese as owner of the historic Shrine of Santa Rita property.</p>	<p>Pima County Department of Transportation will be responsible for assisting with building stabilization efforts where the building overlaps the ROW.</p> <p>Building owner will be responsible for stabilization of the portion of the building on private property.</p> <p>Contractor will be responsible for notifying the County if any unidentified cultural resources are encountered during construction.</p>
<b>Visual Resources</b>			
<p>A visual quality evaluation was undertaken. Potential impacts include the additional asphalt that will have some effect on near and intermediate views. The greatest impact, however, will not be from roadway improvements, but rather from ongoing building along the roadway, which diverts attention away from the longer scenic views.</p>	<p>Design should allow for continued prominence of the mountain views, especially the nearby Santa Catalina Mountains and Rincon Mountains.</p> <p>Near an intermediate views will be improved through the addition of sidewalk and multi-use path, which will better define the roadway edge, reduce the expanse of asphalt created by the combination of pedestrian and roadway facilities, and through the provision of some unifying elements that will signal to a roadway, sidewalk, or multi-use path user that they are in the town of Vail. Such elements may include signature planting groupings, iconic signage or plant materials, and picturesque pedestrian facilities.</p> <p>Special treatment is planned for the historic town center, including entryways, split rail fences along property lines, and pedestrian nodes with benches and historic information.</p>	<p>Pima County Cultural Resources</p> <p>Treatment of visual issues will also be a primary issue for coordination with members of the project's Citizen Advisory Committee.</p>	<p>Pima County Department of Transportation Contractor</p>

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Right-of-Way Acquisition and Displacement</b>			
New ROW will need to be acquired from the Arizona State Land Department, as well as from three parcels owned by public entities, and five parcels owned by private entities. These ROW acquisitions will not require any displacements.	ROW reimbursement	Arizona State Land Department  Once design plans are confirmed, property owners from whom ROW is needed will be contacted by the Pima County Real Estate Division.	Pima County Department of Transportation
<b>Temporary and Permanent Access and Parking Impacts</b>			
In some areas driveways will be consolidated and in some areas where there is no controlled access, driveways will be defined.  Current crosswalks at Trotter Sisters Drive and Old Vail Middle School will be replaced as part of the reconstruction.	No impacts to any designated parking spaces are anticipated.  <i>Short-term Adjacent Property Access:</i> Access will be maintained to all land uses within the project limits during project construction.  <i>Short-term Crosswalk-related Impacts:</i> Pima County Department of Transportation will work with the Vail School District to continue to maintain the crosswalks during construction.  <i>Permanent Access:</i> The school crosswalk at Trotter Sisters Drive and the crosswalk at the Old Vail Middle School will be replaced.  <i>Long-term Access:</i> Driveway access will be improved to reduce potential vehicle and bus conflict points at the Acacia Elementary School. Pedestrian access will be improved through the introduction of a sidewalk on the east side of the roadway and a multiuse path on the west side.	All property owners (i.e., Vail School District, Roman Catholic Church Diocese, business owners and tenants, residents)	Pima County Department of Transportation Contractor
<b>Neighborhood Disruption</b>			
The project will have short-term impacts on the surrounding neighborhood during construction, particularly in terms of moving through and across the project site. Long-term impacts will be positive, providing an upgraded roadway, new pedestrian and bicycle facilities, and landscaping to help enhance views, create entryways, and pedestrian nodes.	Mitigation for short-term construction projects is discussed above under “Construction” and access issues are discussed under “Temporary and Permanent Parking and Access impacts”	—	Contractor
<b>Parks and Recreational Areas</b>			
There are no public parks in the immediate vicinity of the project. The Acacia Elementary School and Old Vail Middle School play grounds	—	—	—
<b>Consistency with Other Plans</b>			
The project is included in the current Pima County Development Impact Fee Ordinance (effective 7/7/03), and is designated as an Environmentally Sensitive Roadway (ESR), which is subject to the ESR Design Guidelines, included as Chapter 4 of the Pima County Roadway Design Manual, revised December 2003.	The biological and cultural mitigation measures are consistent with the ESR guidelines, which in turn are consistent with the Sonoran Land Use Conservation Plan.	—	Pima County Department of Transportation.

## **Public Involvement**

The public involvement effort for this project is based on the *Colossal Cave Road Improvement Project Public Involvement Plan* (PIP), prepared by Parsons Brinckerhoff, for Pima County, June 21, 2004. The PIP was developed in compliance with the Pima County Public Involvement Ordinance, and on Chapter 3, Public Participation, and Chapter 4, ESR Design Guidelines, of the RDM. The public involvement effort has two key elements: meetings of and document review by the Citizen Advisory Committee (CAC), and mailings to and open houses with the general public.

The CAC is made up of six citizens representing interests in the Vail community. These members were selected by Pima County through a public nomination process. The chairperson of the CAC also attended the charrette sessions discussed under Agency Coordination above.

Key issues identified through the public involvement process to date include the need to provide pedestrian and bicycle facilities along Colossal Cave Road, particularly for children attending the elementary and middle school within the project limits; the need for sensitivity to the character of the town of Vail between the tracks, including the historic adobe building and the historic Shrine of the Santa Rita; and the identification of areas of water retention during rain. The recommended alternative includes design features that address these issues.

Table ES-2 presents a summary of public involvement activities undertaken since the project began.

**Table ES-2  
Public Involvement Summary as of July 2005**

<b>Public Activities</b>	<b>Date, Time, and Location or Date and Means of Distribution</b>	<b>Notification</b>	<b>Attendance or Distribution Numbers, or Coverage</b>	<b>Methods of Public Input Documentation and Response</b>
<i>Project Mailing List</i>	NA	NA	590 residences and businesses within approx. ½ mile of project area	NA
<i>CAC Formation</i>	NA	CAC membership applications distributed with Public Open House notifications mailed in September 2004. Applications distributed at Public Open House held on June 23, 2004.	Pima County reviewed nominations and selected six citizens to serve on CAC.	NA
<i>CAC Meetings</i>	<i>Mtg. #1:</i> Wednesday, August 25, 2004, 6 – 7 p.m., Acacia Elementary School, Vail. <i>Mtg. #2:</i> December 15, 2004, Acacia Elementary School.	<i>Mtg. 1:</i> Letters sent August 9, 2005 <i>Mtg. 2:</i> Letters sent November 26, 2005	<i>Mtg. 1:</i> All CAC members attended. <i>Mtg. 2:</i> Majority of CAC members attended	Comments recorded during meeting and considered during design concept development.
<i>CAC Reports</i>	None to date.	—	—	—
<i>Public Open House(s)</i>	Wednesday, June 23, 2004, 6 – 8 p.m., Acacia Elementary School, Vail	Notification mailed to project mailing list (see above). Public meeting notice posted on Vail Post Office bulletin board. Meeting notice published in <i>Arizona Daily Star</i> and <i>Tucson Citizen</i> on June 3, 2004	11 people signed in	Comments recorded during meeting and considered during design concept development.
<i>Public Meeting with Adjacent Businesses</i>	December 15, 2004, Vail School District Offices	Letters sent to adjacent businesses and institutions, November 26, 2005	Attendees included representatives of commercial businesses, Vail School District, and Shrine of Santa Rita.	Comments recorded during meeting and considered during design concept development.
<i>Document Review</i>	<i>Colossal Cave Road Improvement Project Design Concept Report</i> provided to Design Charrette participants, including CAC chair.	DCR mailed to CAC chair.	—	Comments provided during Design Follow-up Charrette.
<i>Project Website</i>	Developed early in the project. The address is: <a href="http://www.roadprojects.pima.gov/colossalCave/">www.roadprojects.pima.gov/colossalCave/</a> .	Website address is included in mailings and handouts regarding the project.	—	Provides email link with Pima County's Community Relations office.
<i>Design Charrette</i>	Day I, Tuesday, September 28, 2004, 8:00 a.m. – Noon, Woods Memorial Library, Tucson  Day 2, Wednesday, September 29, 2004, 1:30 – 5:00 p.m., Woods Memorial Library, Tucson	E-mail or letter, early September 2004  Subsequent to notification, briefing notebook distributed	Day 1: 29 signed in, including community representatives. Day 2: 25 signed in, including community representatives.	CAC chair attended and participated in the development of alternatives for study during the design concept development phase. Comments, concept suggestions, and alternative preferences were documented in a report titled <i>Colossal Cave Road Improvement Design Charrette Summary</i> , prepared by Parsons Brinckerhoff, November 2004.
<i>Partnering and Follow-up Charrette</i>	February 15, 2005, all day, Manning House, Tucson	Letters mailed early February 2005.	28 signed in, including community representatives.	CAC chair attended and contributed to the discussion on recommended design concept. Comments and issues for further study were documented in a report titled <i>Design "Partnering" / DCR Charrette Whorkshop Report</i> , prepared by Russell G. Hanson, Facilitator, revised copy – March 3, 2005.

## ACRONYMS AND ABBREVIATIONS

<b>ADA</b>	Americans with Disabilities Act
<b>ADEQ</b>	Arizona Department of Environmental Quality
<b>AGFD</b>	Arizona Game and Fish Department
<b>ASTM</b>	American Society for Testing and Materials
<b>AZDA</b>	Arizona Department of Agriculture
<b>AZPDES</b>	Arizona Pollution Discharge Elimination System
<b>CAC</b>	Citizen Advisory Committee
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act
<b>CORRACTS</b>	Corrective Active Tracking
<b>DCR</b>	Design Concept Report
<b>DOT</b>	Department of Transportation
<b>EAMR</b>	Environmental Assessment and Mitigation Report
<b>EPA</b>	Environmental Protection Agency
<b>ESA</b>	Endangered Species Act
<b>ESR</b>	Environmentally Sensitive Roadway
<b>FEMA</b>	Federal Emergency Management Act
<b>FHWA</b>	Federal Highway Administration
<b>FIRM</b>	Flood Insurance Rate Maps
<b>HDMS</b>	Heritage Data Management System
<b>LUST</b>	Leaking Underground Storage Tank
<b>MS&amp;R</b>	Major Streets & Routes
<b>NAAQS</b>	National Ambient Air Quality Standards
<b>NPPO</b>	Native Plant Protection Ordinance
<b>PAG</b>	Pima Association of Governments
<b>PIP</b>	Public Involvement Plan
<b>RCBC</b>	Reinforced Concrete Box Culvert
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>RDM</b>	Roadway Design Manual
<b>ROW</b>	Right-of-Way
<b>SDCP</b>	Sonoran Desert Conservation Plan
<b>SHPO</b>	State Historic Preservation Office
<b>TCE</b>	Temporary Construction Easement
<b>TEP</b>	Tucson Electric Power
<b>TSD</b>	Transport, Storage, and Disposal
<b>UPRR</b>	Union Pacific Railroad
<b>USFWS</b>	United State Fish and Wildlife Service
<b>UST</b>	Underground Storage Tank

## TABLE OF CONTENTS

### EAMR Volume I

	<u>Page</u>
EXECUTIVE SUMMARY .....	ES-1
ACRONYMS AND ABBREVIATIONS	
<b>CHAPTER</b>	
1. BACKGROUND .....	1
2. PROJECT PURPOSE AND NEED.....	4
3. PROJECT SETTING .....	5
4. PROPOSED PROJECT .....	9
5. ENVIRONMENTAL SCREENING .....	12
6. ENVIRONMENTAL ASSESSMENT AND MITIGATION.....	13
7. AGENCY COORDINATION .....	36
8. PUBLIC PARTICIPATION .....	45
9. CONCLUSION AND RECOMMENDATIONS .....	47
<b>TABLES</b>	
Table ES-1 Impact and Mitigation Summary .....	ES-5
Table ES-2 Public Involvement Summary as of July 2005 .....	ES-10
Table 1 Ten Species of Special Concern Status.....	15
Table 2 Native Plant Inventory Summary.....	16
Table 3 Vail Road Revegetation Seed mix .....	18
Table 4 Existing Utilities within the Project Limits and Relocation Needs .....	23
Table 5 Proposed Right-of-Way Acquisitions .....	32
Table 6 Proposed Temporary Construction Easements .....	32
Table 7 Proposed UPRR Easements .....	32
Table 8 Design Charrette Suggestions .....	39
Table 9 Key Criteria for Consideration.....	39
Table 10 Profile and Cross Section Preference Ranking .....	41
Table 11 Environmental Assessment and Mitigation Report Impact and Mitigation Summary .....	48

Table 12 Mitigation Measures Costs .....50

**FIGURES**

Figure ES-1 Project Location and Area Maps.....ES-2  
 Figure 1 Project Location and Area Maps.....2  
 Figure 2 The Setting in Pictures .....3  
 Figure 3 Zoning Project Vicinity.....7  
 Figure 4 Proposed Project Improvements .....10  
 Figure 5 Recommended Cross Section .....11  
 Figure 6 Pima County Sonoran Desert Conservation Plan Conservation  
 Lands System Categories in Vicinity of Project Site.....14  
 Figure 7 Floodplain Designation in Project Area.....20  
 Figure 8 Drainage Crossing Locations .....21  
 Figure 9 Key Observation Points .....30  
 Figure 10 ESR Process .....36

**EAMR Volume II**

**APPENDICES**

Appendix A Environmental Screening Matrix  
 Appendix B *Biological Evaluation of the Colossal Cave Road Improvement Project*,  
 prepared by SAGE Landscape Architecture & Environmental, Inc.,  
 July 22, 2004 and *Environmentally Sensitive Roadway Vegetation Inventory*  
*Report*, prepared by SAGE Landscape Architecture & Environmental, Inc.,  
 July 21, 2005  
 Appendix C Letter re U.S. Army Corps of Engineers (ACOE) Jurisdiction Determination,  
 from Marjorie E. Blaine, Senior Project Manager, Arizona Section,  
 Regulatory Branch, ACOE, July 5, 2005  
 Appendix D *Preliminary Initial Site Assessment: Vail/Colossal Cave Road Roadway*  
*Improvements, 12900 East to 13400 East Colossal Cave Road, Vail, Arizona*,  
 prepared by Aplomado Environmental LLC, July 13, 2005  
 Appendix E *Environmentally Sensitive Roadway Viewshed Sensitivity Report*, prepared by  
 SAGE Landscape Architecture & Environmental, Inc., July 21, 2005  
 Appendix F *An Archaeological and Historical Assessment of Colossal Cave Road near*  
*Vail, Pima County, Arizona*, prepared by Desert Archaeology, Inc., March 29,  
 2005

## **CHAPTER 1 BACKGROUND**

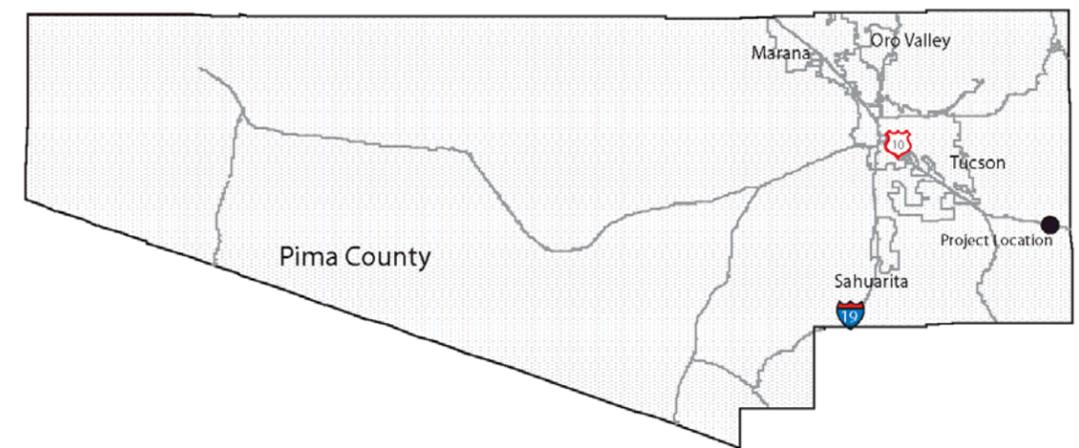
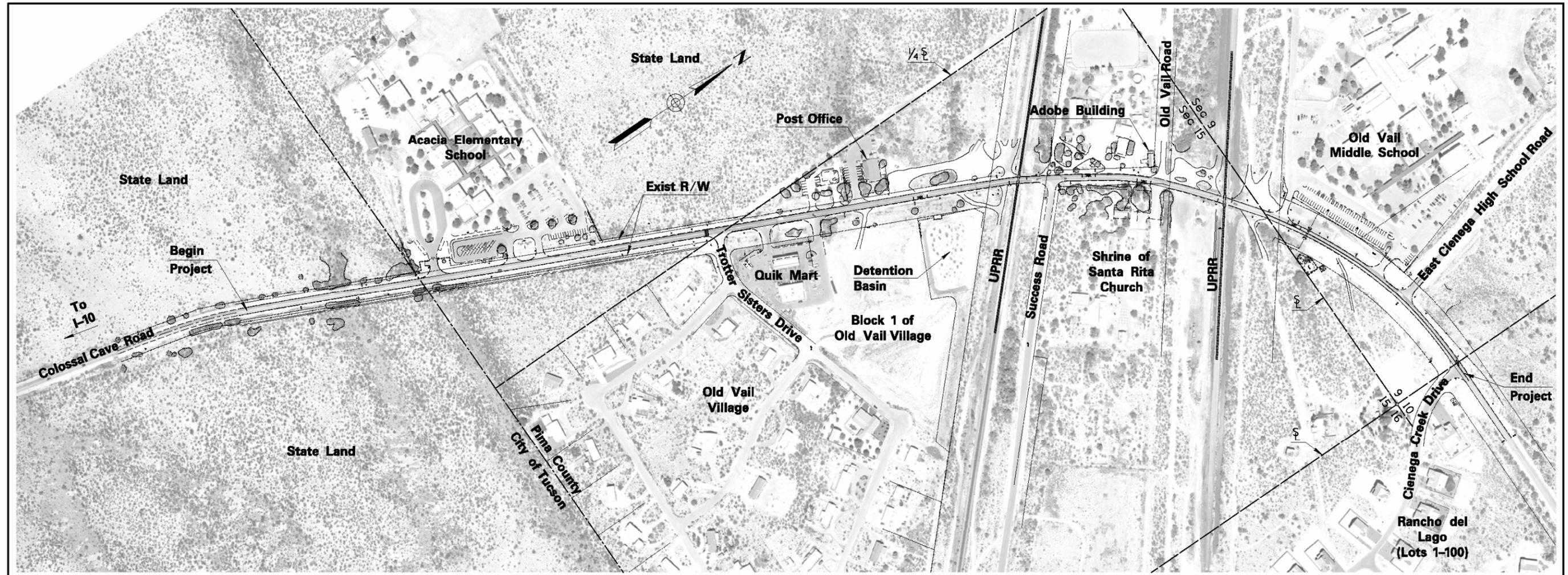
The Colossal Cave Road Improvement Project: Acacia Elementary School to Old Vail Middle School, located in Vail, Arizona, is included in the current Pima County Development Impact Fee Ordinance (effective 7/7/2003) and assigned Work Order Number 4VRISP. The construction cost of the project is estimated at \$2,865,800, excluding right-of-way (ROW), and is to be funded through impact fees that are collected from ongoing development in the project area. The start of construction is dependent on the rate of impact fee collection, but is currently estimated to begin in Fiscal Year 2011.

The recommended project design is one that meets the operational improvements sought when the project was approved by the Board of Supervisors within the goals of the Environmentally Sensitive Roadway (ESR) Design Guidelines. The guidelines were completed and adopted by Pima County subsequent to the project's approval.

The project segment begins approximately 600 feet south of the Acacia Elementary School and ends just east of the Old Vail Middle School. Figure 1 provides maps showing the general and specific location of the project, while Figure 2 presents photographs taken along the project segment.

Colossal Cave Road is classified as a Major Collector – Rural according to the Pima County Functional Classification, and is designated as a Scenic Route in the Pima County Major Streets and Scenic Routes (MS & R) Plan. Pima County has further designated this road as an ESR. As such, the road is subject to the ESR Design Guidelines, which are included as Chapter 4 of the *Pima County Roadway Design Manual (RDM)*, revised December 2003.

Figure 1  
Project Location and Area Maps



**Figure 2**  
**The Setting in Pictures: Traveling north along the Colossal Cave Project Segment**



1. Looking north along Colossal Cave Road toward project segment



4. U. S. Post Office across from the Quik Mart



7. Vail Feed Store, a local business on the west side of the road north of the southern tracks. Sign in front of store refers to Vail as the "the town between the tracks."



10. Union Pacific Railroad crossing north of the town of Vail



2. Acacia Elementary School on the west side of Colossal Cave Road at approximately the southern project limit



5. Detention basin north of Quik Mart



8. Historic Shrine of Santa Rita between the railroad tracks adjacent to the project segment on the east side



11. Old Vail Middle School on the west side of Colossal Cave Road at approximately the northern project limit



3. Quik Mart north of Acacia Elementary School on the east side of Colossal Cave Road



5. Union Pacific Railroad crossing south of the old town center



9. Historic adobe building between the railroad tracks west side of Colossal Cave Road.



12. View from northern project limit

## **CHAPTER 2**

### **PROJECT PURPOSE AND NEED**

The purpose of this Pima County project is to improve traffic operations within the limits of available funding and within the context of the ESR design and mitigation process. Based on anticipated funding and sensitivity to the existing features and uses in the project area, the proposed project will include traffic operational improvements consisting of a center two-way left-turn lane that will widen the existing two-lane section to three lanes in a majority of the project segment. This addition of the turn lane will improve traffic flow by eliminating stop delays in the through lanes by drivers turning left. Project improvements will also include pedestrian facilities in conformance with guidelines of the Americans with Disabilities Act (ADA), bicycle facilities, landscaping and other streetscape amenities, drainage upgrades, and utility relocations.

The project is needed to address turning movement related conflicts within the project segment, primarily in the area of the Acacia Elementary School and the Old Vail Middle School. With increased growth in the area, more businesses are locating south and north of the historic town increasing the number of left turns. Also needed along the project segment with two adjacent schools and an increasing number of retail businesses are pedestrian facilities to offer school children and others a safer alternative to walking on the shoulder or in the road.

## **CHAPTER 3**

### **PROJECT SETTING**

The project is located on Colossal Cave Road, in the unincorporated community of Vail, Pima County, Arizona, and within Sections 9, 10, and 16 of Township 16S, Range 16E. The project segment begins approximately 600 feet south of Acacia Elementary School and extends approximately 4,700 feet (0.9 mile) along Colossal Cave Road, crosses two Union Pacific Railroad (UPRR) tracks, and ends just north of the intersection with East Cienega High School Drive. Several public facilities are located on the west side of Colossal Cave Road within the project limits. Acacia Elementary School and a United States (U.S.) Post Office are located south of the southern UPRR tracks, while Old Vail Middle School is north of the northern tracks. Within the project area, the existing Pima County ROW varies from approximately 60 feet to 150 feet. Figure 1 in Chapter 1 provides a detailed map of the project area, and Figure 2 in Chapter 1 provides photographic views along the project segment.

#### **Topography and Terrain**

The project is located in rolling terrain between Interstate-10 (I-10) and Pantano Wash and west of Colossal Cave Mountain Park and Cienega Creek Nature Preserve. Elevations range from approximately 3,240 feet at the southern limit to approximately 3,220 feet at the northern limit.

#### **Existing Roadway**

Existing Colossal Cave Road consists of two 11-foot lanes, each with one-foot paved shoulders, totaling 24 feet of asphalt pavement. Outside the paved shoulders, there are graded shoulders, which vary in width from six to nine feet. The posted speed limit is 35 miles per hour (mph) throughout the project segment, transitioning to 40 mph just beyond the southern project limit.

Colossal Cave Road has limited roadway features within the project limits. There are no bikeways, no sidewalks or other pedestrian facilities, no ADA features, no curb and gutter sections, and no landscaping within the Pima County ROW. The UPRR track crossings are, however, one feature that clearly affects traffic operations. The tracks are located midway within the project limits and are separated by approximately 750 feet. Each crossing consists of one track, and each crossing has advance warning signs, pavement markings, and flashing-light signals and gates. The roadway approaches to the crossings from the south are substandard, as is the crest vertical curve across the southern UPRR crossing. There are reports of construction vehicles with low undercarriage clearances bottoming out crossing the tracks.

Colossal Cave Road does not have any signalized intersections or roadway lighting. All of the side road approaches to Colossal Cave Road are stop controlled. There are flashing light signals and gates at the two railroad crossings.

#### **Existing Right-of-way**

The existing ROW width along Colossal Cave Road within the project limits varies in width. At the southern end of the project, the ROW is at its narrowest with a width of 60 feet centered on

the roadway. This section continues from the beginning of the project northward past the Acacia Elementary School to Trotter Sisters Drive, which is just south of Quik Mart (a combination gas station-convenience store). Through this area, Colossal Cave Road crosses State Trust land. North of Trotter Sisters Drive, there is an additional 75 feet of ROW on the east side of the road in front of the Quik Mart for a total ROW width of 105 feet. This asymmetrical ROW continues northward to the southern UPRR crossing. UPRR has a 200-foot ROW for the southern track crossing.

Success Road crosses Colossal Cave Road just north of the southern UPRR tracks and has a 50-foot ROW abutting the north side of the UPRR ROW. North of Success Road, Colossal Cave Road resumes its 60-foot-wide ROW where Old Vail Road intersects with Colossal Cave Road on the west side. In the vicinity of Old Vail Road, Colossal Cave Road turns to the right. Pima County ROW, however, remains linear. The result is that a portion of Colossal Cave Road encroaches on the Shrine of Santa Rita in the Desert property (hereafter referred to as Shrine of Santa Rita). The Roman Catholic Church Diocese, owner of the Shrine property, is in the process of expanding its facilities and has prepared and submitted a development plan to Pima County Development Services for review. The development plans include ROW dedication along Colossal Cave Road, so that the roadway will no longer encroach on church property. Due to delays in the progress of the development plans, this dedication, and any additional ROW acquisition, will become part of the Colossal Cave Road project.

North of Old Vail Road, UPRR has a 400-foot ROW crossing Colossal Cave Road. The ROW along Colossal Cave Road north of the 400-foot UPRR ROW is 150 feet, centered on Colossal Cave Road. This width continues through the end of the project north of the Old Vail Middle School and East Cienega High School Drive.

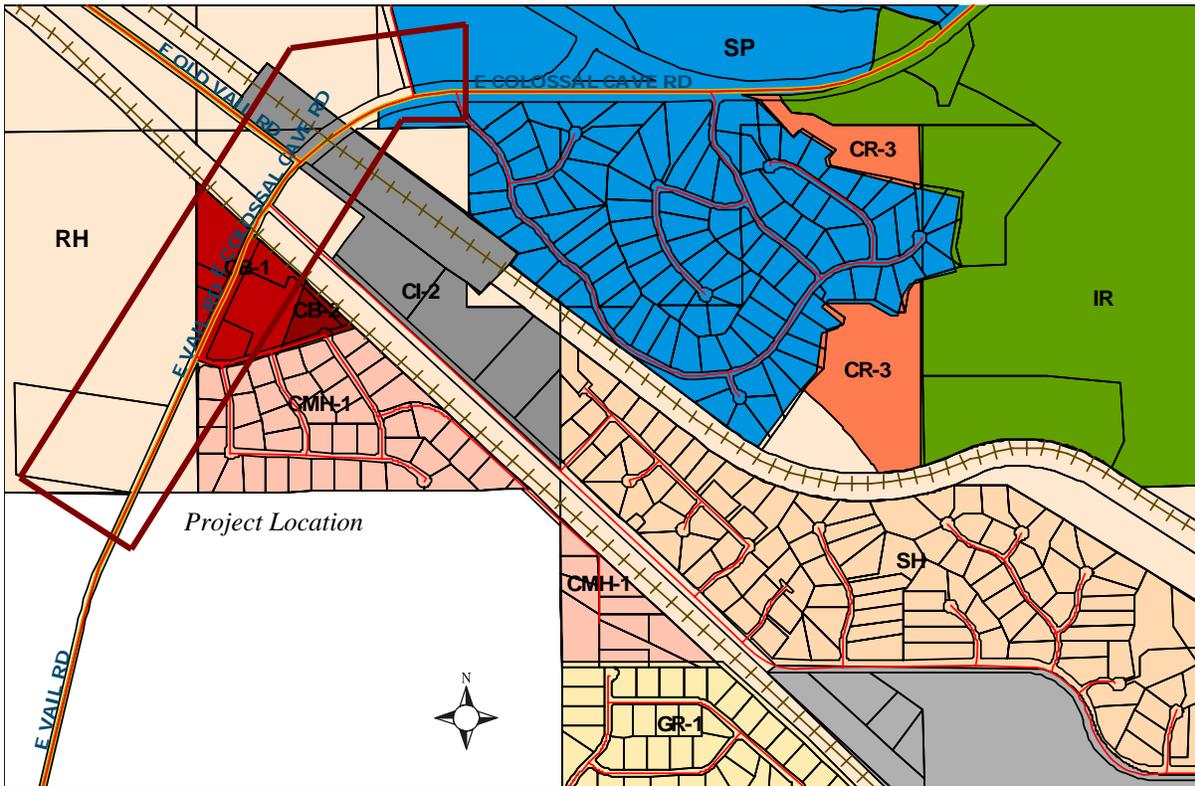
### **Land Use, Zoning, and Planned Development**

**Land Use:** The land uses adjacent to the project area are primarily commercial, with some institutional uses. The Acacia Elementary School and the U.S. Post Office are located on the west side of Colossal Cave Road south of the southern UPRR crossing, and the Old Vail Middle School is located on the west side of the road north of the northern UPRR crossing. Other commercial uses, such as a local feed store and gift store, are located on the west side of the road between the tracks, and the local convenience store is on the east side of the road south of the tracks. The Shrine of Santa Rita is located on the east side of the road between the tracks. Access to a subdivision, called Old Vail, is located off Colossal Cave Road at Trotter Sisters Drive south of the southern UPRR tracks. Extensive undeveloped land, owned by the Arizona State Land Department, is located south and west of the project area.

**Zoning:** Zoning in the project area and within the project limits is mixed as can be seen in Figure 3. Within the City of Tucson limits at the southern end of the project, the land on the east and west sides of the road is zoned Rural Homestead. Moving north into Pima County, the county zoning on the east side of Colossal Cave Road from south to north is County Manufactured and Mobile Homes, Local Business, and General Business south of the southern UPRR tracks; Rural Homestead between the tracks; and General Industrial just north of the northern tracks. The majority of land on the west side of Colossal Cave Road is zoned Rural

Homestead. Other zoning on the west side includes Local Business just south of the southern UPRR tracks and General Industrial just north of the UPRR northern tracks. Beyond the immediate site are some additional zones, including Specific Plan, which covers the Rancho de Lago residential complex.

**Figure 3**  
**Zoning in Project Vicinity**



**Legend**

CMH-1 / Pink = County Manufactured and Mobile Homes  
 CB-1 / Red = Local Business  
 CB-2 / Dark Red = General Business  
 RH / Beige = Rural Homestead  
 C1-2 / Grey = General Industrial

SP / Blue = Specific Plan  
 CR-3 / Orange = Single Residence  
 SH / Tan = Suburban Homestead  
 IR / Green = Institutional Reserve  
 White = Within City of Tucson Limits  
 GR1 / Buff = Rural Residential

**Planned Development:** The area surrounding Vail is growing rapidly. In the project area, development currently under review by Pima County includes a site development northeast of East Cienega High School Drive and west of Colossal Cave Road near the northern project limit. This development is to include a realignment of Colossal Cave Road north of the roadway improvement covered in this report. The transition between these two roadway projects will be dependent on the timing of the proposed development.

As noted previously, Pima County Development Services also has received plans for the expansion of facilities on the Shrine of Santa Rita property on the east side of Colossal Cave Road between the tracks. Additionally, there is a detention basin planned for a property on the east side of the road just south of the southern most UPRR tracks.

On the west side of the road, opposite the detention basin, a parcel posted for sale has recently been purchased for development of a Circle K convenience store. The developer has contacted Pima County to obtain more information about this roadway improvement project.

## **CHAPTER 4 PROPOSED PROJECT**

The proposed project began with studying the addition of a turn lane within the project segment to move left-turning vehicles out of the through lanes and thus improve traffic operations. With that as the primary objective, additional goals and objectives were identified as the roadway project proceeded through the ESR and public involvement processes. These goals and objectives contribute to better pedestrian and bicycle movement and safety and to preserving and enhancing the surrounding environment. Figure 4 shows the major project improvements.

The recommended cross section includes two 11-foot travel lanes and six-foot paved shoulders throughout the length of the project. In addition, an 11-foot-wide, two-way center left-turn lane will be provided from the Acacia Elementary School to the southern UPRR crossing and from the northern UPRR crossing to the northern limits of the project. Figure 5 presents the proposed typical section with the turn lane.

There will be an ADA accessible sidewalk on the east side of Colossal Cave Road extending from the northern project limit to the southern project limit. On the west side of the road, there will be an ADA accessible multiuse path running from the northern project limit to the northern boundary of the Acacia Elementary School.

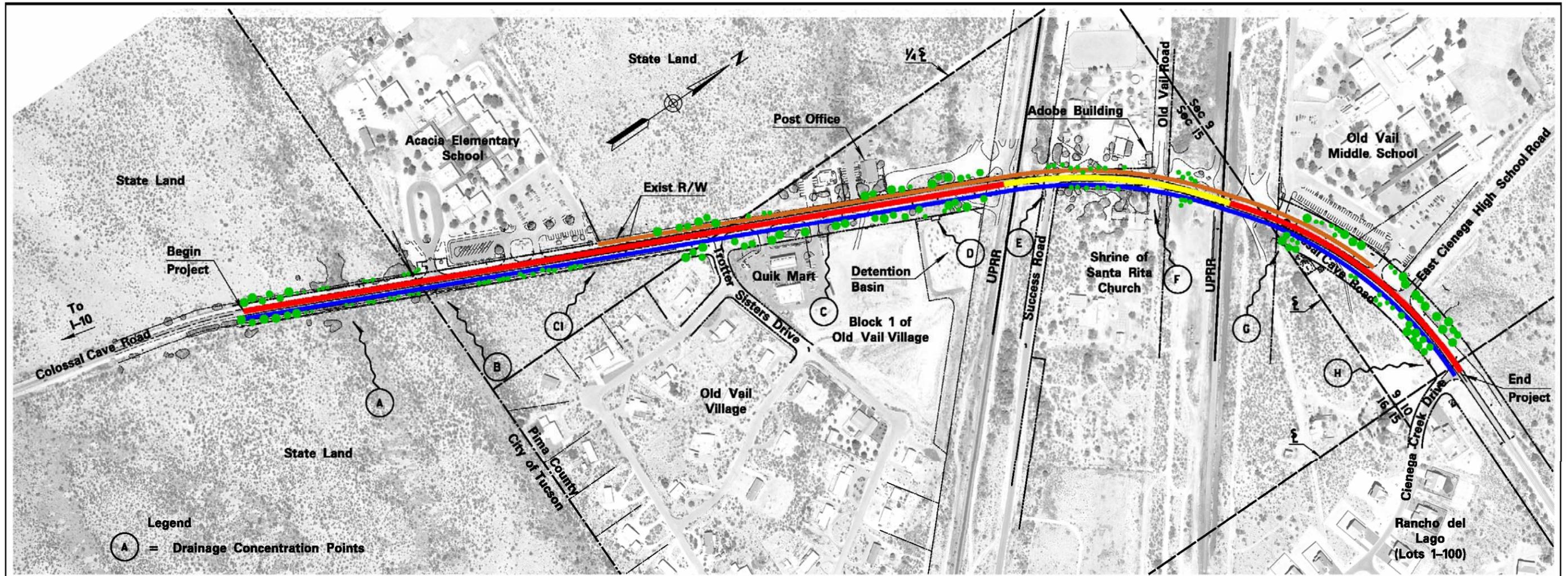
Two marked crosswalks will be constructed at the location of the two existing crosswalks within the project limits. One crosswalk will be at the Trotter Sisters Drive intersection with Colossal Cave Road just north of Acacia Elementary School and the other will be at the Old Vail Middle School.

Existing overhead electric and telephone lines are proposed to be combined on common poles on the east side of Colossal Cave Road if economically feasible. Currently, the telephone poles are located on the west side of the road and the electrical poles are on the east side.

Separate right-turn lanes will be added at each of the two Acacia Elementary School driveways to remove turning vehicles from the through traffic. One right-turn lane is proposed for the general access drive and the other for the school bus service drive. A separate right-turn lane will also be added to serve the Old Vail Middle School driveway that is accessed from Colossal Cave Road. Additionally Pima County is also talking to the U.S. Post Office about adding a mail drop-off area on the west side of Colossal Cave Road in front of the postal building.

Landscaping will be provided throughout the project, with special emphasis being placed on gateway treatments leading into Vail's historic center between the UPRR tracks. Other amenities being considered include split rail fencing and cultural informational nodes to further recognize the historic center.

Figure 4  
 Proposed Project Improvements



Legend

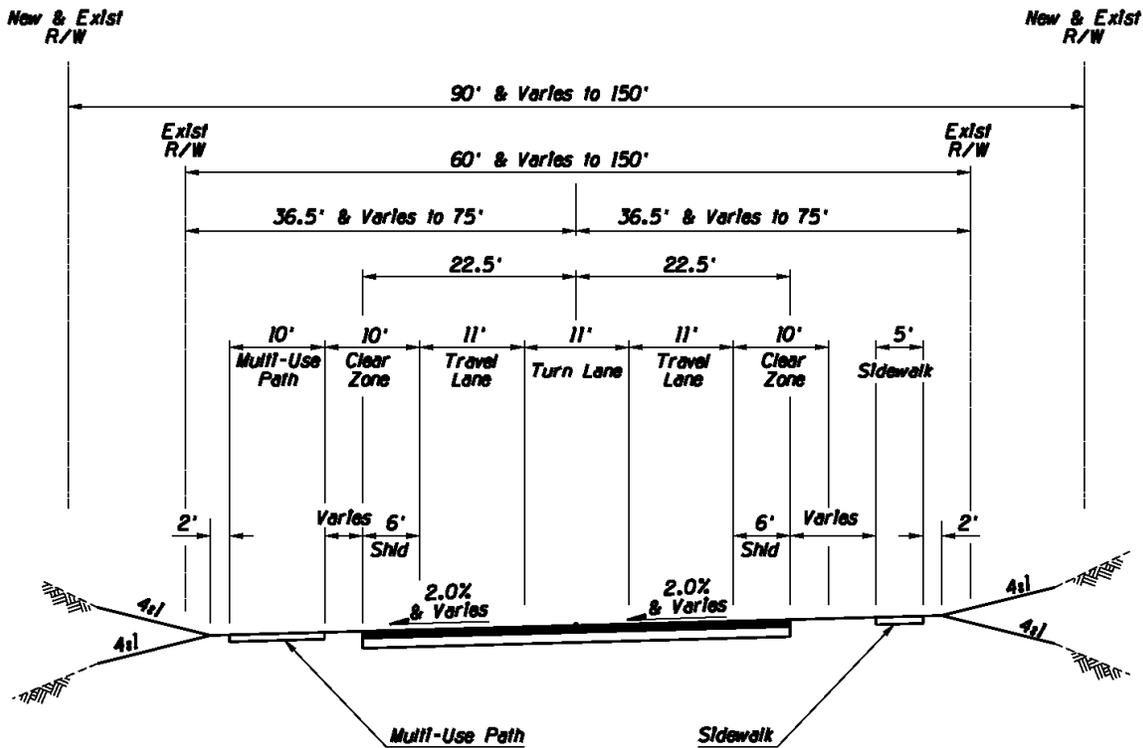
Red: 3-Lane Roadway	Brown: Multi-Use Path
Yellow: 2-Lane Roadway	Green: Landscaping
Blue: Sidewalk	

The currently posted speed of 35 mph will be maintained throughout the length of the project.

New culverts will be constructed at the existing drainage crossing locations where the roadway vertical profile will be raised. At those existing drainage crossing locations where the roadway vertical profile will not be raised, the existing drainage cross flows will continue to cross over the roadway. There will be no curb along any portion of the project, and a storm drain system will not be included.

Approximately 4.83 acres of new ROW are estimated to be required for the project. In addition, there is an estimated 0.54 acres for temporary construction easements (TCEs) and 2.46 acres of easements where Colossal Cave Road crosses the UPRR tracks. Three publicly owned and five privately owned parcels will be affected by these acquisitions.

**Figure 5**  
**Recommended Cross Section**  
**For Majority of Colossal Cave Road Project Segment\***



\*Typical Section for portion of project segment between Acacia Elementary School and the southern UPRR tracks and the portion between the UPRR tracks and Old Vail Middle School

## **CHAPTER 5**

### **ENVIRONMENTAL SCREENING**

The RDM specifies a process to identify potential environmental issues early in the planning process so that consideration can be given to proactive avoidance or minimization of adverse effects. The first step in the environmental review process is environmental screening in which the project area is reviewed for potential environmental issues. The environmental screening matrix, which was completed to provide an overview of potential impacts from the project, is presented as Appendix A.

As a designated Pima County Scenic Roadway, visual quality is a primary concern along this corridor. In addition, the environmental screening indicates the issues of particular sensitivity are the potential impacts of the project on two historic properties between the tracks: the Shrine of Santa Rita on the east side of Colossal Cave Road and the historic adobe building on the west side of the road.

## CHAPTER 6 ENVIRONMENTAL ASSESSMENT AND MITIGATION

This chapter describes existing conditions, adverse impacts, recommended mitigation, and any permits specifically associated with potential/environmental impacts. Because Colossal Cave Road is a Pima County designated scenic route, the assessment methodology used to address biological, visual, and cultural resources follows guidance presented in Chapter 4, ESR Guidelines, RDM, revised December 2003.

### NATURAL/PHYSICAL ENVIRONMENT

#### **Biological Resources**

SAGE Landscape Architecture & Environmental, Inc. (SAGE) prepared the biological evaluation report, dated July 22, 2004, for this project. The complete report is presented as Appendix B, which is included in Volume II of this Environmental Assessment and Mitigation Report (EAMR). Also included in Appendix B is the report SAGE prepared on vegetation replanting in accordance with the ESR guidelines.

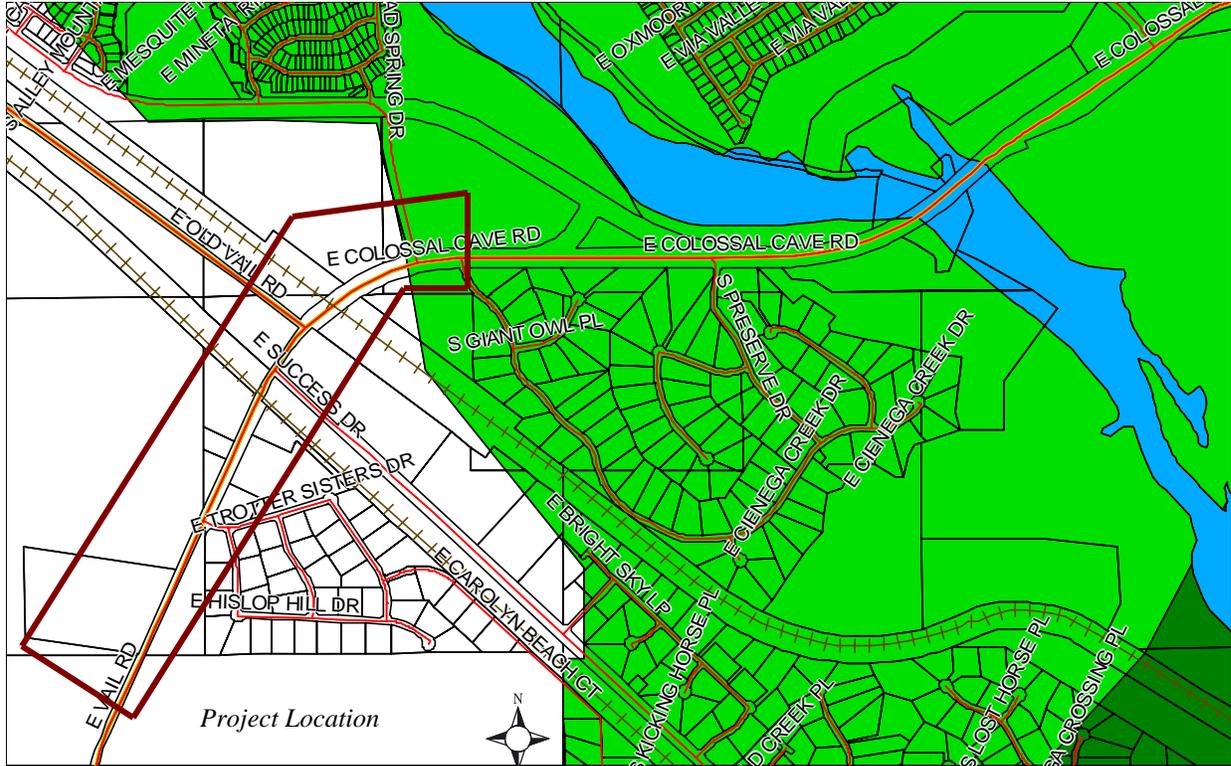
*Existing Conditions:* The project area is in the Basin and Range geophysical province, at the base of an alluvial fan on the southwest toe of the Rincon Mountains. Elevation ranges from approximately 3,240 feet above mean sea level at the southern limit to 3,220 feet near the northern limit. Soils vary through the roadway segment. The Colossal Cave Road project site is within the Pima County Sonoran Desert Conservation Plan (SDCP) Conservation Lands System (CLS) Rincon Southeast, Santa Rita subregion, and the Cienega-Rincon subarea. Roughly 80% of upland areas have been designated as low intensity urban land use, and the remainder as medium intensity rural. No special elements or critical landscape linkages occur in the project ROW.

Figure 6 shows the designated CLS categories in the project area. Approximately 400 feet of the northernmost portion of the roadway occurs in the Multiple Use Management Area category within the SDCP CLS. The remaining project area is outside CLS categorized areas, while Biological Core Management Areas occur roughly one mile south and east of the project. The site itself does not contain any Special Management Areas or Important Riparian Area, but the nearby Pantano Wash is classified as an Important Riparian Area.

The project is not in proposed park expansion or natural preserve areas, but does occur approximately 800 feet west of a buffer overlay zone, and approximately 0.5 miles from the Cienega Creek Natural Preserve to the east.

SAGE identified special status species that could potentially occur in the general project area. Special status species are those species of interest to federal, state, or local regulatory and resource management agencies with jurisdiction in or near the project area. The special status species reviewed were compiled from lists maintained and provided by the United States Fish and Wildlife Service (USFWS), the Arizona Game and Fish Department (AGFD), and Pima County.

**Figure 6**  
**Pima County Sonoran Desert Conservation Plan**  
**Conservation Lands System Categories in Vicinity of Project Site**



**Legend**

- White = Area Outside Conservation Lands Systems
- Green = Multiple Use Management Area
- Blue = Important Riparian Area
- Dark Green = Biological Core Management Area

Twenty-eight special status species were identified for consideration. After further review, SAGE determined that the project area contained suitable habitat to support only ten of those species. The ten species, presented in Table 1, were then evaluated in relation to the Colossal Cave Road project site.

As part of the ESR review process, SAGE also undertook a survey of native plants that are protected under both the Arizona Native Plant Law (Arizona Department of Agriculture, 1997) and Pima County Native Plant Preservation Ordinance (Pima County Code [PCC], 1998). This survey consisted of two samples. The first survey sample was strictly within the ROW. The second survey sample consisted of a 15-foot-wide buffer on each side of the ROW. This buffer extended into the adjacent property, and was conducted to better describe the natural plant community and to identify individual plants that might be affected by future changes or acquisitions for ROW.

**Table 1**  
**Ten Species of Special Concern Status**

Cactus ferruginous pygmy-owl <i>Glaucidium brasilianum cactorum</i>	Habitat includes Sonoran desert scrub and xeroriparian communities that occur along washes in the project area. Proposed project site occurs in pygmy-owl survey zone 2, which contains areas having moderate potential for pygmy-owl occupancy, but is outside the proposed critical habitat and draft recovery areas. Project area contains suitable pygmy-owl dispersal habitat along the washes. Pima County completed a pygmy-owl survey in 2002 and another in 2005.
Pima pineapple cactus <i>Coryphantha scheeri robustispina</i>	Known to occur within 75 feet of Colossal Cave Road ROW. Proposed project site has low to medium potential to contain pima pineapple cactus. No pima pineapple cacti were observed during a formal pima pineapple cactus survey conducted by a SAGE biologist May 21, 2004. On the same day, prior to the formal survey, however, one pima pineapple cactus was observed by SAGE staff.
<b>Priority Vulnerable Species</b>	
Abert's Towhee <i>Pipilo aberti</i>	Habitat includes mesquite bosques and cottonwood-willow associations. Xeroriparian washes in the project area provide suitable dispersal habitat. Dispersal habitat is present along xeroriparian washes traversed by the project area.
Ground snake <i>Sonora semiannulata</i>	Habitat includes sparsely vegetated desert flats. Suitable habitat occurs in the project area.
Merriam's Mouse <i>Peromyscus merriami</i>	Habitat includes mesquite bosques and mesquite woodland with dense undershrubs. Suitable habitat exists in xeroriparian communities traversed by the project area. Suitable breeding habitat occurs along xeroriparian washes traversed by the roadway.
Needle-spined pineapple cactus <i>Echinomastus erectocentrus erectocentrus</i>	Known to occur in the project ROW.
Rufous-winged sparrow <i>Aimophila carpalis</i>	Habitat includes Sonoran desert thorn scrub and xeroriparian communities, which occur along washes in the project area.
Swainson's Hawk <i>Buteo swainsonii</i>	Habitat includes grasslands and adjacent riparian areas. Foraging habitat is present along much of the project area, excluding hardscaped portions.
Tumamoc globeberry <i>Tumamoca macdougalii</i>	Habitat includes shady microsites within xeroriparian washes in Sonoran desert scrub. Habitat suitable for the Tumamoc globeberry along xeroriparian washes traversed by project area.
Tucson shovel-nosed snake <i>Chionactis occipitalis</i>	Habitat includes sandy desert scrub flats and washes. Suitable breeding habitat occurs throughout the project area, excluding hardscaped areas.

The survey methodology used was provided in the ESR guidelines and included two components: (1) a Project Area Plant Inventory, and (2) a Releve Method Inventory. Together these inventories are used to catalog what exists in the roadway and in the adjacent communities and to help the design team develop a seed mix and plant replacement density that closely approximates the roadway’s pre-project conditions.

Survey results indicate that the ROW has been greatly disturbed from pull-off traffic and utility line maintenance, which has led to a broad, overall degradation of the plant community within the ROW. The project site contains very few areas in native condition. For the most part, native plants exist in small patches along the roadway. In some cases, such as between the railroad tracks, non-native plant material has been introduced. Table 2 shows all the native plant material within the ROW that is protected by Pima County’s Native Plant Preservation Ordinance (Ord. 18.72.040).

**Table 2**  
**Native Plant Inventory Summary**

<i>Within ROW</i>	<i>Between ROW and 15 Feet Off</i>
<i>Type</i>	<i>Type</i>
<i>Acacia constricta</i>	<i>Acacia constricta</i>
<i>Agave americana</i>	<i>Agave americana</i>
<i>Cercidium floridum</i>	<i>Cercidium floridum</i>
<i>Cercidium microphyllum</i>	<i>Ferocactus wislizeni</i>
<i>Ferocactus wislizeni</i>	<i>Fouquieria splendens</i>
<i>Fouquieria splendens</i>	<i>Echinomastus erectocentrus var. erectocentrus</i>
<i>Echinomastus erectocentrus var. erectocentrus</i>	<i>Prosopis velutina</i>
<i>Prosopis velutina</i>	<i>Yucca thurberi</i>
<i>Yucca thurberi</i>	

Adverse Impact: Although the majority of the project is designed to fit within the existing ROW and the surveys show that native vegetation is limited within the project site, both native and non-native vegetation will be affected to some extent by the construction of the roadway improvements, including not only the addition of the center turn lane, but also a new sidewalk on the east side of the road, a multiuse path on the west side, and a limited amount of new ROW. The following section identifies measures to mitigate against potential impacts to both wildlife and plant species that could be affected by the project construction activities.

Recommended Mitigation: Mitigation recommendations were developed first in response to the findings of the biological evaluation and then in greater detail as part of the ESR process for preservation and enhancement of biological resources in the area. The mitigation recommended based on the findings of the *biological evaluation* included:

- Application of the following for identified Federal Threatened and Endangered Species:
  - *Cactus ferruginous pygmy-owl:* Because dispersal habitat exists, and the current legal status is unclear, two consecutive years of surveys are recommended prior to construction to minimize the risk of incidental take. Preservation of large trees and columnar cacti, as

well as implementation of a native plant salvage effort, should adequately mitigate impacts to pygmy-owl habitat.

- *Pima pineapple cactus*: Because pima pineapple cactus are known from the area, a full coverage pedestrian survey that follows the Roller protocol (1996) is recommended over the entire project area no sooner than two years before construction begins. During construction, the pima pineapple cactus identified on May 21, 2004, should be fenced, as well as any other pima pineapple cactus that may be observed during the survey recommended above, or found during construction. If fencing is not sufficient or feasible mitigation, potentially impacted individual pima pineapple cacti should be mitigated via compensation or off-site habitat banking.
- Application of the following for identified Priority Vulnerable Species:
  - *Abert's Towhee* and the *Rufous-winged Sparrow*: Construction should be scheduled outside the breeding season (March-April and June-August) wherever possible to avoid potential nesting efforts.
  - *Swainson's Hawk*: Construction should be scheduled outside the breeding season (March-April) wherever possible to avoid potential nesting efforts.
  - *Merriam's Mouse*: Impacts to xeroriparian washes, which serve as breeding habitat for this species, should be avoided to the maximum extent possible.
  - *Needle-spined pineapple cactus*: Individuals that cannot be avoided by the project should be translocated to a similar microsite outside of the disturbance footprint.
  - *Tumamoc globeberry*: Impacts to xeroriparian washes should be avoided to the maximum extent possible. Individuals that cannot be avoided by the project should be translocated to a similar microsite outside of the disturbance footprint.
- In-place preservation of all native plants to the extent practicable.
- On-site relocation of healthy, viable trees, shrubs, yuccas, and barrel cacti to the extent practicable.
- Coordination with Arizona Department of Agriculture for other potential salvage efforts.

The more detailed mitigation measures, developed in accordance with the ESR Guidelines, Chapter 4, RDM, revised December 2003, proposes a revegetation effort intended to reconstruct the natural plant community and to also serve as mitigation measures for retaining and enhancing visual quality (discussed under "Visual Resources" later in this chapter). Such measures will help direct the viewer's eye to attractive viewsheds and screen distracting views presented by commercial buildings or railroad tracks. As the ROW is currently in a degraded condition, any re-introduction of native plant material will benefit the ROW and surrounding areas by providing greater plant and animal dispersal area. The three elements of this revegetation plan -- seed mixture; planting plan; and management plan -- are highlighted below. The revegetation plan should be developed by Pima County in consultation with USFWS and AGFD as appropriate.

The first element, *the seed mixture*, will be derived from the project releve studies, which are presented in Appendix B. This mixture will be applied to all degraded areas within the ROW, as well as outside of the ROW when feasible. The seed mix presented in Table 3 will be utilized to the extent possible, depending upon availability of seed. Most of the plant material shown has seed commonly available, such as Creosote and Whitethorn acacia. Many of the plants in the releve surveys do not have commercially available seed. Therefore, a contract grow by a seed supplier may be required to provide the seeds for these plants. A contract grow may not be

necessary since the local seed bank will remain, and the natural colonization of those local species will be encouraged by removing invasive, non native weeds that may attempt to establish in the area. After time, this method will provide a re-naturalized plant community.

The second element, *the planting plan*, will provide guidance for transplanting existing trees and cactus when possible and utilizing native plants within the site. Additionally, some non-native, but drought tolerant plants, will also be utilized given the historic and scenic quality of the site. Examples of the plants proposed are listed in Table 3.

**Table 3**  
**Vail Road Revegetation Seed Mix**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Pure Live Seed (PLS) Lbs. Per Acre*</b>	<b>Form</b>
<i>Krameria erecta parvifolia</i>	Range Ratany	0.50	forb
<i>Acacia constricta</i>	Whitethorn acacia	0.50	Shrub/ tree
<i>Aristida adscensionis</i>	Three Awn	0.25	grass
<i>Psilostrophe cooperi</i>	Paper flower	1.25	forb
<i>Tiquilia cenescens</i>	Shrubby coldenia	1.00	forb
<i>Larrea tridentata</i>	Creosote bush	1.25	Shrub
<i>Prosopis velutina</i>	Mesquite	1.00	Tree
<i>Acourtia nana</i>	Desert Holly	2.00	forb
<i>Hilaria belangeri</i>	Curly mesquite	8.00	grass
<i>Eriogonum wrightii</i>	Wright's Buckwheat	1.00	forb
<i>Ziziphus obtusifolia</i>	Graythorn	1.00	shrub
<i>Lyceum spp.</i>	Wolfberry	1.00	shrub
<i>Celtis reticulata</i>	Western hackberry	1.00	Shrub
<i>Atriplex canescens</i>	Fourwing Saltbush	1.00	Shrub

\*Density based upon: pound per acre = 1% average cover across all five releves. Example: Range Ranny density across all five releves resulted in an average density of 0.6%; therefore, the seed mix shows 0.5 pounds per acre.

The third mitigation element, *the management plan*, focuses on removal of invasive species. This is an important measure and should work in tandem with the application of the seed mixture.

**Associated Permits:** As noted in Table 1 potential habitat for federally-listed species is located within the proposed project limits. If the project were to include any federal permits, the federal agency issuing the permit would be required to consult with the USFWS to ensure compliance with Section 7 of the Endangered Species Act.

Table 1 also identifies Vulnerable Protected Species, which are protected by the Arizona Native Plant Law. In addition, Table 2 lists species protected under the Pima County Native Plant Preservation Ordinance. Before any vegetation can be removed during construction, a written Notice of Intent must be submitted to the Arizona Department of Agriculture and a salvage permit and tags for individual plants must be obtained.

## **Drainage, Section 401/404, Section 402**

### Drainage

***Existing Conditions:*** There are nine locations along the project limits where offsite runoff crosses the roadway. These locations are shown in Figure 8. The 100-year peak flow is greater than 100 cubic feet per second (cfs) at just two of these crossings. There are no existing culverts along the project, and all of the offsite runoff crosses the roadway pavement at dip crossings. The 100-year flow depths over the roadway are less than 0.6 feet deep at all of the crossings, which is less than the allowable one-foot depth specified in the RDM.

***Adverse Impacts:*** The commitment of the project was to improve or retain existing drainage flows. Therefore, no adverse drainage impacts are anticipated with this project in place.

***Recommended Mitigation:*** Culverts are proposed to be constructed at two crossings (CPs D and E shown in Figure 8). These are the only two drainage crossing locations where the existing roadway profile will be raised. The culverts will be sized to insure that there is not an increase in the 100-year water surface elevations outside of the ROW, and to limit the amount of downstream grading that is required.

***Associated Permits:*** The permits related with water quality and drainage issues include two permits associated with the Clean Waters Act. The first is a Sections 404/401 permit, and the other is a Section 402 permit. In Arizona, the latter is referred to as the Arizona Pollutant Discharge Elimination System (AZPDES) permit.

***404/401 Permit:*** On May 9, 2005, Pima County sent the U.S. Army Corps of Engineers (ACOE) an application for the Review of Jurisdictional Limits under Section 404. In a letter dated July 5, 2005, the ACOE replied that based on the information furnished by the County, the project is not subject to the agency's jurisdiction under Section 404 of the Clean Water Act, and therefore no Section 404 permit is required. The ACOE letter is presented in Appendix C, Volume II of this EAMR. Because Section 404 regulations are revised periodically and because construction of this project is currently not projected before Fiscal Year 2011, Pima County should confirm this decision with ACOE closer to construction. Currently the limit for a jurisdictional delineation approval is five years or a major flood event.

***AZPDES Permit:*** In 2002, Arizona received authorization from the Environmental Protection Agency (EPA) to operate the National Pollutant Discharge Elimination System Permit Program (Section 402 of the Clean Water Act) on the state level. Because one or more acres will be disturbed by this project, an Arizona Pollutant Discharge Elimination System (AZPDES) permit will be required, including a Stormwater Pollution Prevention Plan (SWPPP), a Notice of Intent (NOI), and a Notice of Termination (NOT). The SWPPP will identify measures to be undertaken to minimize pollutant discharge from the site. Pima County and the Contractor will be responsible for submitting Notices of Intent (NOIs) and Notices of Termination (NOTs) to ADEQ.

**Floodplain**

**Existing Conditions:** The west bank of the Pantano Wash is located approximately 1,000 feet east of the northeastern project limits. There is a designated Federal Emergency Management Agency (FEMA) 100-Year Floodplain for the wash, which is contained within the banks of the wash in the vicinity of the project. There are no other major drainage features within the project vicinity. See Figure 7 for floodplain designations.

The wash at the drainage crossing at CP D is designated by Pima County as Xeroriparian C Riparian Habitat on the east side of the roadway, and is proposed to be classified by Pima County as Xeroriparian C Riparian Habitat on the west side of the roadway. Also, the washes at the drainage crossings at CPs A, B, and C are proposed to be classified by Pima County as Xeroriparian C Riparian Habitat. See Figure 8 for location of drainage crossings.

**Adverse Impacts:** The proposed roadway widening and drainage improvements are expected to disturb less than one-third of an acre of riparian habitat at each crossing. However, the total disturbance of the riparian habitat for the entire roadway is expected to be greater than one-third of an acre.

**Recommended Mitigation:** If the disturbance of the riparian habitat is greater than one-third acre a habitat mitigation plan may be required in conjunction with a floodplain permit.

**Associated Permits:** Possible floodplain permit.

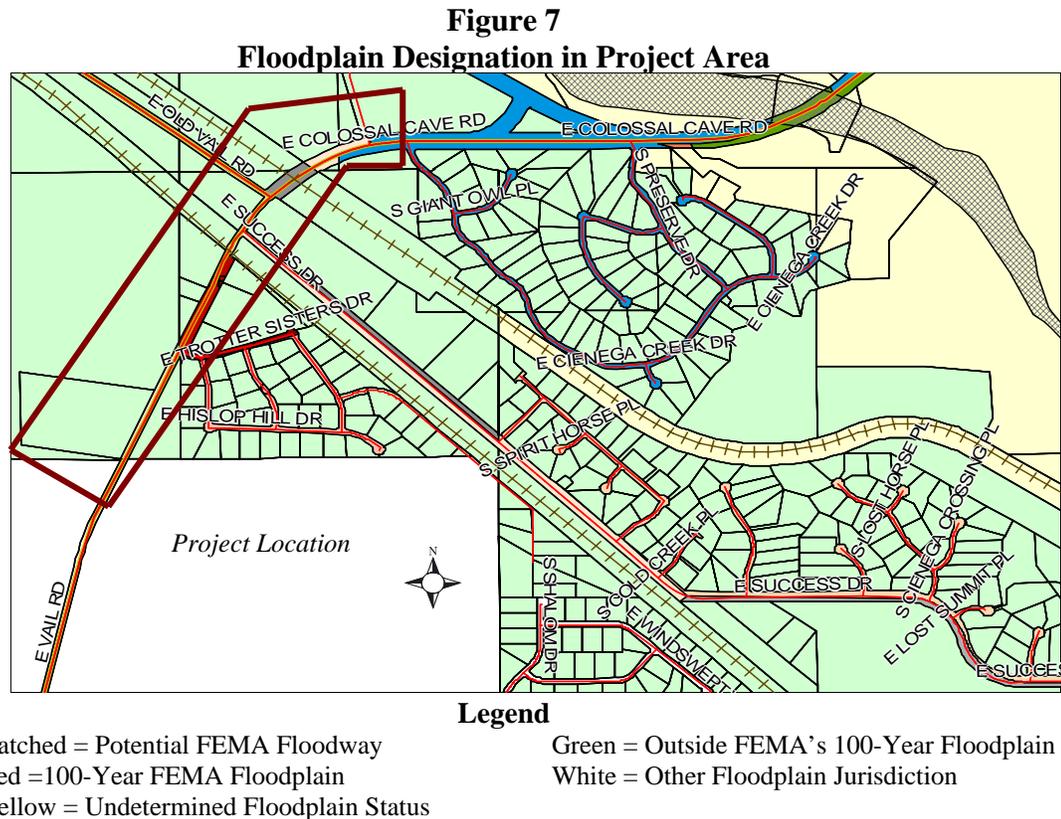
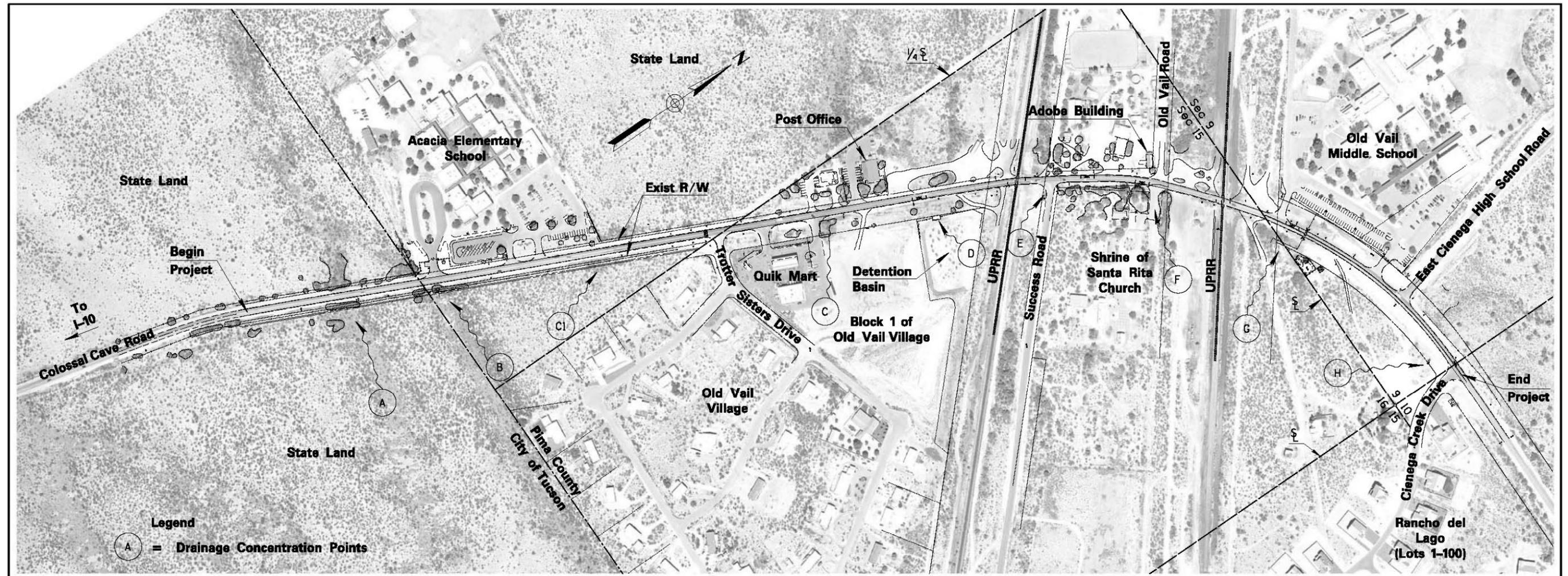


Figure 8  
Drainage Crossing Locations



Note: The proposed project improvement included construction of two culverts, one at concentration point D and the other at concentration point E.

## **Air Quality**

**Existing Conditions:** The project site is within the U.S. Environmental Protection Agency (EPA) designated Tucson Air Planning Area (TAPA). EPA requires urban growth be mitigated in a manner that provides for achieving and maintaining air quality. The Clean Air Act controls the air quality planning process that leads to improved strategies to bring all nonattainment areas into compliance with the National Ambient Air Quality Standards (NAAQS). The six air pollutants regulated include carbon monoxide (CO); lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

In the 1990s, the Tucson region frequently violated the NAAQS for CO. As a result, the EPA designated the Tucson region as a nonattainment area for CO. No violations of CO NAAQS have been recorded since 1984, and in July 2000 Tucson was reclassified as in attainment, under a Limited Maintenance Plan for CO, in attainment under a Natural Events Action Plan (NEAP) for Particulate Matter (PM), and in attainment for other pollutants.

Today, air quality in TAPA meets health standards, although there are three pollutants of on-going concern, including CO, O<sub>3</sub>, and PM<sub>10</sub> and PM<sub>2.5</sub>.

**Adverse Impacts:** There will be some short-term air quality impacts from project construction. These impacts will be primarily due to particulate matter, such as dust, that will become airborne due to construction activities.

In the long-term, this project is not anticipated to adversely impact air quality since it is not a capacity enhancing project.

**Recommended Mitigation:** Recommended measures to mitigate short-term air quality impacts during construction include use of water or dust palliatives on areas of exposed dirt; limiting vehicular speeds over unpaved surfaces; covering stockpiles; removal of particulate matter from roads and other paved areas to prevent water entrainment; and from building or work areas to prevent particulates from becoming airborne.

**Associated Permits:** A Pima County Department of Environmental Quality Air Quality Permit will be required for earthmoving and road construction activities under Pima County Code, Section 17 since disturbances are equal to or over one acre.

## **Noise**

**Existing Conditions:** Within the existing segment, there are three sensitive receptors: the Acacia Elementary School; the Shrine of Santa Rita; and Old Vail Middle School, as well as some as a residential subdivision on the east side of Colossal Cave Road near the southern project limit, and several other residences along the project length.

**Adverse Impacts:** This project is not a capacity enhancing project; therefore, no long-term effect on noise quality is anticipated. Potential short-term noise impacts to the two schools, church, and residences in the area are addressed under “Construction.”

**Recommended Mitigation:** In keeping with general practice, Pima County will use rubberized asphalt to help address overall vehicular noise levels.

Short-term measures to mitigate noise during construction are identified under “Construction.”

**Associated Permits:** No permits are anticipated.

**Utilities**

**Existing Conditions:** There are 13 different facilities along Colossal Cave Road within the project limits as shown in Table 4. The TBE Group, which is serving as the project utility coordinator, contacted all these utilities to confirm the existence of their facilities within the project limits.

**Adverse Impacts:** The effect of the proposed roadway improvements on the existing facilities was studied throughout the project site.

**Table 4  
Existing Utilities within the Project Limits and Relocation Need**

Utility	Facility	Location	Relocation
Cox Communications	Fiber Optic and Coax Cable TV	Near East Cienega High School Drive	No
El Paso Natural Gas	Natural Gas Pipelines	Mary Ann Cleveland Way, parallel to railroad tracks	No
Kinder-Morgan Energy	Petroleum Pipelines	South of south railroad track crossing	No
Level 3 Communications	Fiber Optic Communications	Underground, east side of road	Yes, at culvert crossings
MCI/Worldcom	Fiber Optic Communications	Underground, north and parallel to north track crossing	No
Qwest	Telephone (coaxil) Fiber Optics	Overhead, west side of road Underground, east side of road	Yes, due to roadway widening Yes, at culvert crossings
Southwest Gas	Natural Gas	Underground, both sides of road	Yes, at culvert crossing. Regulator station may need relocation.
Tucson Electric Power (TEP)	Electric	Overhead, east side of road	Yes, due to roadway widening
Union Pacific Railroad	Railroad Electric	At-grade crossing gates	Yes, due to roadway widening
Vail School District	Water	Underground, west side of road	Yes, at culvert crossings
Vail Water Company	Water	Eastside, beginning at Old Vail Middle School, northward	No
Witel Communications	Fiber Optic Telecommunication	Underground, east side of road	Yes, at culvert crossings

Southwest Gas has prior rights on a regulator station located on the Shrine of Santa Rita property, just south of the northern railroad track crossing and on the east side of Colossal Cave Road. The two-lane roadway section proposed in this portion of the project segment is not anticipated to affect this regulator station. If, as the project continues, the design team finds that the station is affected, Pima County will be responsible for any relocation costs.

Facilities belonging to Level 3 Communications, Vail School District, and Wiltel Communications are within Pima County's existing ROW. These utilities, therefore, will be responsible for relocation costs.

Qwest has utility poles located on the west side of Colossal Cave Road outside of the existing ROW. Record searches done to date have not located any easement agreements between Pima County and Qwest in this area.

UPRR owns the gate crossings and warning devices at the track crossings along Colossal Cave Road. The widened roadway typical section will require these assemblies to be relocated or new assemblies to be installed at the crossings. A small change in the horizontal alignment of Colossal Cave Road, especially in the vicinity of the northern UPRR track crossing may require complete reconstruction of the crossing. There is the possibility that the UPRR upgraded crossing be constructed independent of the roadway construction. Gate lengths and proposed roadway locations relative to the existing roadway will need to be evaluated during the design phase to determine if this is feasible.

***Recommended Mitigation:*** Relocation of several utilities will be required to address the impacts of the project. Table 4 also reviews the needed relocations.

On the east side of Colossal Cave Road, Qwest has a 20-foot easement, which is outside the existing ROW, and, on the same side of the road, TEP has a 16-foot easement outside the ROW. Both utilities have prior rights and, therefore, Pima County will need to reimburse them for the relocation costs.

Negotiations may be required regarding what payment, if any, is required for the relocation of Qwest lines on the west side of Colossal Cave Road.

At the project design charrette, participants, including Qwest and TEP representatives, discussed the possibility of combining facilities to the east side of Colossal Cave Road, which would eliminate overhead lines on the west side of the road, and contribute to enhancement of the views along this scenic route. Possible consolidation is to be further discussed with Qwest and TEP at an upcoming utility coordination meeting.

UPRR has stated that they will complete the design plans and construction for the railroad crossings, but that these costs will need to be reimbursed by Pima County.

## **Hazardous Materials**

Aplomado Environmental prepared a Preliminary Initial Site Assessment (PISA) for the project to identify recognized environmental (i.e., hazardous materials) conditions in connection with the project site, defined as 12900 East to 13400 East Colossal Cave Road, Vail, Pima County, Arizona. The assessment consisted of a site reconnaissance, a review of available agency databases, a review of historical records related to hazardous materials usage within the project site and general vicinity, and the preparation of the Arizona Department of Transportation (ADOT) PISA Form. The technical report summarizing the findings of the PISA is presented as Appendix D in Volume II of this EAMR.

Because the American Society for Testing and materials (ASTM) recommends that site assessments be regularly updated and because construction of this project is currently not projected before Fiscal Year 2011, Pima County should update the PISA closer to construction.

***Existing Conditions:*** The *site reconnaissance* indicated:

- Overhead and subsurface utilities, including electrical, petroleum, natural gas, water, and telecommunications
- Pad-mounted and pole-mounted transformers in connection with the utilities and the railroad operations
- Surface stained soils with a petroleum hydrocarbon odor beneath the northern railroad crossing transformer. Evidence of leakage or spillage was not observed in connection with the northern transformer or the other transformers. An interview with UPRR did not indicate emergency responses or transformer releases in connection with the railroad operations
- Incidental surface staining from leakage of automotive fluids located on the gravel shoulders of the roadway
- Incidental items of household trash and litter along the roadway and ROW, including a hardened, foam-like substance. Unusual surface staining or odors were not observed in connection with this substance
- No underground storage tanks, pits, lagoons, or drywells in association with the project site
- No sanitary sewer systems
- No buckets, drums, discarded chemical or waste containers, wildcat dumping, atypical stressed or dying vegetation, or other environmental impacts

The review of *environmental records* indicated:

- No Resource Conservation and Recovery Act (RCRA), U.S. EPA Corrective Action Tracking Report (CORRACTS) transport, storage, and disposal (TSD) facility within one mile of the project site
- No RCRA non-CORRACTS TSD facility within one-half mile of the site
- No compliance violations, administrative actions, or CORRACTS on or within the project site
- No federal or state Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site within one-half mile of the project site

- No active municipal solid waste landfills, active rubbish landfills, active private solid waste landfills, closed solid waste landfills, or closed solid waste dumps within one-half mile of the site
- No listed leaking underground storage tank (LUST) site on or within one-half mile of the project site
- No registered underground storage tank (UST) on the project site
- No RCRA generators on or adjoining the project site
- No CERCLA No Further Remedial Action Planned (NFRAP) site on or adjoining the project site
- No Environmental Response Notification System (ERNS) records for the project site. Information provided by local fire departments did not indicate hazardous materials spills or responses for the project site

**Adverse Impacts:** The PISA revealed no indications of environmental conditions in connection with the project site at this time.

**Recommended Mitigation:** Based on the findings and conclusions, further hazardous materials studies of the project site are not recommended at this time.

If suspected hazardous materials are encountered during construction, work should cease at that location and the County Engineer should be contacted to arrange for proper assessment, treatment, or disposal of those materials.

**Associated Permits:** This PISA was done using the Arizona Department of Transportation PISA Form and was conducted in general accordance with the ASTM Standard Practice for Environmental Site Assessments: Transaction Screen Process, Fourth Edition, E 1528-00, dated May 10, 2000. This standard is established by the ASTM as a practice that constitutes “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice as defined in 42 USC Section 9601 (35) (B).

## **Construction**

**Existing Conditions:** As noted under “Noise” above, the project area includes several sensitive receptors, including two schools, a church, and residences. Additionally, all these uses, and as well as the businesses in the area, are accessed from driveways and side streets off of Colossal Cave Road. Additionally, the historic adobe building has been identified as having some structural issues that may be sensitive to natural elements and possible additional vibration from construction activities. (See also Cultural Resources section later in this chapter.)

**Adverse Impacts:** The potential adverse impacts include disruption of traffic flow, generation of dust, generation of noise, and adverse effects to historic resources. Of particular focus are school bus operations and private vehicle pick-up and drop-off of students at the Acacia Elementary and Old Vail Middle schools; access to the historic Santa Rita Shrine property; access to businesses and residences along the segment; and to the integrity of the historic adobe building on the west side of Colossal Cave Road south of the tracks.

In keeping with general practice, Pima County will use rubberized asphalt to help address overall vehicular noise levels.

***Recommended Mitigation:*** Standard industry practices will be utilized during construction activities. These include, but are not limited to the following:

To address traffic flow, the contractor shall establish appropriate traffic controls needed to maintain an adequate flow of traffic, and shall maintain access to crossroads and adjacent properties, with particular emphasis on traffic, pedestrian, and bicycle flow and access to the Acacia Elementary School and Old Vail Middle School.

To address air quality, the contractor shall use water or dust palliatives on areas of exposed dirt; limit vehicular speeds on unpaved surface; cover stockpiles; remove particulate matter from roads and other paved areas to prevent water entrainment and from building or work areas to prevent particulates from becoming airborne

To address noise, the contractor shall restrict the use of large equipment to hours between 6:00 am and 6:00 pm. Night work may occur if Pima County determines that such issues as cost, safety, traffic flow, etc., are best served by doing so.

Additionally, the contractor shall follow any special specific guidelines to avoid such occurrences as excessive vibration, which could adversely affect the historic adobe building.

### **Cultural Resources**

***Existing Conditions:*** Desert Archaeology, Inc. (DA) conducted the project cultural resource survey and prepared a report titled, *An Archaeological and Historical Assessment of Colossal Cave Road near Vail, Pima County, Arizona*, (29 March 2005) (see Appendix F).

DA surveyed 33 acres and identified five historic properties eligible for listing on the National Register of Historic Properties. These properties include the Southern Pacific Railroad, El Paso & Southwestern Railroad, Vail Railroad Station, the old Vail Post Office (referred to as the historic adobe building in this report), and the Shrine of Santa Rita.

***Adverse Impacts:*** The recommended design concept will have no effect on the Southern Pacific railroad tracks (Z:2:40), the El Paso & Southwestern railroad tracks, or the Vail Railroad Station site. The structures of most concern during the development of the design concept were the historic adobe building and the Shrine of Santa Rita. Both buildings appear to meet the eligibility criteria for nomination to the National Register of Historic Places, and the State Historic Preservation Office (SHPO) is in the process of reviewing an eligibility nomination. Additionally, in the design charrette meetings, stakeholders in the area talked about the importance of the old town between the tracks and how the need to make every effort to avoid impacts to the properties and to preserve and enhance the character of the old town center. This was significant in the effort made to retain the two lane section between the tracks, which avoids direct impacts to the historic properties.

The rebuilding of the two lanes through the area, as well as the addition of a sidewalk on the east side of the road and a multi-use path on the west side, will have some indirect effect on the views of the properties. The condition of the historic adobe building and the potential of construction related impacts has been of most concern. To address this, the County agreed to assist the property owner by having a Building Condition Assessment Report prepared by Poster Frost, Inc. to determine the condition of the historic structure and whether it might be affected by the nearby roadway construction and operation. The report *Old Vail Post Office, Building Condition Assessment Report, July 2005*, confirms that the building is special, but is deteriorating and could be affected by potential impacts from heavy construction equipment and associated vibrations.

The Shrine of the Santa Rita property is set back further from the roadway than the adobe building and has been maintained on an ongoing basis by the Roman Catholic Church Diocese and, therefore, does not appear to have problems that will be affected by project construction or operations. As discussed earlier in this report, the church is in the process of expanding its facilities and has prepared a development plan and submitted it to Pima County Development Services for review. The development plans include ROW dedication along Colossal Cave Road, so that the roadway will no longer encroach on church property. Due to delays in the progress of the development plans, this dedication, and any additional ROW acquisition, will become part of the Colossal Cave Road project.

***Recommended Mitigation:*** Both the adobe building and the Shrine contribute substantially to the historic character of the old town center between the UPRR tracks. Participants in the public participation process and the design charrette emphasized the importance of exploring ways that character could not only be preserved but enhanced through the roadway design. This goal was compatible with the the objectives of the ESR Design Guidelines.

Therefore, the recommended design concept alternative provides a left-turn center lane north and south of the UPRR tracks, but maintains the two-lane section between the track to minimize the need for additional ROW and potential effects on the views and character of the historic center and most directly on the historic adobe building and Shrine of the Santa Rita properties.

The Building Conditions Report, however, has identified the need for the adobe building to be stabilized from ongoing deterioration exclusive of the roadway project plans. Pima County has met with the property owner of the adobe building and walked through the short-term needs of the building and the longer-term revitalization possibilities. The owner has expressed interest in having the stabilization undertaken, and the County has agreed to provide data and guidance regarding possible funding sources for historic preservation work and application preparation.

Prior to this project going to bid for construction, the County will review the status of the historic adobe building and will specify construction procedures, such as reduced vibration equipment, as part of the special provisions if the building condition requires them.

Finally, should any previously unidentified cultural materials be encountered during construction, work should be halted in that area and a qualified archaeologist contacts to evaluate the find.

***Associated Permits and Approvals:*** Pima County initiated consultation with the SHPO on the eligibility of the historic adobe building on the west side of Colossal Cave Road between the railroad tracks and the historic Shrine of Santa Rita on the east side of the road between the railroad tracks for listing on the *National Register of Historical Places*. The SHPO is in the process of considering this request.

### **Visual Resources**

SAGE conducted the visual quality evaluation for the project. The complete technical report is presented as Appendix E, included in Volume II of this EAMR. This section summarizes the report findings.

***Existing Conditions:*** As a Pima County designated Scenic Major Route, Colossal Cave Road has been identified as possessing scenic value. The most prominent views from the roadway are the wider, regional quality views of mountains in the area, especially the nearby Santa Catalina Mountains and the Rincon Mountains, as well as smaller mountains such as Pistol Hill. On the approach to Vail from the south, the roadway presents side-to-side views of the nearby desert plain. On the southern approach to Interstate 10 from Vail, the Santa Rita Mountains are intermittently visible as Colossal Cave Road dips up and down through cross-road drainages.

The project highpoint is occupied by the Acacia Elementary School parking lot entry. From this point, views are prominent to the north, northwest, east, and south. The overall viewing patterns seems to be focused on the middle and far ground scenic views, with an occasional near ground view as exhibited by the few buildings within the town of Vail.

In the area where the roadway winds between the tracks through old Vail center, the scenic experience is shorter and of more intimate, human scale elements, such as the historic adobe building and the historic Shrine of the Santa Rita.

In May 2004 and again in July 2004, SAGE conducted a site survey of visual resources in the project area and undertook an analysis of six key observation points (KOPs) to gauge viewer sensitivity. Figure 9 shows the six KOPs, including (1) the current U.S. Post Office, (2) the Acacia Elementary School, (3) the Colossal Cave Road between the railroad tracks within the town of Vail, (4) the neighborhood adjacent to the project site, (5) the neighborhood entrance and exit at the project's northern end, and (6) the roadway by Old Vail Middle School.

Findings of the evaluation of viewer sensitivity levels at each KOP indicate that the project center point (i.e., the point between the railroad tracks in the town of Vail) is the most sensitive area for views onto or from the roadway. Also of important sensitivity is the high point adjacent to the Acacia Elementary School. The remaining KOPs were ranked in the following order of moderate to low sensitivity: the Post Office, the neighborhood entrance and exit at the north end of the site, the roadway by the Old Vail Middle School, and the adjacent neighborhood.

**Figure 9**  
**Key Observation Points**



Prominent mountain view from KOP 6

**Adverse Impacts:** Given that a goal of the ESR process includes both preservation and enhancement of the project area, both impacts to the KOPs from the project, as well as impacts to the KOPs from other activities in the area that might be addressed through the project, were considered.

The most direct effect of the project on visual quality is the additional asphalt that will affect the near and intermediate views to some extent.

The greatest overall impacts to the views in the area are from obstructions, primarily from the ongoing building along the roadway and the railroad. These obstructions, which may divert attention away from the longer scenic views, should be considered as part of the overall effort to preserve and enhance the scenic characteristics of this roadway that qualify it as an ESR.

**Recommended Mitigation:** There are some locations within the project area that may benefit from screening, but the overall scenic quality of the background views should be the priority of the visual mitigation efforts. The project design, therefore, should allow for the continued prominence of the mountain views in the area, especially the nearby Santa Catalina Mountains and the Rincon Mountains.

The near and intermediate views should be improved through the addition of a sidewalk and multi-use path, which will better define the roadway edge, reduce the expanse of asphalt created by the combination of roadway surface and driveway, and through the provision of landscape treatment between the pedestrian and roadway facilities and to create entryways for the historic town between the tracks. Additionally, plans call for split rail fences along the property lines in the historic town area and pedestrian nodes with benches and historic information.

The design should consider the project site as a whole unit and to facilitate “way finding” by providing cues to the roadway user that they are progressing through a definite space. Aside from the presence of some buildings, there is very little to signal a person that they are in Vail or

leaving Vail. Currently there are no real unifying elements, but this project has an opportunity to provide such elements as signature planting groupings, iconic signage or plant materials, and picturesque pedestrian facilities.

Vail's context is of a natural setting, influenced by agriculture and the nearby mountains. In keeping with this context, the planting design should strive to enhance the new roadway's sense of place, while not becoming overbearing.

## **NEIGHBORHOOD/SOCIAL ENVIRONMENT**

### **Right-of-way Acquisition and Displacement**

***Existing Conditions:*** The current Post Office building is federally owned and as such is not subject to Pima County development standards. The set-back of this particular building is not in conformance with current Pima County requirements of 30 feet from the project 150-foot ROW. Clear zone considerations will be addressed in the project design.

Additional features under consideration for the project are a sidewalk on the east side and a multiuse path on the west side of the roadway. Factoring in the three-lane roadway section, the sidewalk, the multiuse path, and the fact that the majority of the proposed roadway will be close to the existing grade, the proposed ROW for the project is set at 100 feet. The ROW in an area near the Acacia Elementary School will be reduced from 100 feet to 90 feet to avoid impacting the existing school parking lot. Construction areas outside of the ROW limits will have TCEs.

***Adverse Impacts:*** To accomplish the project goals, some ROW will be needed along the frontage of several public and private properties within the project limits. The ROW acquisition will not include any structures and are not anticipated to affect property uses.

The proposed Colossal Cave Road footprint extends beyond the existing ROW from near the beginning of the project northward to the UPRR southern track crossing. Through this area, the existing ROW width is primarily 60 feet wide with the ROW transitioning to a 105-foot ROW midway between the beginning of the project and the track crossing. The design team's research into the existing ROW across State Trust Land in this vicinity reveals that there are no supporting documents for a Pima County ROW. In consultation with the Arizona State Land Department, Pima County has determined that the existing ROW and additional ROW outside those limits will need to be described in new legal documents.

New ROW limits outside the areas claimed by State Trust Land will need to be defined and portions of the impacted parcels acquired by Pima County since the proposed footprint extends beyond those existing ROW limits. A total of eight parcels are anticipated to be impacted with a total area of acquisition estimated at 4.83 acres. Of the eight parcels, three are public entities and five are private. Table 5 lists the proposed ROW acquisitions.

**Table 5**  
**Proposed Right-of-way Acquisition**

Owner	Entity	Proposed Acquisition (Ac)
State of Arizona	Public	1.32
Vail School District	Public	0.23
State of Arizona	Public	2.24
Dean & Joanne Showers	Private	0.17
PPM V Partnership	Private	0.07
Unknown (13333 E. Colossal Cave Road)	Private	0.39
Kelley	Private	0.16
Roman Catholic Church Diocese	Private	0.25
<b>Total</b>		<b>4.83</b>

TCEs are anticipated for four of the eight parcels. In these areas, driveway reconstruction and minor slope grading will need to be accomplished. Table 6 lists the TCEs.

An easement will be needed for each Colossal Cave Road crossing of the UPRR ROW. A document search has failed to locate any existing easement agreements. If new agreements are written, the costs of the new easements will need to be negotiated with UPRR since Pima County has been maintaining Colossal Cave Road through the UPRR ROW. For this report, the areas of the UPRR easements are calculated as the total areas within the UPRR that will be needed by Pima County. The easement area for the northern UPRR track crossing will need to include an additional area for maintenance of grading for a cross culvert outlet. Table 7 lists the needed areas for the easements at each UPRR track crossing.

**Table 6**  
**Proposed Temporary Construction Easements**

Owner	Entity	Proposed Acquisition (Ac)
State of Arizona	Public	0.10
Vail School District	Public	0.33
PPM V Partnership	Private	0.07
Fidelity National Title	Private	0.04
<b>Total</b>		<b>0.54</b>

**Table 7**  
**Proposed UPRR Easements**

Location	Width (ft)	Easement Area (Ac)
Southern UPRR Track Crossing.	150'*	1.04
Northern UPRR Track Crossing.	150'	1.42
<b>Total</b>		<b>2.46</b>

\* A portion extends approximately 225' west and approximately 125' east of the roadway centerline in the vicinity of Success Road

***Recommended Mitigation:*** Minimizing ROW encroachment is a key goal of this project in keeping with the principles of the ESR Design Guidelines. To minimize ROW needs for this project, the design team proposed a three-lane section for the majority of the segment. In the area between the railroad tracks, the design team recommends a two-lane section, which will use even less ROW, and be more sensitive to and in keeping with the character of the historic “town between the tracks.”

Owners of property from which ROW needed should be reimbursed appropriately by Pima County.

### **Temporary and Permanent Access and Parking Impacts**

***Existing Conditions:*** There is driveway and side street access to uses on the east and west sides of Colossal Cave Road within the project limits. There is no on-street parking; however, the schools and businesses have parking adjacent to the project segment. Additionally, the existing Vail Post Office (PO) on the west side of the project segment south of the southern UPRR tracks has a mail drop-off area along the frontage of the PO property.

***Adverse Impacts:*** There will be no long-term impacts to permanent access or to parking facilities. Access will be improved to the uses adjacent to the project site.

Pima County has been working closely with a representative of the Vail School District to identify issues related to school access and egress for buses, students, and faculty. Additionally, issues identified through the public open house and design charrette regarding the future access and placement of the drop off mailboxes at the Post Office are being addressed through the design and potential solutions are under review with the Vail Post Office.

During construction, access to all properties adjacent will be maintained.

***Recommended Mitigation:*** Access will be maintained to all land uses within the project limits during construction.

The school crosswalk at Trotter Sisters Drive and the crosswalk at the Old Vail Middle School will be replaced.

Driveway access will be improved to reduce potential vehicle and bus conflict points at the Acacia Elementary School. Pedestrian access will be improved through the introduction of a sidewalk on the east side of the roadway and a multiuse path on the west side.

### **Neighborhood Disruption**

***Existing Conditions:*** The segment of Colossal Cave Roadway to be improved serves two schools, a church, and a busy convenience store, several other businesses, and a housing subdivision. Currently the only transportation facility is the roadway; there are no sidewalks for pedestrians, or designated bicycle routes. Children walking or biking to and from school walk

along the shoulder or directly in the roadway, as do neighbors who may want to access the convenience store, church, or some of the other businesses.

***Adverse Impacts:*** There will be some temporary disruption to the local community during construction of the Colossal Cave Roadway Improvement project. However, in the long term, this project will contribute positively to the Vail community by creating a better operational environment for vehicles through the introduction of a center turn lane; a safer environment for school children through the introduction of shoulders on both sides of the road, a sidewalk on the east side, and a shared use path on the west side; and a more aesthetically pleasing environment to complement the designation of the roadway as a Scenic Route and an Environmentally Sensitive Roadway. In addition, the design concept is responsive to specific issues raised by members of the public who live and/or work in the Vail community, including sensitivity to the rural and historic character of Colossal Cave Road in the project area, a desire to further define the historic center through gateway treatments at entry and exist points, and needed improvements to ponding locations along the roadway, and consideration of a mail drop area for the Post Office.

***Recommended Mitigation:*** Temporary disruption to the neighborhood during construction should be addressed through use of the recommended mitigation measures identified in this chapter under “Air Quality,” “Noise,” and “Construction.”

### **Parks and Recreational Areas**

***Existing Conditions:*** The Eastern Pima County Trail System Master Plan, developed by the Pima County Natural Resources Parks and Recreation Department, identifies Colossal Cave/Vail Road as Trail #4. Several trails branch off from Trail #4, including Trail #277 Esmond Station Railroad Trail, Trail #269 Vail Loop, and Trail #5 Pantano Wash. The Cienega Creek Nature Preserve is approximately 0.5 miles southeast of the project. Both Acacia Elementary School and Old Vail Middle School, adjacent on the west side of Colossal Cave Road within the project limits, have playgrounds and ball fields that are available to and frequently in use by churches, nonprofit organizations, and other groups.

***Adverse Impacts:*** No long-term adverse impacts to public parks or recreational areas are associated with the Colossal Cave Roadway Improvement Project. The proposed 10-foot multiuse path on the west side of the project will serve as the Trail #4 segment within the project area. Additionally, the multi-use path and the sidewalk on the east side are expected to improve access to the public schools, as well as to the historic town between the railroad tracks and associated historic buildings, including the old adobe building on the west side and the Shrine of Santa Rita on the east side.

While access to the school grounds will be maintained throughout construction, traffic in these areas may be slower during some construction activities.

***Recommended Mitigation:*** Pima County Department of Transportation and Pima County Natural Resources Parks and Recreation Department have worked together to address the design

of a multi-use path that will serve as the Trail #4 link for recreational users, as well as providing safer access for school children and others.

### **Consistency with Other Plans**

***Existing Conditions:*** Colossal Cave Road is identified as a scenic route in the Pima County MS&R Plan and, as such, meets the criteria of an Environmentally Sensitive Roadway (ESR) as defined in the *Pima County Roadway Design Manual (RDM)*, Chapter 4, Environmentally Sensitive Roadway Design Guidelines, revised December 2003. The ESR Design Guidelines state that a roadway defined as an ESR “should be designed and constructed to minimize disturbances to the area resources.”

***Adverse Impacts:*** The Colossal Cave Roadway Improvement project has been designed to minimize disturbances to the area resources in keeping with the ESR guidelines.

***Recommended Mitigation:*** No mitigation measures are recommended at this time.

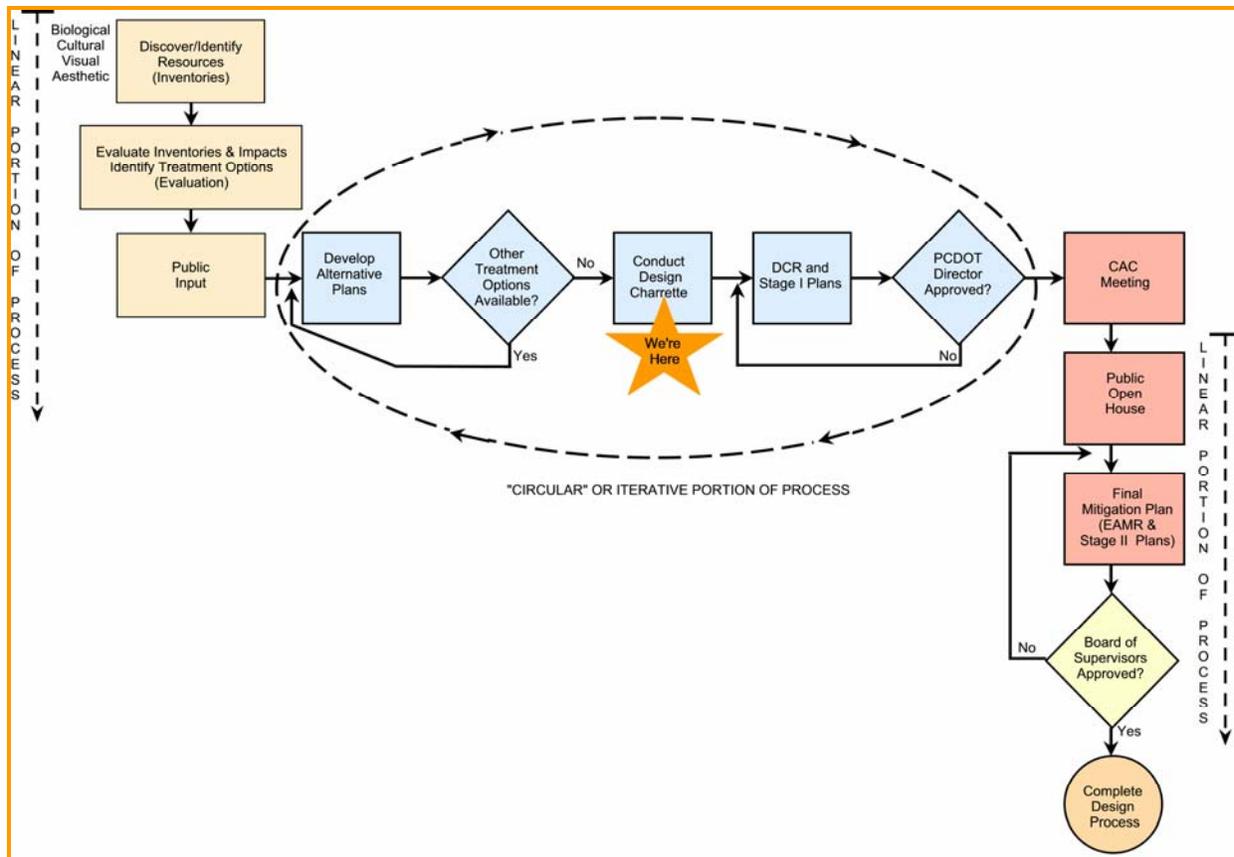
## CHAPTER 7 AGENCY COORDINATION

Agency coordination was carried out in several ways, including through written correspondence and phone calls, and through the the design charrette process required under the ESR Design Guidelines. Agencies with whom coordination has been conducted include both federal and state agencies that have jurisdiction in the project area and issue environmental permits, and local agencies and organizations that have jurisdiction, utilities, uses, or an interest in the area. Federal and state agencies and their involvement include: the State Historic Preservation Office, which is reviewing the eligibility of the two historic properties for listing on the National Register.

### Design Charrette Process

The design charrette process as defined through the Pima County ESR process is intended to bring together the project stakeholders (see Figure 10). In the case of this project, the stakeholders included community representatives, adjacent land owners and tenants, the Union Pacific Railroad, electric and telecommunication utilities, the Vail School District, and Pima County departments and divisions. The purpose of the charrette process and how it was applied in this project is described below.

**Figure 10  
 ESR Process**



Design charrette is used here to mean an interactive workshop that addresses a problem within a specified time period. The advantage of a design charrette is that it brings together a wide range of participants with different expertise and perspectives, allowing a more comprehensive discussion of issues, interrelationships, and impacts. The time limits challenge people to focus on the key issues and reach consensus on alternatives to pursue further.

Pima County held a two-day design charrette for the Colossal Cave Road project in September 2004. The primary focus of the Colossal Cave Road design charrette (hereafter “the charrette”) was to determine how to satisfy the project purpose and need – that is, to achieve better traffic operations through adding a center-left-turn lane, while retaining the road’s scenic qualities through minimizing impacts to surrounding environmentally sensitive features. Steps in the charrette included reviewing issues identified to date, identifying and evaluating different approaches to addressing those issues, developing alternative design solutions, and recommending solutions for further analysis and documentation in the Final DCR.

The charrette was comprised of two four-hour sessions. The first session was held on Tuesday, September 28, 2004, 8:00 a.m. – Noon (hereafter referred to as Day 1), and the second session on Wednesday, September 29, 2004, 1:30 p.m. – 5:00 p.m. (hereafter referred to as Day 2). Both sessions were held at the Woods Memorial Library, 3455 N. 1<sup>st</sup> Avenue, Tucson, AZ.

***Notification:*** As noted previously, a major purpose of the charrette was to get representatives of the multiple disciplines involved in a roadway project together to share their issues and ideas and collaboratively identify possible alternatives for further analysis. Notices were sent to potential participants at the beginning of September. Generally, these were the same parties that would be traditionally involved in the development and review of project plans, including various Pima County Department of Transportation divisions and those utilities with facilities in the project area. Beyond the technical participants, Pima County invited the CAC to send a representative, as well as the Vail School District, which has two schools immediately adjacent to the project segment and a third school just north of the segment.

***Briefing Material:*** Subsequent to the preliminary notification distribution, Pima County distributed a briefing notebook to each potential participant. The notebook was provided in advance of the charrette to allow participants to review background information on the project, to write down issues and/or questions they might want to bring up at the charrette, and to insert additional information or technical data for possible reference during the charrette.

### ***Day 1 of the Charrette***

The charrette began with introductions and a review of the purpose and goals of the charrette. A PowerPoint slide show was then used to discuss the project area, purpose and need, and elements.

Consultant team members representing the various environmental disciplines relevant to the project area then made brief presentations on key issues that they



had identified through their environmental evaluations. Areas addressed included hazardous material, biological resources, cultural resources, and visual quality. PowerPoint slides were used to help illustrate resources of concern. These resources included the Shrine of Santa Rita property and the adobe building directly across the road from the Shrine, both of which are directly adjacent to the roadway and both of which are eligible for nomination to the National Register of Historic Places. Also included in the slides was a photograph of a Pima pineapple cactus, evidence of which was found near, but outside, the project ROW.

Following the informational presentations, staff divided participants into five groups, each of which represented a mix of disciplines. All groups were given a black and white map of the approximately 0.9-mile project area at 1:50 scale (maps were a bit longer than the tables), several different colored markers, and a flip chart for recording key discussion points. Each group was instructed to select a recorder and a spokesperson. The groups were then asked to:

- review and annotate the map with information they had learned about the project area and elements from the various presentation
- add additional information members of their group might have
- identify points of possible conflict and/or opportunity within the project area
- suggest ways that points of conflict and/or opportunity might be addressed, including special treatments that might be considered for enhancing the scenic and historic roadway character

Following the group discussion, each group was asked to report its findings to all the charrette participants. Table 8 provides an aggregated list of suggestion made by the groups. Table 9 presents common criteria heard on Day 1.

### *Day 2 of the Charrette*



To prepare for Day 2, the project team reviewed the input from Day 1 and then developed a variety of materials for use on Day 2, including:

- two profiles and three cross sections
- a PowerPoint summary of Day 1 findings
- a working matrix of criteria suggested during the Day 1 discussion for use in evaluating the profiles and cross sections

This section presents highlights of Day 2 of the design charrette.

**Table 8**  
**Design Charrette Suggestions**

<b>General</b>
Change official name of road to “Vail Road”*
Consider project segment as four distinct zones
Provide gateway monuments
Plan for adequate lead time to obtain permits for railroads
<b>From North to South</b>
<b><i>At Northern Terminus</i></b>
Provide northern entry to town (at approx. northern end of project)
Buffer northern end of project while enhancing views
<b><i>At Old Vail Middle Scholl</i></b>
Provide right-turn lanes for southbound traffic
<b><i>In Area of Tracks</i></b>
Acknowledge historic characteristics of area between the railroad tracks
Provide 75-ft ROW between tracks, take from east side
Provide raised median at tracks
<i>Near Shrine of Santa Rita in the Desert</i> - Relocate Southwest Gas regulator station
<i>At Adobe Building</i> – maximize road offset from adobe building
<i>At Post Office</i> – redesign Post Office mail drop off
<i>At Success Road</i> – increase sight distance
<b><i>At Drainage Basin</i></b>
Soften visual impact of drainage basin
Increase detention basin on east side of roadway, south of southern railroad tracks
<b><i>At Acacia Elementary School</i></b>
Provide right-turn lanes for southbound traffic
Consolidate ingress/egress at Acacia Elementary School
<b><i>At Southern Terminus</i></b>
Provide southern entry to town (at approx. Trotter Sisters Dr.)
Widen ROW at southern end of project
<b>Throughout Project Segment</b>
Provide new sidewalks on both the east side and west side of roadways
Relocate overhead telephone lines on same poles as electric lines on east side roadway

*\*Appeared to be unanimous agreement on this suggestion. Participants said that the name “Vail Road” was consistent with the town through which it runs, would be consistent with the effort to maintain its historic identity, and overall would be less confusing for the traveling public.*

**Table 9**  
**Key Criteria for Consideration**

Criteria
• Preserve historic character of town
• Retain / enhance scenic views
• Maximize pedestrian and bicycle accessibility and safety
• Maximize safety at traffic crossings
• Increase safety at road access points
• Retain adobe building in its current location
• Avoid worsening existing drainage conditions
• Seek ways to address visual inconsistency between town of Vail and proposed development to north
• Strengthen place identity

Day 2 began with introductions of new participants, followed by a review of the Day 1 findings. Key questions identified for resolution included:

- Should the profile be essentially the same as it is today or smoothed out?
- Where and what type of pedestrian and bicycle facilities should be constructed?

The same breakout groups as used for Day 1 were used for Day 2. Again, each breakout group was asked to select a recorder and a spokesperson – preferably different people from those selected on Day I. The breakout groups’ tasks included evaluating the profiles and cross sections developed from participants’ input on Day 1 and determining whether there were additional profiles and cross sections that should be considered.

Each team reported back to the group on their preferences for profiles and cross sections. Altogether the groups added one additional profile to the two developed from the Day 1 feedback, and four additional cross sections to the three developed from the Day 1 feedback as described in Table 10.

At the end of Day 2, each participant was given two dots with which to indicate their preference for two profiles and three dots to indicate their preference for three cross sections. This was not intended as a vote, but rather an indication of those profiles and cross sections participants thought should be evaluated for technical feasibility first.

Table 10 also shows the ranking of the profile and cross section options based on the participants’ preference selections.

### *Partnering and Follow-up Charrette*

Subsequent to the design charrette, Pima County introduced a new partnering process applicable to roadway design projects, including the Colossal Cave Road project. The Colossal Cave design team suggested that the partnering process be combined with a follow-up charrette to go over review comments on the Draft DCR and discuss any unresolved issues.

The all-day Partnering Session/DCR Follow-up Charrette was held on February 15, 2005, at the Manning House, in downtown Tucson. The morning focus was on partnering, and the afternoon was on the follow-up charrette. This set-up allowed application of tools and techniques introduced in the morning to be applied in the afternoon as needed. All participants who were invited to the original charrette were invited to this event. In addition, several stakeholders who were identified after the first charrette were invited to the second charrette, including the Shrine of Santa Rita. Notification was by e-mail and/or letter.

In addition to design team members and reviewers from Pima County Department of Transportation and the prime design consultant, Parsons Brinckerhoff, partnering participants included subconsultants, local utilities, the CAC, and other community interests.

**Table 10**

**Profile and Cross Section Preference Ranking**

<b>Preference Ranking</b>	<b>Profile Description</b>
1**	Profile that is a combination of the two profiles below, with “smoothing out” between the southern project limit and the southern most railroad track, and the existing profile retained between the southern and northern railroad tracks.
2*	A profile that follows the existing topography generally.
3*	A profile that “smoothes out” the existing topography as much as possible.
<b>Preference Ranking</b>	<b>Cross Section Description</b>
1**	No center turn lane between tracks (This was presented separately from sidewalk treatments, and would be looked at in combination with preferred sidewalk treatments.)
<i>Note re cross sections below: The variation in the following crossing sections is focused on the pedestrian facilities; other elements of the cross section are consistent, including two 11-ft travel lanes, one 10-ft center, left-hand turn lane, and shoulders on both sides. (Note: In all but one cross section, the shoulders are assumed to be a 10-ft wide should, with 4 ft gravel and 6 ft paved.)</i>	
2*	5-ft sidewalk on both sides
3**	Natural path on one side and combination bike/sidewalk on the other. (Note: Natural path dimension not specified.)
4**	10-ft sidewalks on both sides
5*	5-ft sidewalk on one side
6**	Sidewalk and narrower shoulder on one side and bike/sidewalk and narrower shoulder on other side
7*	10-ft bike/sidewalk on one side

\*Profile or cross section that was developed based on the Day 1 input

\*\* Profile or cross section that came out of Day 2 breakout group discussions.

**Partnering Session:** The partnering session, which was led by a professional facilitator retained by Pima County, focused on team building through a series of exercises and ultimately the development of an agreement, consisting of six major goals and fifteen clarifying objectives and signed by all the participants. A primary purpose of partnering was to review an Issue Resolution Process and Ladder and Partnering Evaluation Process that all county roadway design teams are being incorporated into their projects.

**Draft DCR Follow-up Charrette:** The afternoon follow-up charrette focused on technical aspects the Colossal Cave Road project. The session began with a PowerPoint presentation on the project status, including a review of the results of the first charrette and how they had been incorporated into the Draft DCR. Subsequent to the PowerPoint show, design team members presented flip sheets showing all the comments that had been received from the reviewers of the Draft DCR. (Note: All those who were invited to the September 2004 design charrette were provided copies of the Draft DCR and invited to provide comments.) The consultant pointed out that the majority of comments were requests for clarification or data corrections, but there were some comments that raised substantive issues for discussion. The issues about which there was the most extensive discussion and agreed upon additional actions are summarized below:

*Design Speed and Posted Speed.* The recommended design speed is 35 mph and the recommended posted limit is 35 mph.

*Number of Lanes between the Railroad Tracks:* The originally proposed project included a center turn lane throughout the project segment with the objective of improving operational capacity by reducing stop delays from left turning vehicles. In addition to this alternative, the Draft DCR provided an alternative that included three lanes north from the southern project limit to the first railroad crossing, then two lanes between the railroad tracks, and finally three lanes from the northern most railroad track crossing to the northern project limit. This latter alternative was introduced in the original charrette as a way to reduce ROW requirements and impacts on the historical sites between the tracks. The latter is in keeping with the goals of the ESR Design Guidelines to minimize ROW encroachment and to be sensitive to biological, historic, and aesthetic resources. (Note: The ESR Design Guidelines had not been adopted by Pima County Department of Transportation when this project was originally identified for consideration.)

Other reasons for considering this reduction of lanes between the tracks included anticipation of (a) fewer trips being generated by uses in this section of the project, even at peak houses, than uses adjacent to the sections north and south of the railroad tracks; (b) a reduction in traffic volume throughout the segment due to the opening of Mary Ann Cleveland Way in Spring 2005; and (c) fewer utility conflicts, particularly with a gas regulator between the tracks, which would most likely need to be relocated if three tracks were to be constructed.

After a lengthy discussion, charrette participants agreed that if the two-lane alternative were to be recommended for the project segment between the tracks, the reasons for this choice should clearly explained in the Final DCR and the EAMR.

*Pedestrian and Bicycle Facilities:* Participants worked together to address several issues related to pedestrian and bicycle facilities proposed for the project, including on which sides of Colossal Cave Road the sidewalk and multiuse path should be located, on which side the sidewalk should be terminated; where crosswalks should be located within the project segment, and whether a pedestrian crossing should be provided between the historic adobe building and historic Shrine of Santa Rita.

**On which side of the project segment should the sidewalk be located and on which side should the multiuse path be located?** Agreement was reached quite quickly that the sidewalk should go on the east side of the Colossal Cave Road where more residential and commercial uses are located and, therefore, where there should be more local foot traffic, and the multiuse path should go on the west side of the road where the elementary and middle schools are located and where there are likely to be more children riding bicycles to school.

**Should the sidewalk, which will be located on the east of Colossal Cave Road, be terminated parallel with the southern boundary of the elementary school or extended further south?** The Vail School representative pointed out that there is a housing development to the south of the project on the east side of the road. Although this development is some distance east, the group decided together that the sidewalk should be extended to the southern project limit to encourage any school children coming from the development to stay on the

sidewalk until they reached the school crosswalk at approximately Colossal Cave Road and Trotter Sisters Drive.

The design team agreed to check the ROW availability at the southern project limits on the east side. This location is on or adjacent to property belonging to the State Trust Land Department.

**What should happen to the two existing crosswalks, one at approximately Colossal Cave Road and Trotter Sisters Drive and the other at the Old Vail Middle School, and should a crosswalk be added at the Acacia Elementary School?** The participants discussed the pros and cons of the various options. Some argued that a crosswalk on the high point of the hill across from the elementary school main entrance would maximize site distance for pedestrians and vehicles. Others pointed out the downside of this location was that it would require pedestrian (often children) mixing with vehicles entering and exiting the school drive. Furthermore, they pointed out that some sort of pedestrian way across the school parking lot would also have to be provided. Regarding the two existing crosswalks, there was little conversation about the crosswalk at the Middle School, but some participants pointed out that the current crosswalk near Trotter Sisters Drive provides access to the Quik Mart, which is a destination for some pedestrian (including children).

Representatives of the design team, PCDOT Traffic, PCDOT Transportation Systems, and the Vail School District agreed to meet at the site after the completion of the speed study to further consider where crosswalks should be located.

**Should there be a pedestrian crossing between the historic adobe building and the Shrine of Santa Rita?** This question arose because project plans call for including interpretive markers near the historic sites, because the sidewalk and multiuse path throughout the project segment are intended to encourage pedestrian and bicycle traffic, and because the representative of the Shrine of Santa Rita noted that the church attract sightseers. The latter suggests that such sightseers may also be interested in walking across the street to see the historic adobe building and read the related marker.

The participants decided that a pedestrian crossing should be carried through the analysis and project documentation. The design team agreed, and noted that before a crossing could be implemented it would need to meet Pima County warrant criteria.

*Size of Return Radii:* There were some comments regarding the larger radii shown on the plans for some of the returns. Some participants suggested these be reduced to the 35-foot minimum to reduce the widths of the driveway entrances in areas where there may be higher pedestrian traffic.

The design team agreed to evaluate the return radii, and is in the process of doing so.

*Overhead Utility Consolidation:* During the first charrette, the group had expressed interest in exploring whether the overhead utilities could be consolidated onto one set of poles to improve the aesthetic look along the roadway. This suggestion seemed in keep with the goals and objectives of the ESR Design Guidelines.

Although there was not time to discuss utility consolidation at the February 15<sup>th</sup> charrette, participants agreed that the Pima County Project Manager should arrange a meeting with the affected utilities to continue exploring this idea. This meeting will be scheduled prior to completion of the EAMR.

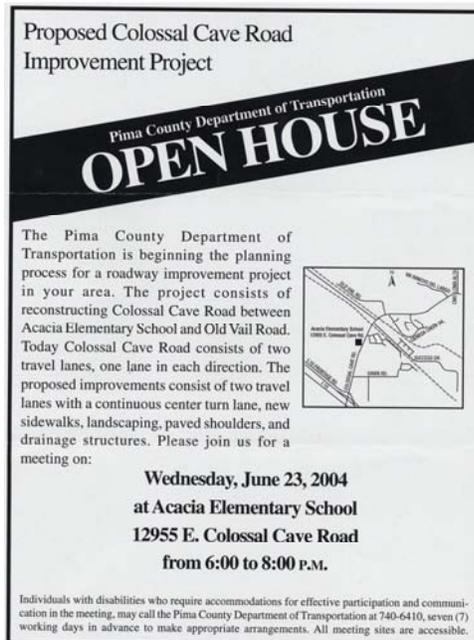
The Partnering and Follow-up Charrette were documented in a report titled *Design “Partnering” / DCR Charrette Workshop Report, Colossal Cave Road Improvement*, prepared by Russell G. Hanson, Facilitator, revised copy March 3, 2005.

## CHAPTER 8 PUBLIC PARTICIPATION

### Public Involvement Process

The public involvement process for this project was laid out in a Public Involvement Plan (PIP) approved by Pima County on June 21, 2004. The plan, which is required under the Pima County Community Participation and Mitigation Ordinance, includes two public open houses and a CAC.

### Public Open Houses



Two public open houses were included in the PIP for this project. The first public open house was held on Wednesday, June 23, 2004, from 6 p.m. to 8 p.m., at the Acacia Elementary School on Colossal Cave Road within the project limits. The purpose of the first open house was to inform the public about the project and to give citizens an opportunity to identify issues that they thought should be considered during plan development. Notifications were mailed to 590 residences and businesses within approximately a half mile of the project area. Additionally, a public meeting notice was posted on the public bulletin board at the Vail Post Office, which is within the project area, and was published in the *Arizona Daily Star* and the *Tucson Citizen* on June 3, 2004.

Eleven people signed in for the open house. The open house format combined a sit-down informational presentation with an interactive issue identification session. During the presentation portion of the open house, team members reviewed the project limits, purpose and need, steps in the public and design processes, and potential environmental and other issues identified to date.

During the interactive issue identification session, members of the public reviewed display boards showing the project limits, elements, etc. Participants were encouraged to annotate a map with issues that they thought were important to address during the process of plan development.

The second public open house is scheduled to be held after approval of the Final DCR, but before the EAMR is completed. At this open house, citizens will have an opportunity to review and comment on the alternatives presented in the Final DCR.

### Business Meeting

In addition to the public open houses, a public meeting was held on December 15, 2004, that focused on businesses and institutions directly adjacent to the project segment. This meeting

was held at the Vail School District offices and included representatives of commercial businesses, the Shrine of Santa Rita church, and the Vail School District. The project team reported on the project process and status to date and then presented the preliminary concept design from the Draft DCR.

### **Community Advisory Committee**

As required under Pima County's Community Participation and Mitigation Ordinance, a CAC was formed to provide advise on the plan development, design, and implementation of the project. The CAC was selected through the following process:

1. Pima County included information about how to apply for membership on the CAC in the September 2004 Public Open House notification sent to 590 residents and businesses within approximately one-half mile of the project area.
2. Pima County distributed applications for CAC nominations at the Public Open House held on June 23, 2004.
3. Pima County reviewed the nominations and selected six citizens to be on the CAC

**CAC Meeting:** Three CAC meetings were specified in the project PIP: the first to be held subsequent to the first public open house; the second to be held December 15, 2004; and the third to be held after approval of the Final DCR by the Pima County Director of Transportation.

The first CAC meeting was held on Wednesday, August 25, 2004, from 6:00 p.m. – 7:00 p.m., at the Acacia Elementary School, within the project limits. All CAC members were in attendance. The meeting began with introductions, followed by a PowerPoint presentation on the project background; purpose and need; activities undertaken by the team to date, including collecting data, identifying potential environmental issues; holding the first public open house, and identifying public issues; and next steps. CAC members were asked to identify any particular issues they had. Pima County encouraged the CAC to select a chairperson.

The second CAC meeting was held on December 15, 2004, also at the Acacia Elementary School. The agenda included a project status report; an update on other area roadway and development projects in planning or design; a report on the results of the design charrette held in September 2004 (see Chapter 6) and on the public meeting regarding issues related to businesses and institutions directly adjacent to the project segment; and finally a review of the alternatives presented in the Draft DCR.

**CAC Involvement in Design Charrette:** Pima County held a design charrette to identify possible alternatives for evaluation and invited the CAC to send one member to the charrette. The outcomes of these design charrettes are described in Chapter 6, Agency Coordination. Subsequently, Pima County held a follow-up charrette to discuss some additional issues that came up during review of the Draft DCR. A CAC member was also invited to this charrette.

**Project Website:** Shortly after the project began, Pima County developed a project website at [www.roadprojects.pima.gov/colossalcave/](http://www.roadprojects.pima.gov/colossalcave/). The site includes a description of the key project improvements, updates and notices regarding public meetings, and a project location map.

## **CHAPTER 9**

### **CONCLUSIONS AND RECOMMENDATIONS**

Given that Colossal Cave Roadway is a Pima County designated environmentally sensitive roadway, a key objective of the design team and stakeholders was to develop a design that avoided adverse impacts to the greatest extent possible. Therefore, the project followed Pima County's current Roadway Design Guidelines that encourage identification of environmental sensitive the planning process so that impact and associated mitigation can be avoided. In the case of this project, a central focus was the cultural resources adjacent to the project site.

#### **Recommendations**

Table 11 summarizes the impacts identified and the recommended mitigation measures. Table 12 provides a preliminary estimate on the cost of the recommended mitigation.

**Table 11**  
**Environmental Assessment and Mitigation Report Impact and Mitigation Summary**

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Biological Resources</b>			
Removal of both native and non-native vegetation	<ul style="list-style-type: none"> <li>• <i>Pygmy owl</i>: Conduct two consecutive years of pygmy-owl surveys prior to construction. Preserve large trees and columnar cacti. Salvage native plants.</li> <li>• <i>Pima pineapple cactis</i>: Conduct full coverage pedestrian survey no sooner than two years before construction. Fence the pima pineapple cactus identified on May 21, 2004, as well as any other pima pineapple cactus that is identified during the survey to avoid impact during project construction. Avoid any other pima pineapple cactus that may be identified during construction to the extent possible. Mitigate any impacted pima pineapple cacti through compensation or off-site habitat banking.</li> <li>• <i>Abert's Towhee and Rufous winged Sparrow</i>: Schedule construction outside breeding season (March – April and June – August) wherever possible.</li> <li>• <i>Swainson's Hawk</i>: Schedule construction outside the breeding season (March-April) where possible to avoid nesting efforts.</li> <li>• <i>Merriam's Mouse</i>: Impacts to xeroriparian washes, which serve as breeding habitat for this species, should be avoided to the maximum extent possible.</li> <li>• <i>Needle-spined pineapple cactus</i>: Translocate impacted individuals to a similar microsite outside of the disturbance footprint.</li> <li>• Preserve in place all native plants to the extent practicable</li> <li>• Relocate on-site healthy, viable trees, shrubs, yuccas, and barrel cactuses to the extent practicable</li> <li>• Coordinate with Arizona Department of Agriculture (AZDA) for other potential salvage efforts.</li> <li>• Implement a revegetation plan</li> </ul>	U.S. Fish and Wildlife Service Arizona Game and Fish Department	Pima County Department of Transportation and Contractor AZDA
<b>Drainage/Section 401/404, Section 402/Clean Water Act Sections 404 and 401 and Section 402</b>			
<u>Re 401/404</u> : No impacts to “waters of the United States.”	No permit required.	Pima County submitted a request for determination on jurisdictional delineation to the Army Corps of Engineers on May 9, 2005. On July 5, 2005, the Army Corps replied that the agency had determined that it did not have jurisdiction in the project site and, therefore, no 404 permit was needed.	—
<u>Re 402</u> : Disturbance of one acre or more.	In 2002, Arizona received authorization from the Environmental Protection Agency (EPA) to operate the National Pollutant Discharge Elimination System Permit Program (Section 402 of the Clean Water Act) on the state level. Because one or more acres will be disturbed by this project, an Arizona Pollutant Discharge Elimination System (AZPDES) permit will be required, including a Stormwater Pollution Prevention Plan (SWPPP), a Notice of Intent (NOI), and a Notice of Termination (NOT). The SWPPP will identify measures to be undertaken to minimize pollutant discharge from the site.	Arizona Department of Environmental Quality	Pima County and Contractor will be responsible for submitting Notices of Intent (NOIs) and Notices of Termination (NOTs) to the Arizona Department of Environmental Quality (ADEQ).
<b>Floodplain</b>			
Disturbance of 1/3 acre of riparian area at each of two drainage crossings.	If a floodplain permit is needed, a mitigation plan will be developed.	Pima County Floodplain Division and ADEQ.	Pima County Department of Transportation

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Air Quality</b>			
<p>Because this project is not a roadway capacity project (i.e., no additional through lanes), the project is not anticipated to affect air quality adversely in the long-term.</p> <p>During construction, disturbances equal to or over one acre.</p>	<p>No long-term mitigation measures proposed.</p> <p>Air Quality Activity Permit from Pima County Department of Environmental Quality (PDEQ) will be required since an acre or more will be disturbed. Short-term measures to mitigate air quality during construction are identified in this table under "Construction."</p>	<p>PDEQ</p>	<p>Contractor</p>
<b>Noise</b>			
<p>Because this project is not a roadway capacity project (i.e., no additional through lanes), the project is not anticipated to affect noise quality adversely in the long-term. Some noise will be generated during construction activities.</p>	<p>No long-term mitigation measures proposed.</p> <p>In keeping with general practice, Pima County will use rubberized asphalt to help address overall vehicular noise levels.</p> <p>Short-term measures to mitigate noise during construction are identified under "Construction."</p>	<p>Pima County Department of Environmental Quality Vail School District</p> <p>Roman Catholic Church Diocese</p>	<p>Contractor</p>
<b>Utilities</b>			
<p>Twelve utilities have been identified as having facilities within the project limits. Some facilities will need to be adjusted and some relocated as a consequence of this project.</p>	<p>Continue to work with the utilities to determine what will need to be relocated and who is responsible for cost and work.</p> <p>Pima County is talking to Tucson Electric Power and Qwest about the possibility of consolidating their lines on one set of poles on one side of the road if economically feasible.</p>	<p>The following utilities are being consulted with: Cox Communication; El Paso Natural Gas; Kinder-Morgan Energy; Level 3 Communications; MCI/Worldcom; Qwest; Southwest Gas; Tucson Electric Power; Union Pacific Railroad; Vail School District; Vail Water Company; and Wiltel Communications.</p>	<p>Pima County Department of Transportation and Involved Utilities</p>
<b>Hazardous Materials</b>			
<p>A Preliminary Initial Site Assessment (PISA) was undertaken. No evidence of recognized hazardous environmental conditions was found within the surveyed area.</p>	<p>No mitigation measures are recommended at this time. If, however, suspected hazardous materials are encountered during construction, work shall cease at that location and the County Engineer will be contacted to arrange for proper assessment, treatment, or disposal of those materials.</p>	<p>The PISA was conducted in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice. No direct coordination or consultation was identified as needed or required.</p>	<p>Contractor</p>

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Construction</b>			
<p>Disruption of traffic flow Generation of dust; generation of noise</p>	<p>Standard industry practices will be utilized during construction activities. These include, but are not limited to:</p> <p><i>For traffic flow</i> : Establishment of appropriate traffic controls needed to maintain an adequate flow of traffic, and maintenance of access to crossroads and adjacent properties, with particular emphasis on traffic, pedestrian, and bicycle flow and access to the Acacia Elementary School and Old Vail Middle School.</p> <p><i>For construction-related air quality impacts:</i> Use of water or dust palliatives on exposed dirt areas; limitation of vehicular speeds on unpaved surface; covering of stockpiles; removal of particulate matter from roads and other paved areas to prevent water entrainment and from building or work areas to prevent particulates from becoming airborne</p> <p><i>For construction-related noise impacts:</i> Restriction of large equipment use to hours between 6:00 am and 6:00 pm. Night work may occur if Pima County determines that such issues as cost, safety, traffic flow, etc., are best served by doing so.</p> <p>In addition, Pima County Department of Transportation will work with the Vail School District and the Roman Catholic Church Diocese to develop a plan that will minimize construction noise effects to the schools and church.</p>	Vail School District	Contractor
<b>Cultural Resources</b>			
<p>A Cultural Resource Survey was conducted. Potential impacts to the historic adobe building on the west side of Colossal Cave Road between the tracks were identified. A Building Assessment Report identified the following potential issues:</p>	<p>Potential measures to shore up the historic adobe building are under review.</p> <p>Construction methods to limit vibration in the area of the historic adobe building will be considered.</p> <p>If previously unidentified cultural resources are encountered during 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. The County will immediately arrange for the proper treatment of the resources.</p>	<p>State Historic Preservation Officer.</p> <p>Also coordination with owner of the historic adobe building and with the Roman Catholic Church Diocese as owner of the historic Shrine of Santa Rita property.</p>	<p>Pima County Department of Transportation will be responsible for assisting with building stabilization efforts where the building overlaps the ROW.</p> <p>Building owner will be responsible for stabilization of the portion of the building on private property.</p> <p>Contractor will be responsible for notifying the County if any unidentified cultural resources are encountered during construction.</p>
<b>Visual Resources</b>			
<p>A visual quality evaluation was undertaken. Potential impacts include the additional asphalt that will have some effect on near and intermediate views. The greatest impact, however, will not be from roadway improvements, but rather from ongoing building along the roadway, which diverts attention away from the longer scenic views.</p>	<p>Design should allow for continued prominence of the mountain views, especially the nearby Santa Catalina Mountains and Rincon Mountains.</p> <p>Near an intermediate views will be improved through the addition of sidewalk and multi-use path, which will better define the roadway edge, reduce the expanse of asphalt created by the combination of pedestrian and roadway facilities, and through the provision of some unifying elements that will signal to a roadway, sidewalk, or multi-use path user that they are in the town of Vail. Such elements may include signature planting groupings, iconic signage or plant materials, and picturesque pedestrian facilities.</p> <p>Special treatment is planned for the historic town center, including entryways, split rail fences along property lines, and pedestrian nodes with benches and historic information.</p>	<p>Pima County Cultural Resources</p> <p>Treatment of visual issues will also be a primary issue for coordination with members of the project's Citizen Advisory Committee.</p>	<p>Pima County Department of Transportation Contractor</p>

Potential Impacts	Recommended Mitigation	Agency Coordination and Consultation	Parties Responsible for Implementation
<b>Right-of-Way Acquisition and Displacement</b>			
New ROW will need to be acquired from the Arizona State Land Department, as well as from three parcels owned by public entities, and five parcels owned by private entities. These ROW acquisitions will not require any displacements.	ROW reimbursement	Arizona State Land Department  Once design plans are confirmed, property owners from whom ROW is needed will be contacted by the Pima County Real Estate Division.	Pima County Department of Transportation
<b>Temporary and Permanent Access and Parking Impacts</b>			
In some areas driveways will be consolidated and in some areas where there is no controlled access, driveways will be defined.  Current crosswalks at Trotter Sisters Drive and Old Vail Middle School will be replaced as part of the reconstruction.	No impacts to any designated parking spaces are anticipated.  <i>Short-term Adjacent Property Access:</i> Access will be maintained to all land uses within the project limits during project construction.  <i>Short-term Crosswalk-related Impacts:</i> Pima County Department of Transportation will work with the Vail School District to continue to maintain the crosswalks during construction.  <i>Permanent Access:</i> The school crosswalk at Trotter Sisters Drive and the crosswalk at the Old Vail Middle School will be replaced.  <i>Long-term Access:</i> Driveway access will be improved to reduce potential vehicle and bus conflict points at the Acacia Elementary School. Pedestrian access will be improved through the introduction of a sidewalk on the east side of the roadway and a multiuse path on the west side.	All property owners (i.e., Vail School District, Roman Catholic Church Diocese, business owners and tenants, residents)	Pima County Department of Transportation Contractor
<b>Neighborhood Disruption</b>			
The project will have short-term impacts on the surrounding neighborhood during construction, particularly in terms of moving through and across the project site. Long-term impacts will be positive, providing an upgraded roadway, new pedestrian and bicycle facilities, and landscaping to help enhance views, create entryways, and pedestrian nodes.	Mitigation for short-term construction projects is discussed above under “Construction” and access issues are discussed under “Temporary and Permanent Parking and Access impacts”	—	Contractor
<b>Parks and Recreational Areas</b>			
There are no public parks in the immediate vicinity of the project. The Acacia Elementary School and Old Vail Middle School play grounds	—	—	—
<b>Consistency with Other Plans</b>			
The project is included in the current Pima County Development Impact Fee Ordinance (effective 7/7/03), and is designated as an Environmentally Sensitive Roadway (ESR), which is subject to the ESR Design Guidelines, included as Chapter 4 of the Pima County Roadway Design Manual, revised December 2003.	The biological and cultural mitigation measures are consistent with the ESR guidelines, which in turn are consistent with the Sonoran Land Use Conservation Plan.	—	Pima County Department of Transportation.

**Estimated Mitigation Cost**

The following items are considered mitigation above and beyond those conditions that were identified and addressed as part of the effort to develop an environmentally sensitive design. The key element of that design is the reduction of the proposed three lane section (two through lanes and a center turn lane) to two lanes between the tracks to preserve the historic and human scale qualities of that area.

**Table 12**  
**Mitigation Measures Costs**

<b>Mitigation Measures</b> <i>Measures above and beyond those that would normally be associated with roadway improvements (e.g., some drainage work and landscaping).</i>	<b>Preliminary Estimated Cost</b>
Assistance to the private owners of the historic adobe building with identifying potential funding grants for building stabilization	\$1,000 <sup>1</sup>
Gateway landscaping features	10,000 <sup>2</sup>
Pedestrian nodes with interpretive markers	\$10,000
Split rail fencing	\$3,825
Minimization of disturbance and vibrations from equipment to reduce potential effects to the adobe building	-- <sup>3</sup>

<sup>1</sup> Estimate approximately several days of PCDOT staff time.

<sup>2</sup> Estimate approximately 20% of landscaping construction costs.

<sup>3</sup> This will be specified in the special provision for the contractor. Estimated costs assumed to be minimal.

Consolidation of the TEP and Qwest overhead utilities has been discussed and is being pursued through the design process for mitigating visual impacts. There has been no final determination as to whether or not this will be feasible for the project.