

La Cañada Drive

River Road to Ina Road

Final Environmental Assessment and Mitigation Report

Pima County Department of Transportation

Project No. 4LCRRI

Federal Project No. STP-PPM-0(201)A

TRACS No. 0000 PM PPM SS639 03D

June 2009



Prepared by



June 2, 2009

Mr. Rick Ellis, PE
Engineering Division Manager
Pima County Department of Transportation
Public Works Building
201 N. Stone Avenue, 4th Floor
Tucson, AZ 85701

RE: Final Environmental Assessment and Mitigation Report
La Cañada Drive, River Road to Ina Road
Pima County Project No. 4LCRRI
HDR Job No. 51587

Dear Mr. Ellis:

We are pleased to submit the *Final Environmental Assessment and Mitigation Report* for the above-referenced project. This report was prepared by Christine Jacobs-Donoghue, Senior Environmental Planner, and was reviewed by Scott Stapp, Senior Environmental Planner, and by Michael Bertram, HDR Project Manager.

Feel free to contact me at (520) 584-3629 if you have any questions or comments regarding the report. You may reach Ms. Jacobs-Donoghue at (520) 584-3658.

Sincerely,
HDR Engineering, Inc.

Michael H. Bertram, PE
Senior Project Manager

Christine Jacobs-Donoghue
Senior Environmental Planner

Attachments

La Cañada Drive River Road to Ina Road

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201 N. Stone Avenue
Tucson, AZ 85701
Project No. 4LCRRI
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Prepared by:
HDR Engineering, Inc.
5210 E. Williams Circle, Suite 530
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HDR Project No. 51587

The logo for HDR Engineering, Inc. consists of the letters "HDR" in a bold, black, serif font.



Executive Summary

The Pima County Department of Transportation (PCDOT) proposes to widen approximately 2.7 miles of La Cañada Drive from a two-lane arterial road into a four-lane arterial road between River Road and Ina Road (Figure ES-1). The project also includes the installation of a closed stormwater collection and conveyance system, installation of culverts to create an all-weather roadway, and addition of curbs, sidewalks, bike lanes, and a public use trail.

Because of the characteristics of the project area, the environmentally sensitive roadway design requirements have been waived. This Environmental Assessment and Mitigation Report (EAMR) evaluates the proposed roadway improvements.

Project name:	La Cañada Drive, River Road to Ina Road
Pima County project number:	4LCRRI
Project location and limits:	2.7 miles along La Cañada Drive beginning at the northern side of the River Road intersection and extending north to approximately 200 feet south of Ina Road. The project width is approximately 150 feet. At the intersection with Orange Grove Road, the project extends west approximately 2,000 feet and east approximately 1,900 feet.
Construction fiscal year:	2011

Project Cost and Funding

The total cost to Pima County for this project is estimated to be \$45.2 million. Current project funding includes (1) sales tax revenue from the citizen-approved *Regional Transportation Plan* administered by the Regional Transportation Authority, (2) Federal Highway Administration Surface Transportation Program funds, and (3) Pima County developer impact fees.

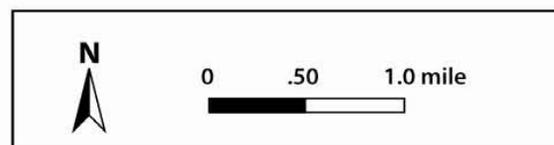
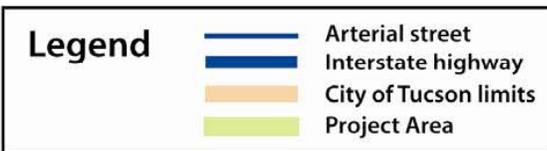
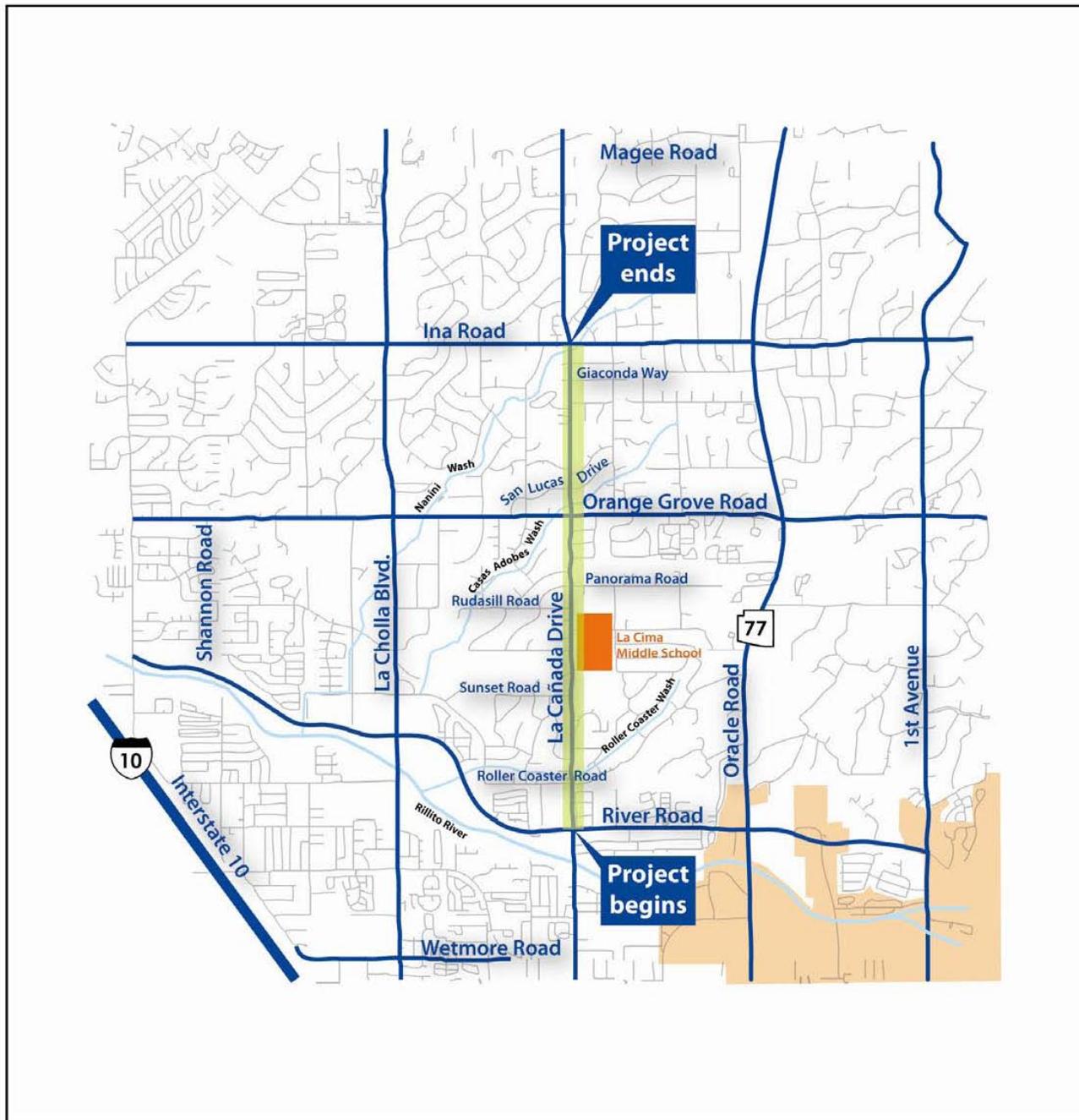
Purpose and Need

The purpose of the project is to widen La Cañada Drive between River Road and Ina Road to a four-lane road to increase capacity; improve traffic operations; provide an all-weather road surface; increase mobility through the provision of bike lanes, sidewalks, and a public use trail; and improve drainage facilities.

The project will reduce existing and future traffic congestion on La Cañada Drive by providing additional capacity and more efficient intersection operation. The project will construct raised medians, left-turn lanes, and a frontage road that will concentrate turning movements, thereby improving traffic operation and reducing the number of potential collision points along the corridor. The project will provide an all-weather travel surface for the road through drainage improvements including culvert installation and the addition of a closed stormwater collection and conveyance system. The drainage improvements will reduce the 100-year floodplain limits downstream of the project area, which will benefit several residential properties. The project will also improve mobility through the provision of bike lanes, sidewalks, and a public use trail.



Figure ES-1. Project vicinity





Proposed Project

The project involves the widening of La Cañada Drive between River Road and Ina Road. Project construction is scheduled to begin in fall 2011 and last 24 to 30 months.

The project includes the construction of the following specific improvements:

- widen La Cañada Drive from a two-lane road to a four-lane road (with two lanes northbound and two lanes southbound) between River Road and Ina Road
- construct a frontage road on the eastern side of La Cañada Drive between Roller Coaster Wash and Whispering Hills Drive
- construct raised medians, dedicated turning lanes, on-street bike lanes, and sidewalks throughout the length of the project
- construct a public use trail next to the sidewalk, with a vegetative buffer between the sidewalk and trail
- reconstruct the intersection with Orange Grove Road to provide two through lanes, dual left-turn lanes, a right-turn lane, and a through bike lane at all four legs of the intersection
- replace or upgrade traffic signals at River Road and Orange Grove Road
- construct bus pullouts on the departure side of La Cañada Drive at Roller Coaster Road and at Orange Grove Road
- replace or construct new culverts at five major washes and several minor washes
- construct warranted noise barriers consistent with the Pima County Noise Abatement Policy
- install street lighting at River Road, Roller Coaster Road, Kimberly Street, and La Cima Middle School
- install landscape improvements on medians and along shoulders within the project limits
- install artwork to be incorporated into the design and landscape improvements
- coordinate necessary relocation of existing utilities
- demolish two residential structures on the western side of La Cañada Drive
- construct a closed stormwater collection and conveyance system
- reconstruct cross-street configurations with the new La Cañada Drive alignment to match the new road elevation
- reconstruct access points for private properties adjacent to La Cañada Drive to match the new road elevation
- construct driveway pullouts for mail and refuse collection services
- install school crossing striping and signs at La Cima Middle School and at Roller Coaster Road
- install signal conduit systems at La Cima Middle School and at Roller Coaster Road
- install intelligent transportation system conduit along the length of the road



Environmental Assessment and Mitigation

This section summarizes the key findings and recommended mitigation for project-related environmental impacts, based on the evaluation of each of the topics below.

Biological Resources

The project area is moderately to densely vegetated, primarily with native plants, including species subject to Pima County's Native Plant Preservation Ordinance and the Arizona Native Plant Law. Plants will be preserved in place, salvaged and relocated, or replaced to match existing vegetation densities of the adjacent undisturbed areas. Landscape plans will be developed to reflect these criteria. The Arizona Department of Agriculture will be notified regarding native plant removal.

The federally listed endangered lesser long-nosed bat has the potential to use the project area for forage. A federally recognized species of concern—the cactus ferruginous pygmy-owl—has the potential to occur within the project area. A biological evaluation was conducted to determine the potential effect on these species; it concluded that the project will have no effect on either species or their habitats.

The project has the potential to affect nesting birds protected under the International Migratory Bird Treaty Act. Protocol surveys for the burrowing owl and clearance surveys for nesting birds are recommended.

Drainage and Clean Water Act

This project area is located within the Upper Santa Cruz and Avra Basin sole source aquifer designated area. Twenty-three wash crossings occur along La Cañada Drive. The largest two washes drain just over 1 square mile: Roller Coaster Wash, with 1.2 square miles, and Casas Adobes Wash, with 1.1 square miles.

The project is in the foothills area of the Santa Catalina Mountains. All of the drainage basins that cross this project area occur on the alluvial outwash of the mountains. The road is oriented north-south, and the drainage occurs from northeast to southwest, with most crossings occurring at an angle ranging from 45 to 90 degrees.

A preliminary jurisdictional delineation has been submitted to the U.S. Army Corps of Engineers (Corps). The Corps determined six project area washes are under its jurisdiction. They are Roller Coaster Wash, Las Lomas Wash, Citrus Wash, an unnamed tributary of Citrus Wash, Casas Adobes Wash, and Chula Vista Wash. A Clean Water Act (CWA) Section 404 permit will be required for work within these washes. For this project, use of Nationwide Permit No. 14 – Linear Transportation Projects will be requested. Furthermore, a preconstruction notice to the Corps will be required. Regarding CWA Section 401 water quality requirements, the six jurisdictional washes in the project area would be conditionally certified under the terms of Nationwide Permit No. 14.

Because the project will disturb more than 1 acre of land, the project will require a CWA Section 402 permit for compliance with the Arizona Pollutant Discharge Elimination System program. Section 402 compliance can be obtained by filing a Notice of Intent to use the statewide Construction General Permit with the Arizona Department of Environmental Quality, along with the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP identifies potential sources of stormwater pollution at the construction site and defines the methods



for preventing stormwater pollution. These best practices include erosion and sediment control, good housekeeping measures (i.e., site cleanup, hazardous materials management, and equipment maintenance), efforts to protect natural resources, and maintenance/inspection procedures. The SWPPP also identifies procedures to comply with requirements in the Construction General Permit.

The project will affect designated washes (regulated riparian habitat) under the Pima County Riparian Ordinance. Impacts to regulated riparian habitat will be assessed in coordination with Pima County Regional Flood Control District.

Floodplain

No adverse impacts to floodplains have been identified. As previously noted, impacts to Pima County regulated riparian habitat will be assessed in coordination with Pima County Regional Flood Control District.

Air Quality

The project will produce a temporary increase in particulate matter (i.e., dust) during construction. This impact will be short term in nature, and measures will be implemented to minimize this impact during construction.

Two properties will be acquired and the buildings demolished. The buildings will need to be assessed for the presence of lead and asbestos prior to demolition.

The overall impacts of the project on air quality will be positive for the following reasons: (1) the project will decrease traffic congestion, thereby reducing emissions associated with idling vehicles and (2) the project will provide curbs, thereby reducing the amount of particulate matter that is tracked onto the roadway from the currently unpaved right-of-way (R/W) and released into the air.

Noise

Regional growth and the increased traffic capacity from the project will result in increased traffic volumes along the road corridor. The resulting traffic noise levels will exceed acceptable noise levels, based on the Pima County Noise Abatement Procedure (PC NAP) criteria of 66 A-weighted decibels (dBA) at 65 noise sensitive properties. Rubberized asphalt will be used in road construction and will result in a noise reduction. La Cima Middle School, a church, and all residential locations adjacent to the roadway were considered for noise mitigation. Noise barriers were deemed reasonable and feasible at 12 single-family residences and 6 apartment buildings. Noise barriers are recommended for construction at the following locations:

- two noise barriers located in front of the apartment buildings at the northeastern corner of River Road and La Cañada Drive
- one noise barrier located in the island to be constructed between La Cañada Drive and the frontage road along the eastern side of La Cañada Drive, north of Roller Coaster Road and south of Whispering Hills Road
- one noise barrier (two segments) located in front of the residences along the western side of La Cañada Drive, north of Neosho Place and south of Flint Avenue
- two noise barriers located on the eastern side of La Cañada Drive, between the roadway and the residences flanking Coachwhip Drive



Utilities

Affected utilities that will require relocation as part of the project include overhead and underground lines and underground (wet and dry) pipes. Relocation work may result in temporary service interruptions to area residences and businesses. Businesses and residences will be notified in advance of any interruptions.

Hazardous Materials

One potential hazardous materials site was identified: an operating service station. Project construction in this area will be limited and will not include excavation.

Construction Activities

Access to homes and businesses will be maintained during construction. No detours or temporary roads will be constructed. Traffic measures are likely to slow traffic during construction. Construction activities will result in temporary dust generation and noise. Standard measures will be employed to reduce dust and noise.

The project will result in temporary noise impacts during project construction associated with the operation of heavy equipment. Mitigation measures are proposed to minimize short-term construction noise to the extent practicable; however, construction noise impacts will occur. The contractor will comply with Pima County's Noise Ordinance (Pima County Code Chapter 9.30.070).

Cultural Resources

The project does not have the potential to affect any cultural resources. No further cultural resources work is required. The project is likely to require the acquisition and demolition of two residences in order to accommodate the roadway widening. The evaluation of these residences concluded that one property did not meet age requirements to be considered historic. The other property was recommended as not eligible for listing in the National Register of Historic Places because of extensive recent alterations. Concurrence from the State Historic Preservation Office on these recommendations will be obtained to comply with Section 106 of the National Historic Preservation Act.

Visual Resources

The greatest changes to the visual character of the project area will occur in the foreground and middle ground by converting the existing two-lane road to a four-lane road with sidewalks, a public use trail on the western side, and recommended noise barriers. Foreground and middle ground views will have a moderate increase in structured hardscape compared with the existing undeveloped R/W. The existing dip crossings at washes will be eliminated, thus creating a less undulating roadway. If warranted noise barriers are constructed, their 6- to 10-foot height will affect existing background views. Landscape plantings and artistic elements are recommended to soften the hardscape and improve the aesthetic appeal of the project corridor.

Right-of-Way Acquisition and Displacement

New R/W totaling approximately 2.9 acres will be needed at 12 properties to accommodate the road widening and the intersection improvements at Orange Grove Road. Total acquisition will occur at two residential properties. New drainage easements totaling approximately 3.4 acres will be needed



at 25 properties to accommodate drainage improvements (culverts) at existing washes. Excepting the two residences, property acquisitions will affect a relatively minimal portion of each property and will not substantially affect their current use or future development.

Approximately 4.9 acres in temporary construction easements are needed throughout the corridor to facilitate construction. Most of the easements are from properties along the La Cañada Drive frontage. Property owners will be compensated for permanent or temporary use of their property.

Temporary and Permanent Access and Parking Impacts

This project will introduce raised medians with turning lanes to improve safety and traffic operations by reducing the number of potential collision points. Pedestrian, bicycle, and equestrian access will be improved through the addition of sidewalks, defined bike lanes with curbs, and a new public use trail along the western side of the road. No impacts to parking are anticipated. Access to businesses, schools, and residences will be maintained during construction.

Neighborhood Disruption

The project area predominantly consists of low-density residential, with some moderate- to high-density residential near River Road. Other land uses include commercial, public (Metropolitan Domestic Water Improvement District, La Cima Middle School), church, vacant land, and flood control/wash.

Project construction will temporarily produce dust, noise, and traffic delays within the project area. Standard measures to control dust and noise will be implemented during construction. Access to residences, schools, and businesses will be maintained during construction, but some traffic delays will be unavoidable. The traffic study identified possible alternate routes along Calle Kino/Panorama Road, Roller Coaster Road, and Rudasill Road that should be monitored for increased traffic volumes, and, if needed, traffic calming measures should be considered. The existing bike lane and public use trail will be rerouted within project limits during construction.

The project will result in permanent neighborhood impacts as well. The construction of raised medians and turning lanes will improve safety and operations, but will also modify current access conditions by controlling turning movements. The project will promote better overall connectivity by improving pedestrian facilities, bicycle lanes, and public use trails.

Parks and Recreational Areas

Project activities will temporarily disrupt current use of the R/W and shoulder. Bicyclists, pedestrians, and equestrians will be temporarily rerouted within project limits during construction. However, the project will construct sidewalks, striped on-street bike lanes, and a public use trail that will provide enhanced recreation benefits for the corridor.

Consistency with Other Plans

The project will implement one of the first phase projects of the *Regional Transportation Plan*. The project has been designed and evaluated to be consistent with the *Pima County Roadway Design Manual* and conforms to American Association of State Highway and Transportation Officials standards. The project is generally consistent with Circulation Element policies B, C, D, H, K1, and L from the Pima County *Comprehensive General Plan Update*.



Environmental Assessment and Mitigation Summary Table

For the adverse impacts identified in this assessment, a summary describing the impact, recommended mitigation, necessary coordination with other agencies, and the parties responsible for implementing the mitigation is provided in Table ES-1.

Table ES-1. Impact and mitigation summary

Potential impacts	Recommended mitigation	Agency coordination and consultation	Parties responsible for implementation
Removal of native plants	Comply with Arizona Native Plant Act and Pima County’s Native Plant Preservation Ordinance and mitigate removed or relocated vegetation to match existing densities of adjacent, undisturbed areas. Saguaros will be mitigated at a 1:1 ratio.	Arizona Department of Agriculture	Pima County and Contractor
	File a Notice of Intent with the Arizona Department of Agriculture 60 days prior to the removal or salvage of applicable native plants.	Arizona Department of Agriculture	Pima County
Disturbance of nesting birds	Conduct protocol burrowing owl surveys 90 and 30 days prior to construction activities.	Arizona Game and Fish Department	Qualified Biologist and Pima County
	Conduct biological monitoring of the major washes to check for nests of birds protected by the International Migratory Bird Treaty Act.		Qualified Biologist and Contractor
Impacts to waters of the United States	The County will obtain a Clean Water Act Section 404 Nationwide Permit No. 14 and comply with permit conditions. This permit will provide conditional water quality certification for the six jurisdictional washes in the project area in compliance with Section 401 of the Clean Water Act.	United States Army Corps of Engineers	Pima County and Contractor
Regulated riparian habitat impacts	A riparian impact assessment will be prepared and, if needed, mitigation will be developed in conjunction with the Pima County Regional Flood Control District to compensate for impacts to regulated riparian habitat.	Pima County Regional Flood Control District	Pima County and Contractor
Stormwater impacts resulting from soil exposure, erosion, etc.	The County and Contractor will file a Notice of Intent to use the statewide Construction General Permit with the Arizona Department of Environmental Quality and prepare and implement a Stormwater Pollution Prevention Plan.	Arizona Department of Environmental Quality	Pima County and Contractor

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Table ES-1. Impact and mitigation summary (*continued*)

Potential impacts	Recommended mitigation	Agency coordination and consultation	Parties responsible for implementation
Dust during construction	Implement standard specifications for dust suppression and comply with the Stormwater Pollution Prevention Plan (referenced above). Obtain an Activity Permit from the Pima County Department of Environmental Quality.	Pima County Department of Environmental Quality	Contractor
Air pollutant emissions resulting from construction	Prior to the demolition of any building, a National Emission Standards for Hazardous Air Pollutants permit will be obtained from the Pima County Department of Environmental Quality.	Pima County Department of Environmental Quality	Contractor
Asbestos and lead emissions	An Asbestos Hazard Emergency Response Act Certified Building Inspector will complete asbestos and lead testing of the structures, and conduct lead/asbestos abatement if needed.	Pima County Department of Real Property	Pima County
Traffic noise	Construct noise barriers as identified in the traffic noise report.	Pima County Department of Transportation	Contractor
Construction noise	Construction equipment will be maintained in good working order, intake silencers will be used where appropriate, new equipment will be subject to new product noise emission standards, stationary equipment will be located as far away from sensitive receivers as possible, and construction activities adjacent to residential areas will be limited to daylight hours to maximum extent practicable. The contractor will comply with Pima County's Noise Ordinance (Pima County Code Chapter 9.30.070), which sets the construction start and stop times in order to avoid noise disruptions at night. If nighttime work is required, the contractor will need to obtain a permit from Pima County.	Pima County Department of Transportation	Contractor
Utility service interruptions	Customers will be notified in advance of any utility service interruptions.	Applicable utilities	Utility or Contractor

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Table ES-1. Impact and mitigation summary (*continued*)

Potential impacts	Recommended mitigation	Agency coordination and consultation	Parties responsible for implementation
Exposure of unanticipated hazardous materials	If suspected hazardous materials are encountered during construction, work shall cease at the location and the Pima County Engineer shall be contacted to arrange for proper assessment, treatment, or disposal of those materials.	Pima County Department of Transportation	Contractor
Business, school, and residential access during construction	The contractor shall maintain access to schools, businesses, and residences. The contractor shall provide signs to identify business and school access during construction.	Pima County Department of Transportation	Contractor
Pedestrian, bicyclist, and equestrian routing during construction	During construction, the contractor shall designate a pedestrian, bicyclist, and equestrian route around the work zone when needed.	Pima County Department of Transportation	Contractor
Disturbance of subsurface cultural resources	If site features or previously unidentified cultural resources are encountered during construction at any location other than the monitored locations, the contractor should stop work immediately at that location, take all reasonable steps to secure the preservation of those resources, and contact the archaeological monitor.	Arizona State Museum Applicable tribes State Historic Preservation Office Pima County Cultural Resources and Historic Preservation Office	Contractor
Visual impact associated with preponderance of hardscape	Include landscaping plantings in front of noise barriers and in project medians where practicable to soften the appearance of the hardscape.	Pima County Department of Transportation	Pima County
Permanent acquisition and temporary use of property	The county will compensate property owners at fair market value for the permanent or temporary use of property as mitigation consistent with federal and state law.	Pima County Department of Real Property	Pima County
Cut-through traffic increases on residential streets	Following construction, periodically evaluate Calle Kino/Panorama Road, Roller Coaster Road, and Rudasill Road for the presence of cut-through traffic. Monitoring shall be conducted as directed by a qualified traffic engineer.	Pima County Department of Transportation	Pima County
Impacts at school crosswalks	Following construction when vehicular traffic, bicycle, and pedestrian patterns have stabilized, the crosswalks at La Cima Middle School and Roller Coaster Drive will be assessed for additional striping, signs, and pedestrian flashers.	Amphitheater Public Schools Pima County Department of Transportation	Pima County



Agency Coordination

Pima County will continue to cooperate with several agencies and organizations for this project, as follows:

- Federal Highway Administration – funding and environmental requirements
- Arizona Department of Transportation – administering funding and environmental requirements on behalf of the Federal Highway Administration
- Regional Transportation Authority – funding and business outreach
- Pima Association of Governments – regional bicycle facilities
- Sun Tran – design of transit facilities (bus pullouts and stops)
- Western Area Power Administration – relocation of utility poles and environmental requirements
- affected private and municipal utilities – impacts and relocation
- Corps – compliance with Section 404 of the CWA
- Arizona Department of Environmental Quality – compliance with Sections 401 and 402 of the CWA
- Arizona Department of Agriculture – native plant requirements
- Arizona Game and Fish Department – sensitive plant and animal species
- U.S. Fish and Wildlife Service – sensitive plant and animal species (lesser long-nosed bat)
- U.S. Environmental Protection Agency – sole source aquifer
- State Historic Preservation Office and interested tribes – impacts to cultural resources (consultation to be conducted by the Arizona Department of Transportation)
- Pima County Cultural Resources and Historic Preservation; Environmental Quality; Natural Resources, Parks, and Recreation; Regional Flood Control District; and Regional Wastewater Reclamation – project coordination
- Center for Biological Diversity, Sierra Club Rincon Group, Sky Island Alliance, Tucson Audubon Society – environmental issues and concerns

Public Participation

Public involvement activities have included the following key activities:

- conducted a partnering workshop to gather general comments from project partners
- formed a Community Advisory Committee (CAC)
- held eight CAC meetings focusing on the CAC and project process, roadway design, environmental assessment, artwork, Draft Design Concept Report, and Draft EAMR
- held two workshops to gather comments from the public
- held a public meeting to present draft versions of the Design Concept Report and EAMR and gather comments on the project
- conducted outreach to area businesses regarding the project and the Regional Transportation Authority Main Street business assistance program



Additional CAC meetings will be held to discuss other key stages of project design. A public hearing will be held on the EAMR.

Community Comments

The project design includes several elements that have generated comments from the CAC and the community. Key CAC and community comments are outlined below, as well as Pima County's response indicating how these items are being addressed

Noise barriers. Pima County has received differing opinions on the desirability of noise barriers, with many residents favoring the provision of noise barriers between the road and residences. A noise study was conducted for the project and, based on the study, noise barriers are warranted in six areas. Property owners benefited by the barriers (achieving a 5-dBA or greater noise reduction) will be contacted to determine whether the warranted noise barriers are desired. The PC NAP directs that 51 percent of the benefited property owners must consent to the barrier for it to be constructed.

School zone safety. Pima County has received requests for pedestrian flashers at the school crosswalks serving La Cima Middle School and Lulu Walker Elementary School. High-intensity activated crosswalk (HAWK) warrant studies were performed at the crosswalk serving La Cima Middle School and at the intersection of La Cañada Drive and Roller Coaster Road, which serves Lulu Walker Elementary School. The results of the studies indicated that neither of the school crossings warranted HAWK pedestrian flashers. However, following meetings with administrators from each school and the Amphitheater Public Schools transportation staff, the project team decided to install school crossing striping and signs at La Cima Middle School and Roller Coaster Road. Long-term staffing of crossing guards at these locations will be provided by the school district. Signal conduit will be installed at the northern and southern driveways of La Cima Middle School and at Roller Coaster Road should traffic signals and/or HAWK signals be warranted in the future. Further assessment for additional striping, signs, and signalization will be conducted once the project is constructed and vehicular traffic, bicycle, and pedestrian patterns have stabilized.

Drainage. Drainage improvements have been designed to make La Cañada Drive an all-weather-access road by directing flow under the road. Concrete box culverts with channel improvements to improve hydraulic performance are proposed to be constructed at five major wash crossings, with smaller culverts at eighteen other locations. A closed stormwater system consisting of catch basins, manholes, and storm drains will be constructed to collect and discharge stormwater from La Cañada Drive to the adjacent washes. Stormwater runoff from La Cañada Drive draining onto adjacent properties will be eliminated by this project.

Access. Raised medians limit access, but also reduce the potential for collisions by controlling turning movements and lane crossover. U-turns will be allowed at median openings to facilitate access to local streets. Frontage roads will provide controlled access to an area of closely-spaced properties that currently access directly to La Cañada Drive.

Right-of-way and easement acquisition. Pima County has received comments expressing concerns related to the easements required for the project. The proposed design maximizes use of the existing R/W and existing drainage easements. Additional easements will be necessary to provide an adequate buffer for surveys, construction, and maintenance activities. Two properties will be acquired completely to accommodate the proposed roadway alignment.



Vegetation. Vegetation will be affected by construction activities. A native plant survey has been conducted in accordance with the Pima County Native Plant Preservation Ordinance and the Arizona Native Plant Law. Plants that can be avoided during construction will be preserved in place. Protected native plants that cannot be avoided have been evaluated for their ability to be salvaged and/or relocated. In most cases, healthy specimens will be salvaged, stored, and replanted on this or other Pima County project areas. Property owners with native plants located in temporary construction easements will be compensated prior to construction based on the anticipated number of trees and plants that may be disturbed. If they are disturbed during construction, it will be the responsibility of the property owner to revegetate and irrigate the disturbed areas.

Equestrian use. The public use trail has been narrowed to accommodate a vegetative buffer between the sidewalk and the public use trail, at the request of the Pima Trails Association. Equestrians believe this will provide safer conditions for trail users. Where there is sufficient R/W and an appropriate grade, the trail will be widened to meander farther away from the sidewalk.

Truck route signs. Pima County has received requests to restrict trucks from using from this segment of La Cañada Drive. Classification studies of heavy vehicle usage conducted in April 2006 revealed a relatively insignificant number of trucks using La Cañada Drive. No changes in truck usage are anticipated as part of the project. No changes to the designation or restrictions related to truck use on La Cañada Drive are warranted.



Public Participation Summary Table

Table ES-2 summarizes the public involvement activities undertaken for the project. Copies of public involvement materials, including advertisements, notices, and meeting summaries, are included in Appendix A.

Table ES-2. Public participation activities

Date, time, and location or date and means of distribution	Notification	Attendance or distribution or coverage	Methods of public input documentation and response
Project mailing list			
Not applicable	Not applicable	3,986 parties, including the Community Advisory Committees (CACs) for this project and the project to the north, the project team, interested parties, and residents in the mailing area encompassing 0.5 mile on each side of La Cañada Drive	Not applicable
Partnering workshops			
Thursday, March 1, 2007 8 a.m. to 5 p.m. Friday, March 2, 2007 8 a.m. to 12 p.m. Metropolitan Domestic Water Improvement District	Notice mailed to the project team, partnering agencies, property owners, businesses, CAC members, and homeowner associations	Nine from Pima County Department of Transportation, one from Arizona Department of Transportation, nine from project team, four from partnering agencies, and one from CAC in attendance	The project management and team organization were discussed, as well as the partnering principles. Both days involved a project site visit and walk-through with a follow-up discussion of issues and concerns.
Community Advisory Committee formation			
CAC was formed in October 2006	Newspaper ad in the <i>Daily Territorial</i> , <i>Arizona Daily Star</i> , and <i>Tucson Citizen</i> on July 26, 2006 Notices mailed to the project mailing list encompassing 0.5 mile on each side of La Cañada Drive	Not applicable	One hundred applications were received, and 15 CAC members were selected from the applicants.

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Table ES-2. Public participation activities (continued)

Date, time, and location or date and means of distribution	Notification	Attendance or distribution or coverage	Methods of public input documentation and response
<i>Community Advisory Committee meetings</i>			
<p>Tuesday, May 8, 2007 5 to 7 p.m. Fellowship Hall of St. Mark's United Methodist Church</p>	<p>Notice mailed to the CAC and parties on the project mailing list Notice posted to the project Web site</p>	<p>12 CAC members (with 1 member of the northern project CAC) and 21 members of the public in attendance</p>	<p>The CAC and project team members were introduced, followed by discussion of how a CAC operates, a project overview, and the engineering and environmental phases of the project. Comments from CAC members were documented in meeting minutes.</p>
<p>Tuesday, August 28, 2007 5:30 to 7:30 p.m. Fellowship Hall of St. Mark's United Methodist Church</p>	<p>Notice mailed to the CAC and parties on the project mailing list Notice posted to the project Web site</p>	<p>15 CAC members (with 4 members of the northern project CAC) and 10 members of the public in attendance</p>	<p>The meeting included a discussion of project purpose and need, roadway alignment, and proposed improvements to drainage and public use facilities. The team gave status updates for the project reports, permitting, and property acquisitions. Questions from the CAC and public were documented in meeting minutes.</p>
<p>Tuesday, November 27, 2007 5:30 to 7:30 p.m. Fellowship Hall of St. Mark's United Methodist Church</p>	<p>Notice mailed to the CAC and parties on the project mailing list Notice posted to the project Web site</p>	<p>15 CAC members and 12 members of the public in attendance</p>	<p>The meeting included an update on the status of reports, an overview of the project schedule, and an introduction to the noise study procedure. The CAC members' concerns were discussed and comments were documented in meeting minutes.</p>

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Table ES-2. Public participation activities (*continued*)

Date, time, and location or date and means of distribution	Notification	Attendance or distribution or coverage	Methods of public input documentation and response
<i>Community Advisory Committee meetings (continued)</i>			
<p>Tuesday, May 27, 2008 5:30 to 7:30 p.m. Fellowship Hall of St. Mark's United Methodist Church</p>	<p>Notice mailed to the CAC and parties on project mailing list Notice posted to the project Web site</p>	<p>6 CAC members and 10 members of the public in attendance</p>	<p>The meeting included an update on the status of environmental reports and the results of the noise study. Public and CAC member comments were addressed and documented in meeting minutes.</p>
<p>Tuesday, October 7, 2008 5:30 to 7:30 p.m. Tucson Chinese Cultural Center</p>	<p>Notice mailed to the CAC and parties on project mailing list Notice posted to the project Web site</p>	<p>5 CAC members and 28 members of the public in attendance</p>	<p>Comments generated from the June workshops were reviewed and key topics were discussed. The meeting included an update on the status of environmental reports, and the project artist was introduced. Public and CAC member comments were addressed and documented in meeting minutes.</p>
<p>Wednesday, January 21, 2009 5:30 to 7:30 p.m. Tucson Chinese Cultural Center</p>	<p>Notice mailed to the CAC and parties on project mailing list Notice posted to the project Web site</p>	<p>12 CAC members and 32 members of the public in attendance</p>	<p>Community members were encouraged to write comments regarding the proposed public art.</p>
<p>Tuesday, March 24, 2009 5:30 to 7:30 p.m. Tucson Chinese Cultural Center (joint meeting with northern project CAC)</p>	<p>Notice mailed to the CACs and parties on project mailing lists Notice posted to the project Web sites</p>	<p>14 CAC members (with 4 members of the northern project CAC) and 28 members of the public in attendance</p>	<p>The meeting included a presentation of public art concepts and a schedule overview. Public and CAC member comments were addressed and documented in meeting minutes.</p>

(continued on next page)



Table ES-2. Public participation activities (continued)

Date, time, and location or date and means of distribution	Notification	Attendance or distribution or coverage	Methods of public input documentation and response
Community Advisory Committee meetings (continued)			
<p>Thursday, May 7, 2009 5:30 to 7:30 p.m. Tucson Chinese Cultural Center</p>	<p>Notice mailed to the CAC and parties on the project mailing list Notice posted to the project Web site</p>	<p>7 CAC members and 26 members of the public in attendance</p>	<p>Draft versions of the Design Concept Report (DCR) and Environmental Mitigation and Assessment Report (EAMR) were presented to the CAC. The CAC recommendation letter was also discussed.</p>
<p>Additional meetings are planned to review final design plans.</p>	<p>Not applicable</p>	<p>Not applicable</p>	<p>Not applicable</p>
Workshops			
<p>Monday, June 23, 2008 and Wednesday, June 25, 2008 5:30 to 7:30 p.m. Tucson Chinese Cultural Center</p>	<p>Notice mailed to the CAC and parties on project mailing list Notice posted to the project Web site</p>	<p>90 people in attendance for Monday workshop 115 people in attendance for Wednesday workshop</p>	<p>Community members were encouraged to write comments, questions, and concerns to be addressed by the project team. A summary of the workshops and responses to community concerns were compiled in a packet and distributed to the community.</p>
Community Advisory Committee report			
<p>Upon review of the EAMR, the CAC will prepare a letter to the Pima County Board of Supervisors outlining its recommendations for addressing issues and concerns regarding the project.</p>	<p>Not applicable</p>	<p>Not applicable</p>	<p>Not applicable</p>
Public meeting			
<p>Thursday, May 14, 2009 5:30 to 7:30 p.m. Tucson Chinese Cultural Center</p>	<p>Notice mailed to the CAC and parties on project mailing list Notice posted to the project Web site</p>	<p>68 people in attendance</p>	<p>Draft versions of the DCR and EAMR were presented, and members of the public were invited to provide comments.</p>
<p>(continued on next page)</p>			



Table ES-2. Public participation activities (continued)

Date, time, and location or date and means of distribution	Notification	Attendance or distribution or coverage	Methods of public input documentation and response
Newsletter			
December 2008 newsletter	Newsletter mailed and posted on project Web site	Distributed to entire project mailing list and made available to additional interested parties through Web site posting	Provided a summary of the project history, description, and design tasks for both La Cañada Drive projects. Addressed specific topics identified as community concerns or interests.
Document review			
May 2009 Draft EAMR	Document posted on the project Web site	Copies of the document provided to members of the CAC	CAC members were invited to review the document and prepare a recommendation letter. Members of the public were invited to provide comments.
Public hearing			
The public hearing is planned to occur following completion of the final EAMR.	Not applicable	Not applicable	Public hearing comments will be included in hearing transcript.
Business outreach			
Representatives of the Regional Transportation Authority's Main Street Business Assistance Program are conducting business outreach for the project on an ongoing basis.	Direct contact with businesses: in person and by phone calls, as needed.	Not applicable	Not applicable

(continued on next page)



Table ES-2. Public participation activities (continued)

Date, time, and location or date and means of distribution	Notification	Attendance or distribution or coverage	Methods of public input documentation and response
<i>Web site</i>			
<p>The Web site was established in 2007 and is updated as information is developed, including:</p> <ul style="list-style-type: none"> - project description - CAC meeting schedule and meeting minutes (May 8, 2007; August 28, 2007; November 27, 2007; May 27, 2008; October 7, 2008; January 21, 2009; March 24, 2009; May 7, 2009) - public meeting notice - project noise report and maps - CAC meeting handouts and project workshop information 	<p>The following notices and documents have been posted on the Web site:</p> <ul style="list-style-type: none"> - CAC application - CAC meetings - project workshops - Draft EAMR 	<p>Not applicable</p>	<p>Not applicable</p>



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- Appendix B – Environmental Screening Memorandum
- Appendix C – Biological Resources
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- Appendix E – Noise Study
- Appendix F – Hazardous Materials Investigations
- Appendix G – Cultural Resources
- Appendix H – Temporary Construction Easements and Drainage Easements
- Appendix I – Public Art



1.0 Background

The Pima County Department of Transportation (PCDOT) proposes to widen approximately 2.7 miles of La Cañada Drive from a two-lane arterial road into a four-lane arterial road between River Road and Ina Road (Figures 1 and 2). The project also includes the installation of a closed stormwater collection and conveyance system and installation of culverts to create an all-weather roadway.

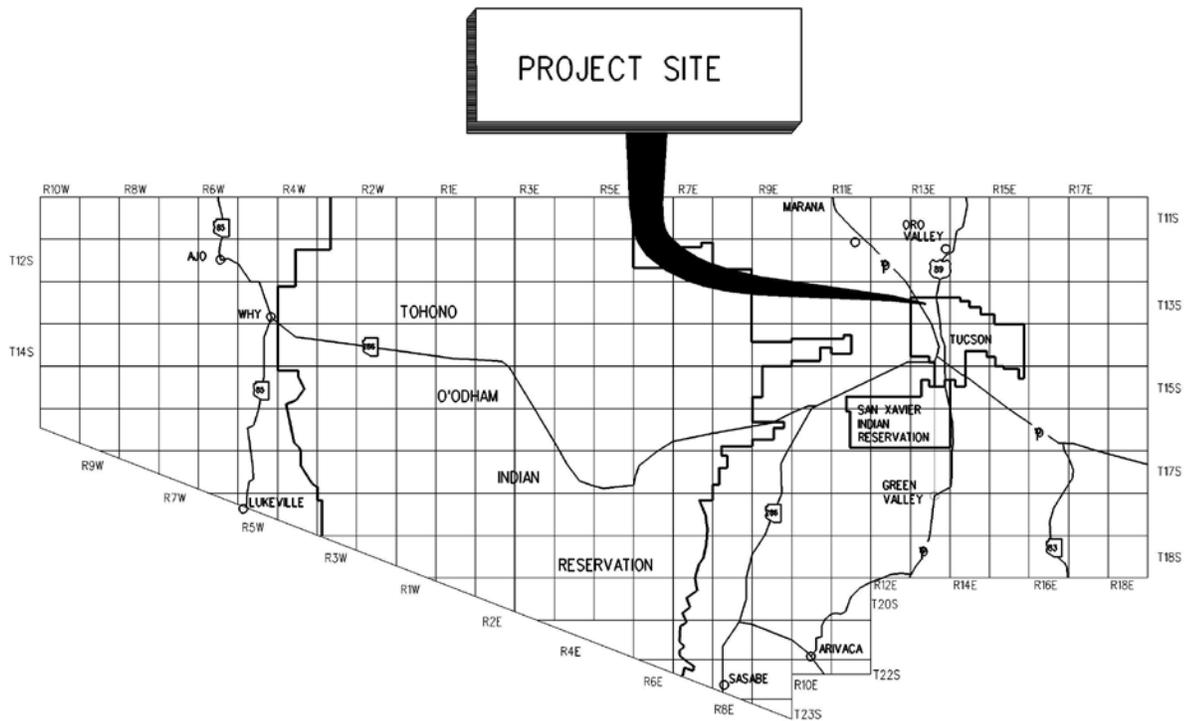
Project name:	La Cañada Drive, River Road to Ina Road
Pima County project number:	4LCRRI
Project location and limits:	2.7 miles along La Cañada Drive, beginning at the northern side of the River Road intersection and extending north to approximately 200 feet south of Ina Road. The project width is approximately 150 feet. At the intersection with Orange Grove Road, the project extends west approximately 2,000 feet and east approximately 1,900 feet. The project is located in parts of Sections 2, 3, 10, 11, 14, and 15 of Township 13 South and Range 13 East.

In accordance with Pima County’s Community Participation and Mitigation Ordinance (Pima County Code § 10.560.010 et seq.), an Environmental Assessment and Mitigation Report (EAMR) is required for major transportation projects. This document was prepared to comply with ordinance requirements and to be consistent with EAMR guidance in the *Pima County Roadway Design Manual* (PCDOT 2003).

The environmentally sensitive roadway (ESR) designation is used by Pima County for roadways within land that is unique and ecologically or culturally sensitive (PCDOT 2003). ESRs have special design and evaluation requirements. Based on a review of the corridor characteristics, PCDOT determined that the project area does not meet the requirements for La Cañada Drive to be classified as an ESR; therefore, the project is not subject to ESR evaluation or design requirements.



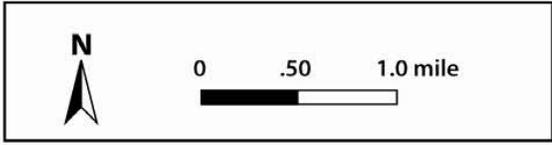
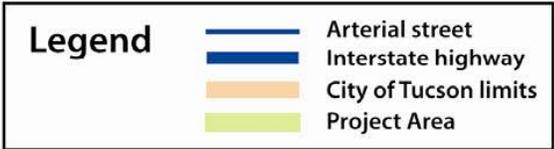
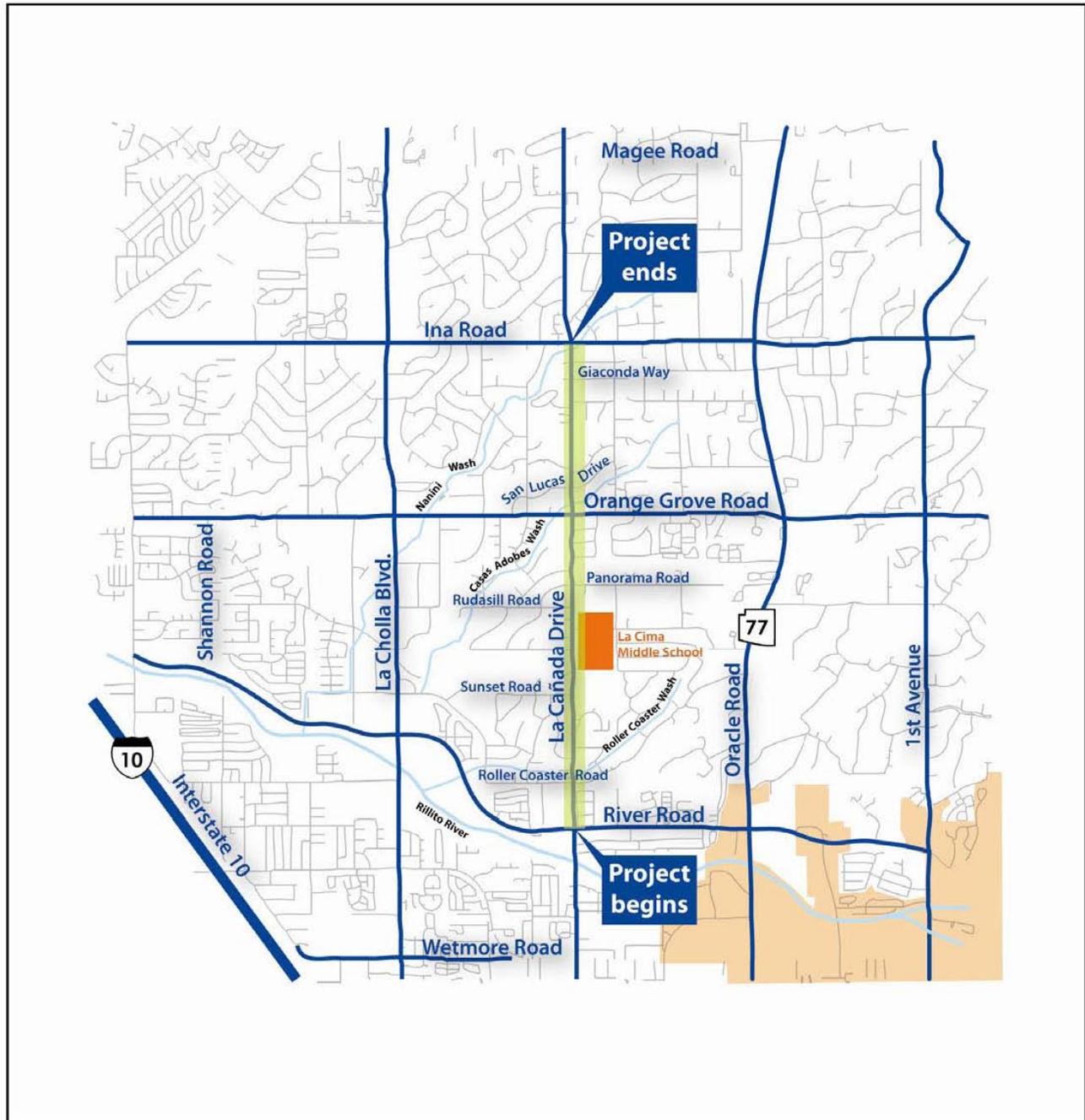
Figure 1. Project location in county



LOCATION MAP
SECTIONS 2,
3, 10, 11, 14, 15 T13S, R13E
G & S.R.M.
PIMA COUNTY, ARIZONA



Figure 2. Project vicinity





1.1 Project Cost and Funding

The project’s estimated cost, based on the preliminary design, is outlined by task in Table 1. The total cost is estimated to be \$45.2 million, with a 2011 construction advertisement date. The cost includes relocation of Western Area Power Administration facilities.

Table 1. Project cost

Task	Cost (\$) ^a
Construction	27,051,000
Artwork	270,000
Construction administration	4,058,000
Engineering and planning	4,058,000
Environmental mitigation	200,000
Right-of-way acquisition	3,600,000
Utility relocation	700,000
Inflation contingency	1,082,000
PCDOT ^b contingency	4,181,000
Total	\$45,200,000

^a 2009 dollars

^b Pima County Department of Transportation

Project funding includes: (1) sales tax revenue from the citizen-approved *Regional Transportation Plan* administered by the Regional Transportation Authority (RTA), (2) Federal Highway Administration (FHWA) Surface Transportation Program funds, and (3) Pima County developer impact fees. Table 2 identifies the funding sources and amounts for the project.

Table 2. Funding sources

Source	Amount (\$) ^a
Regional Transportation Authority sales tax revenues	5,100,000
Federal Highway Administration Surface Transportation Program funds	29,700,000
Pima County developer impact fees	11,200,000
Total	\$46,000,000

^a 2008 dollars

1.2 Direction by Board of Supervisors

On May 16, 2006, the citizens of Pima County approved a \$2.1 billion *Regional Transportation Plan*, administered by the RTA, to be funded by a ½ cent increase in the local sales tax (RTA 2006). The approved transportation plan included improvements to La Cañada Drive from River Road to Ina Road. The Pima County Board of Supervisors approved the contract for the design of this project on November 20, 2006. A notice to proceed was issued by the PCDOT director on December 7, 2006.



1.3 Project Design Process

The design process started in February 2007, and the following tasks have been completed:

- eight Community Advisory Committee (CAC) meetings
- public involvement plan
- two public workshops
- one public meeting
- survey and mapping report
- quality control plan
- traffic engineering study
- lighting report
- pavement design report
- Stage I and II roadway design plans
- Stage I and II drainage report
- Level B subsurface utility mapping
- initial right-of-way (R/W) acquisition requirements
- roadway design parameters report
- preliminary geotechnical report
- final design concept report (DCR)
- native plant survey
- concept landscaping plans
- conceptual artwork
- environmental reports and review
 - jurisdictional determination of waters of the United States
 - environmental screening memorandum
 - biological evaluation
 - noise report
 - cultural resources investigations
 - hazardous materials investigations
 - final EAMR
- public art concepts
- categorical exclusion

Additional CAC and public meetings are planned to review the DCR and this EAMR. Please see Section 8.0, *Public Participation*, and Appendix A for information on public participation. Completion of the project design is planned for summer 2011, with advertisement for bids occurring in summer 2011.



2.0 Purpose and Need

The purpose of the project is to widen La Cañada Drive between River Road and Ina Road to a four-lane road to increase capacity; improve traffic operations; provide an all-weather roadway surface; increase mobility through the provision of bike lanes, sidewalks, and public use trail; and improve drainage facilities in a manner consistent with the *Regional Transportation Plan* (RTA 2006), current design standards, and other policies and requirements.

The *Regional Transportation Plan* identifies specific improvements to address cross-town mobility, reduce traffic congestion, improve safety and security, improve travel modes, and improve bicycle and pedestrian options in the region. The proposed project is one of 51 projects to be implemented under the plan, and is included in the projects to be implemented during the first period of the plan.¹

The project will reduce existing and future traffic congestion on La Cañada Drive by providing additional capacity and efficient intersection operation. La Cañada Drive carries an average daily traffic volume of 19,400 to 19,600 vehicles and is projected to carry between 38,000 and 42,000 vehicles per day in 2030. Traffic is currently congested during peak travel hours along many segments, resulting in a poor level of service that impedes the efficient movement of traffic in this area. With the proposed improvements, traffic is projected to operate at a satisfactory level of service through 2030, except at River Road (PCDOT 2007a).²

The roadway currently has unlimited access, allowing vehicles to access La Cañada Drive north or south from any connecting local streets or driveways. Given the numerous access points along La Cañada Drive, traffic entering and leaving the roadway currently impedes the efficient operation of the roadway and provides a substantial number of potential high-velocity collision points. The project will construct raised medians and left-turn lanes that will concentrate turning movements, thereby improving traffic operation and reducing the number of potential collision points along the corridor. Similarly, a frontage road will be constructed on the eastern side of La Cañada Drive in front of six residences south of Whispering Hills Drive to consolidate access to the roadway.

The vertical alignment of La Cañada Drive follows the existing terrain and includes crossings near- or at-grade with numerous medium to large washes, including Roller Coaster, Citrus, Casas Adobes, Las Lomitas, and Chula Vista washes. As a result, rain storms can impede area access until storm flows abate. The project will provide an all-weather travel surface through culvert installation and through addition of a closed stormwater collection and conveyance system.

Culverts are undersized (or lacking) at minor washes. During storms, water flows along roadside ditches and either overtops the roadway or flows into an alternate wash, resulting in diverted flow and ponding. The project will restore the original flow patterns through the installation or replacement of culverts. In addition, the project will largely eliminate roadside ditches and minimize ponding. The closed stormwater collection and conveyance system will be designed to handle 10-year storm flows, collecting water from the road surface and conveying it to the appropriate culverts or pipes that outlet to the washes so that stormwater stays in its natural

¹ The 20-year plan is divided into four periods: fiscal years 2007–2011, 2012–2016, 2017–2021, and 2022–2026.

² Planned intersection improvements are not sufficient to satisfy 2030 travel demand at River Road, which is forecast to carry approximately 100,000 vehicles per day. Major roadway improvements at the River Road and La Cañada Drive intersection will be addressed in a future River Road widening project.



watershed. The drainage improvements will reduce the 100-year floodplain limits downstream of the project area, which will benefit several residential properties.

The project will improve mobility through the construction of bicycle, pedestrian, equestrian, and bus transit improvements. The project will provide on-street bicycle lanes. The project includes sidewalks on each side of La Cañada Drive for pedestrian mobility and an unpaved trail on the western side of La Cañada Drive for public use. Bus pullouts will be constructed on La Cañada Drive at Roller Coaster Road and at Orange Grove Road.

3.0 Project Setting

The project is located along La Cañada Drive from River Road to Ina Road. Elevations within the project area range from approximately 2,285 to 2,446 feet above mean sea level. The terrain for the project area is somewhat undulating and slopes to the southwest. La Cañada Drive is a north-south aligned roadway; however, the vertical alignment of the road roughly follows the existing terrain, traversing a number of washes at- or near-grade.

Larger washes along the alignment are Roller Coaster, Citrus, Casas Adobes, Las Lomitas, and Chula Vista washes. The roadway also crosses a number of smaller washes. Shallow roadside ditches along portions of the roadway are associated with past construction of the roadway. These ditches sometimes impede wash flows, resulting in ponding.

La Cañada Drive is primarily a two-lane road with signalized intersections at River Road, Orange Grove Road, and Ina Road featuring four through lanes. In addition, portions of La Cañada Drive have two through lanes with a center left-turn lane that transitions to a two-lane road. The existing road has 10- to 13-foot-wide travel lanes, and features paved and unpaved shoulders of varying width. Signs adjacent to La Cañada Drive identify the shoulder as a bike route. Curbs are found between River Road and Roller Coaster Road. An unpaved trail runs along the western side of most of the road and is used for recreation by pedestrians, equestrians, and mountain bicyclists.

Land use in the project area is predominantly low-density residential with some moderate- to high-density residential near River Road. Other land uses include commercial, public (Metropolitan Domestic Water Improvement District, La Cima Middle School), church, vacant land, and flood control/wash. Figures 3 and 4 show the project area with associated land uses.

The project area is visually characterized by developed land uses, native vegetation, varying topography, and washes. Dominant views include the Santa Catalina Mountains, the more distant Tucson Mountains, and Sentinel Peak.

More detailed description of the existing conditions related to the subjects evaluated in this report are provided in Section 6.0, *Environmental Assessment and Mitigation*, including biological resources, drainage, water quality, floodplains, air quality, noise, utilities, hazardous materials, cultural resources, visual resources, parking, neighborhoods, and parks and recreation.

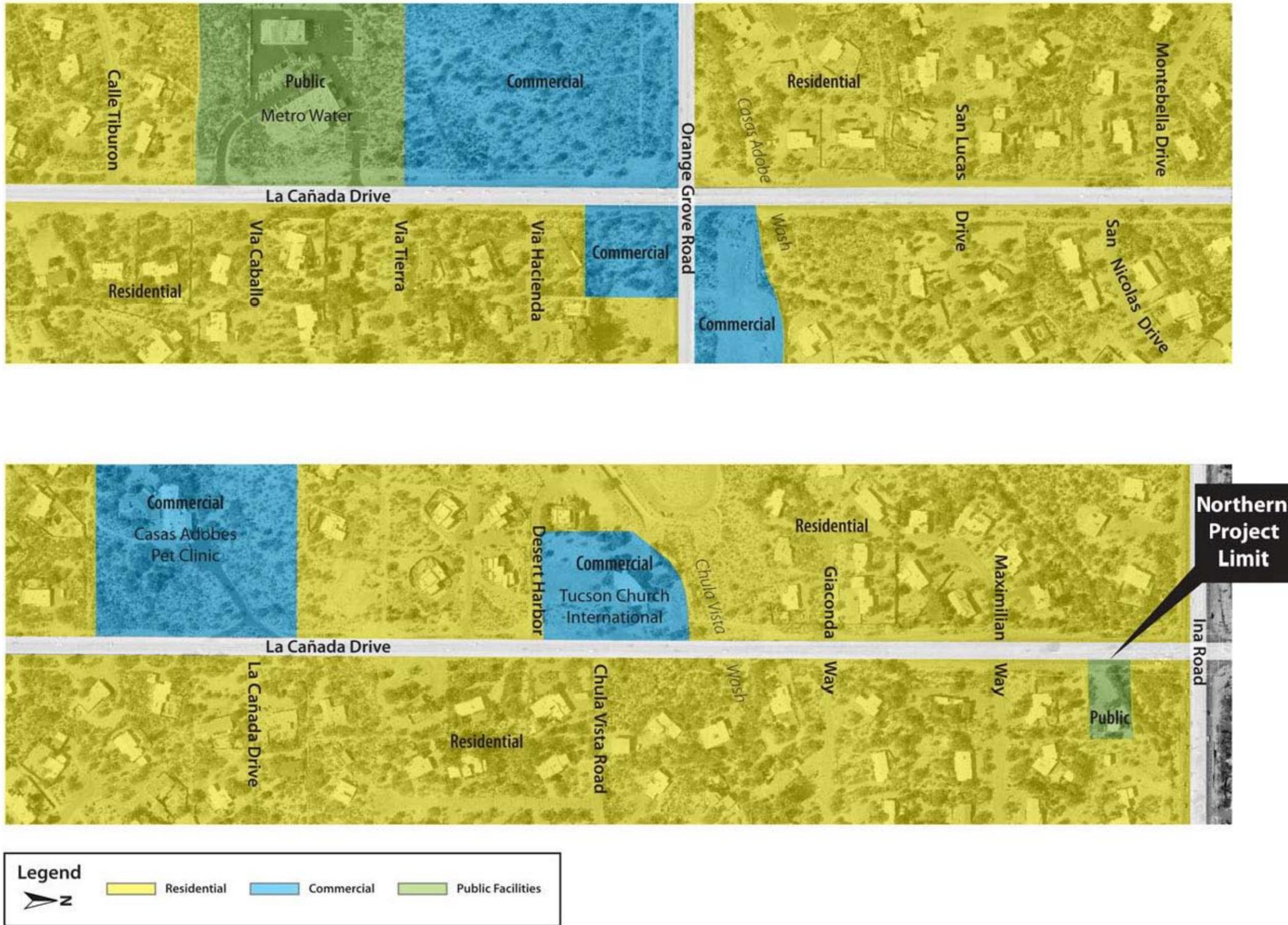


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Figure 3. Project setting and land uses (River Road to Panorama Road)



Figure 4. Project setting and land uses (Orange Grove Road to Ina Road)





4.0 Proposed Project

The project involves widening La Cañada Drive between River Road and Ina Road (Figures 5–7). The design speed for La Cañada Drive is 50 miles per hour (mph) and will be posted for 45 mph. Project construction is scheduled to begin in fall 2011 and last 24 to 30 months.

The project includes the construction of the following specific improvements:

- Widen La Cañada Drive from a two-lane road to a four-lane road (two lanes northbound and two lanes southbound) between River Road and Ina Road. The inside travel lanes will be 13 feet wide and the outside travel lanes will be 12 feet wide for most of the corridor.
- Construct a frontage road on the eastern side of La Cañada Drive between Roller Coaster Wash and Whispering Hills Drive. The frontage road will be 20 feet wide and separated by a raised median featuring a 10-foot-wide sidewalk and a noise barrier.
- Construct raised medians and turning lanes throughout the length of the project.
- Construct on-street, 6-foot-wide bike lanes along most of the length of the project.
- Construct sidewalks throughout the length of the project. On the eastern side of La Cañada Drive, sidewalks will be 5 feet wide and set back 4 feet from the face of the curb. On the western side of La Cañada Drive, sidewalks will be 7 feet wide and adjacent to the curb. Sidewalks, crosswalks, and access ramps will be Americans with Disabilities Act (ADA) compliant.
- Construct an unpaved public use trail from Roller Coaster Road to Ina Road on the western side of La Cañada Drive. A vegetative buffer will be added between the sidewalk and the trail.
- Reconstruct the intersection with Orange Grove Road to provide two through lanes, two left-turn lanes, a right-turn lane, and a through bike lane at all four legs of the intersection.
- Replace the traffic signal at Orange Grove Road to accommodate the widened road.
- Construct bus pullouts on the departure side of La Cañada Drive at Roller Coaster Road and at Orange Grove Road. Bus stop construction involves the installation of a concrete platform adjacent to the curb where passengers can wait for the bus.
- Construct a closed stormwater collection and conveyance system.
- Replace or construct new culverts at major washes as follows:
 - At Roller Coaster Wash, construct a five-cell, 10-foot by 5-foot box culvert.
 - At Las Lomitas Wash, construct a two-cell, 10-foot by 5-foot box culvert with a drop inlet.
 - At Citrus Wash North, construct a two-cell, 8-foot by 5-foot box culvert.
 - At Citrus Wash South, construct a two-cell, 10-foot by 4-foot box culvert. The replacement culvert will carry the flow under La Cañada Drive to the channel north of Rudasill Road.
 - At Casas Adobes Wash, construct four-cell, 10-foot by 5-foot box culverts to replace the existing dip crossing at La Cañada Drive and to replace the existing box culvert at Orange Grove Road.
 - At Chula Vista Wash, construct a two-cell, 8-foot by 5-foot box culvert and extend the developed channel to La Cañada Drive.
- Construct drainage improvements by installing pipes underneath the road at 13 other minor washes that cross La Cañada Drive.



- Construct noise barriers of varying heights at the following locations (see Section 6.1.5, *Noise*):
 - an 8-foot barrier on the eastern side of La Cañada Drive from River Road north for approximately 450 feet
 - a 6- to 10-foot barrier on the eastern side of La Cañada Drive from Kimberly Street north for approximately 300 feet
 - a 6- to 10-foot barrier on the frontage road median between Roller Coaster Wash and Whispering Hills Drive for approximately 600 feet
 - a 7- to 9-foot barrier on the western side of La Cañada Drive between Neosho Place and Flint Avenue with two 125-foot segments
 - a 6- to 8-foot barrier on the eastern side of La Cañada Drive from Coachwhip Drive south for approximately 125 feet
 - a 10-foot barrier on the eastern side of La Cañada Drive from Coachwhip Drive north for approximately 250 feet
- Install street lighting along La Cañada Drive near the commercial properties and apartment complexes at River Road, at the La Cañada Drive intersections with Roller Coaster Road and Kimberly Street, and at the entrances to La Cima Middle School.
- Install landscape improvements on project medians and along the shoulders within the project limits.
- Install artwork to be incorporated into the design and landscape improvements.
- Coordinate necessary relocation of any existing utilities. Western Area Power Administration will need to relocate a portion of its existing transmission poles.
- Demolish two residences on the western side of La Cañada Drive across from Whispering Hills Road. These properties will be acquired to accommodate the wider roadway alignment.
- Reconstruct cross-street configurations with the new La Cañada Drive alignment to match the new road elevation.
- Reconstruct access points for private properties adjacent to La Cañada Drive to match the new road elevation.
- Construct driveway pullouts for mail and refuse collection services.
- Install school crossing striping and signs at La Cima Middle School and Roller Coaster Road.
- Install signal conduit systems at the northern and southern driveways of La Cima Middle School and at Roller Coaster Road.
- Install intelligent transportation system conduit along the length of the road for future traffic system management.

Figure 8 shows the cross section of La Cañada Drive.

Figure 5. Proposed roadway design (River Road to Vista Alesha)

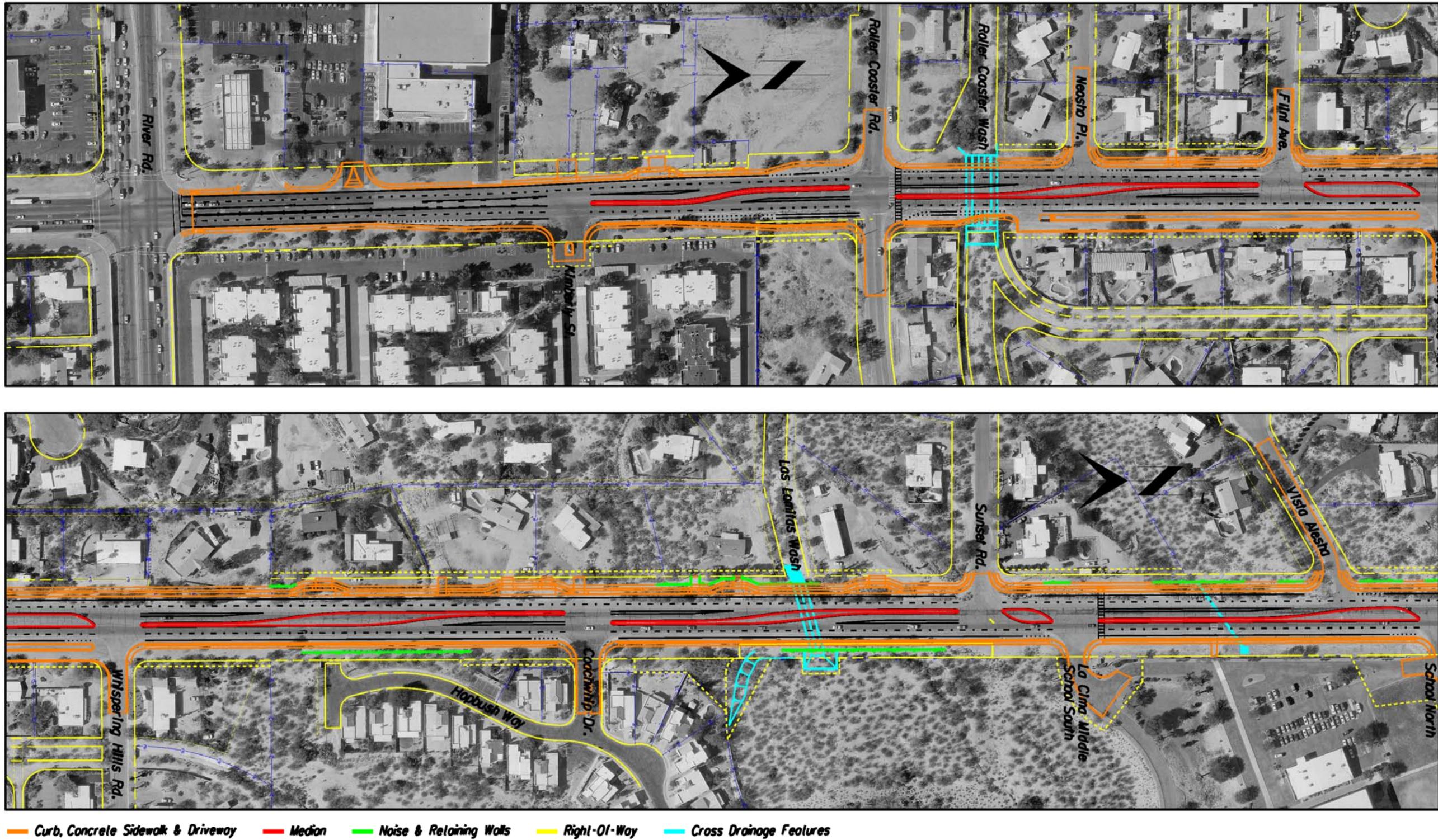


Figure 6. Proposed roadway design (Las Lomitas Road to Orange Grove Road)

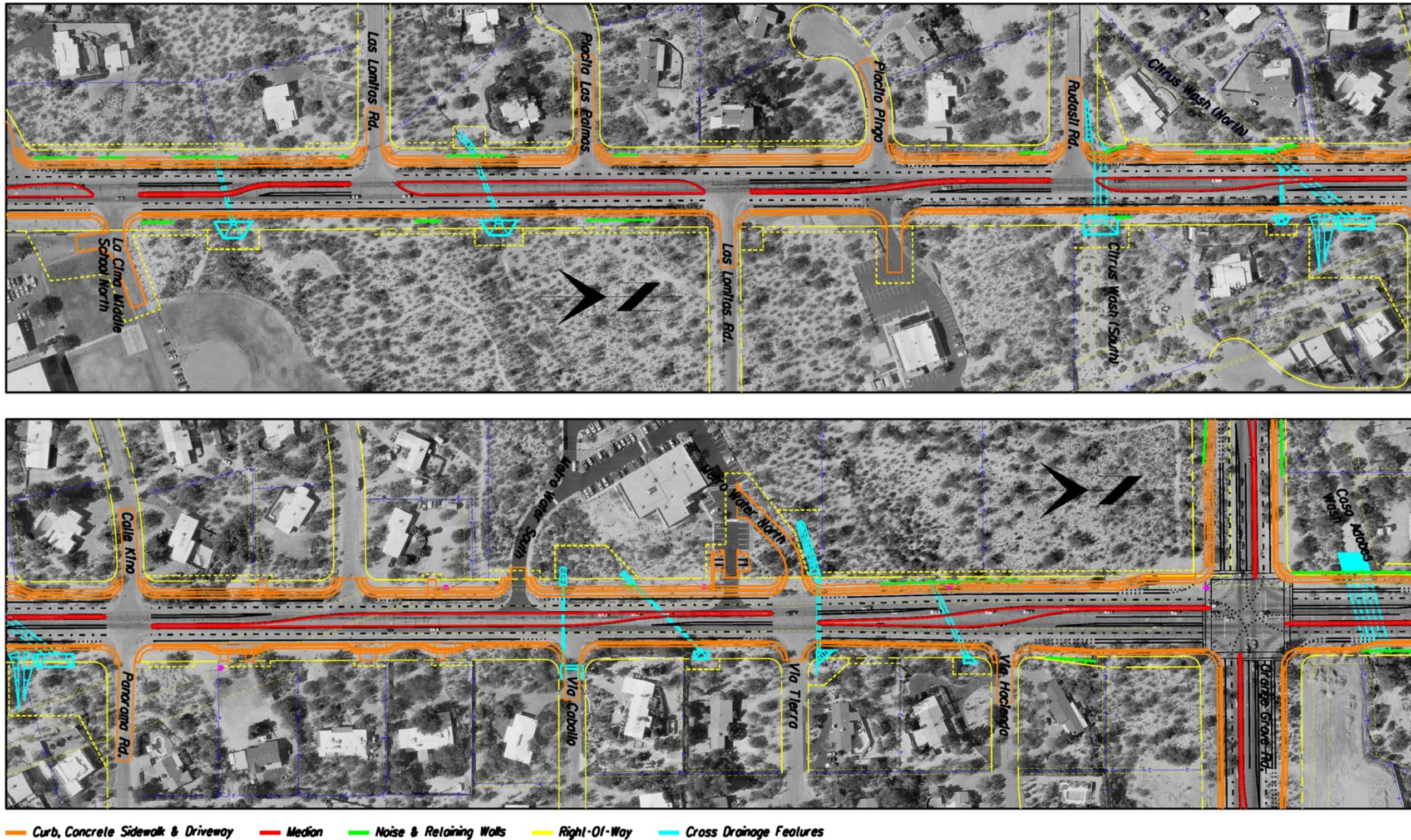
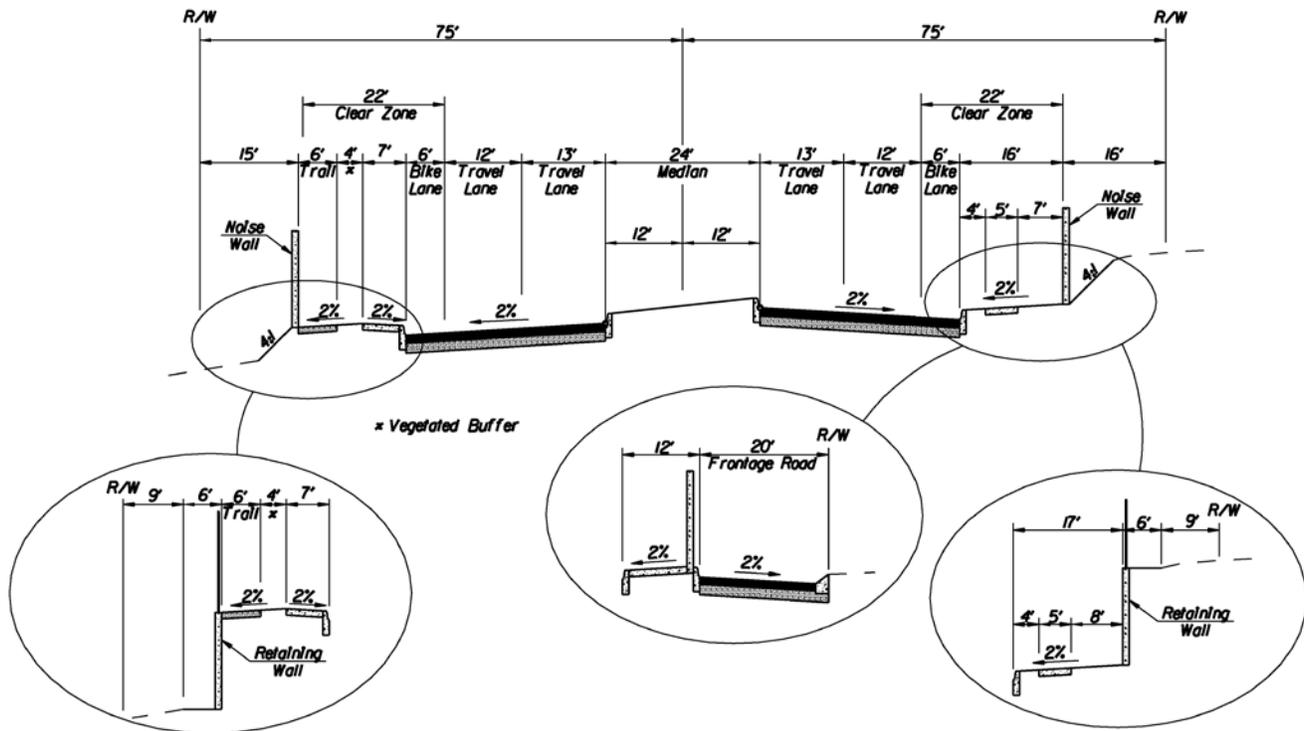


Figure 7. Proposed roadway design (San Lucas Drive to Ina Road)



— Curb, Concrete Sidewalk & Driveway — Median — Noise & Retaining Walls — Right-Of-Way — Cross Drainage Features

Figure 8. Typical roadway sections with noise barriers³



5.0 Environmental Screening

An environmental screening memorandum was completed in June 2007 (PCDOT 2007b and Appendix B). Environmental screening is conducted early in the project development to identify environmental conditions requiring consideration in the environmental review and project design process, including anticipated permit requirements and environmental investigation needs. This process involves determining areas of impact (through completion of the PCDOT questionnaire, *Environmental Screening: Questionnaire for Establishing Potential Areas of Impact*) and summarizing environmental categories that may be affected in a matrix.

The environmental screening process considered the construction and operation activities related to the proposed improvements to La Cañada Drive and identified potential impacts to the following environmental categories: waters of the United States, biological resources, air quality, noise, utilities, hazardous materials, cultural resources, and neighborhoods/social conditions. Several specific issues were identified:

- A noise analysis will be needed to evaluate changes resulting from increased traffic capacity and a wider roadway. Because the project will receive federal funding, the noise evaluation criteria will need to meet FHWA evaluation requirements. Unlike the Pima County criteria, the FHWA

³ Noise barriers will not be constructed in all locations, but have the potential to be constructed in six locations as warranted and identified in the noise study (see Section 6.1.5).



criteria do not allow a 3-decibel credit for the use of rubberized asphalt (see Section 6.1.5, *Noise*).

- The project will affect waters of the United States and be subject to Clean Water Act (CWA) Section 404 requirements. Additionally, compliance with Section 401 of the CWA will be required (see Section 6.1.2, *Drainage and Clean Water Act*).
- The project will affect washes identified by Pima County Regional Flood Control District as regulated riparian resources. A riparian impact assessment will be developed to address impacts to these resources (see Section 6.1.2, *Drainage and Clean Water Act*).
- Buildings along the corridor have the potential to be 50 years old and may be historically significant. Therefore, any affected buildings will need to be evaluated for age and historical significance (see Section 6.1.9, *Cultural Resources*).

A project traffic study (PCDOT 2007a) and a hazardous materials report (PCDOT 2007c) were completed during the environmental screening process. These reports provided preliminary information for determining design objectives and constraints.

The traffic study reported existing and projected traffic volumes and vehicle mix, as well as projected travel demand based on future regional growth. The traffic study recommended improvements to La Cañada Drive that would allow the road to handle future travel demand. It also discussed potential neighborhood traffic impacts.

The hazardous materials report documented one moderate- to high-risk site adjacent to the project limits that should be considered in the development of the proposed improvements (see Section 6.1.7, *Hazardous Materials*).

The following technical environmental documents are also part of the project: DCR, noise analysis, biological evaluation, and cultural resources report.

Based on the environmental screening, a jurisdictional determination has been prepared to determine the extent of waters of the United States in the project area. Documentation is being prepared for a Section 404 permit application (Nationwide Permit No. 14 – Linear Transportation Projects). A riparian impact assessment will be developed to address impacts to Pima County regulated riparian habitat.

The following section discusses environmental impacts and potential mitigation measures for each resource area. Refer to Section 9.0, *Conclusions and Recommendations*, for a summary table of environmental impacts and recommended mitigation measures.

6.0 Environmental Assessment and Mitigation

For each issue evaluated in Sections 6.1 (*Natural/Physical Environment*) and 6.2 (*Neighborhood/Social Environment*) of this report, the following information is provided: a description of existing conditions, any permits that will be required for the project, an assessment of the potential environmental impacts, and proposed mitigation measures for reducing adverse impacts. Proposed mitigation is also summarized in Section 9.0, *Conclusions and Recommendations*. Section 3.0, *Project Setting*, provides general information on the area conditions such as topography and land use.



6.1 Natural/Physical Environment

This section evaluates impacts to the natural and physical environment, including biological resources, drainage, water quality, floodplains, air quality, noise levels, utilities, hazardous materials, construction activities, cultural resources, and visual resources.

6.1.1 Biological Resources

This section evaluates impacts to biological resources, based on a biological evaluation (PCDOT 2009 and Appendix C), a review of the species listed in the Sonoran Desert Conservation Plan (SDCP) (Pima County 2006), and a native plant inventory (PCDOT 2008b and Appendix D) conducted for the project area.

Existing Conditions

The project area is located within the Arizona Upland Subdivision of Sonoran desert scrub (Brown 1994). Additional vegetation communities include xeroriparian habitats along the washes and disturbed desert upland primarily along the existing road. A biological evaluation was completed for the project to evaluate the project area's potential to support protected species. In addition, a native plant inventory was conducted consistent with Pima County's Native Plant Preservation Ordinance.

Common perennial trees, shrubs, and cacti within the project area include blue paloverde (*Cercidium floridum*), foothills paloverde (*Cercidium microphyllum*), whitethorn acacia (*Acacia constricta*), catclaw acacia (*Acacia greggii*), Englemann's prickly pear (*Opuntia engelmannii* var. *engelmannii*), fishhook barrel cactus (*Ferocactus wislizeni*), creosote bush (*Larrea tridentata*), cane cholla (*Opuntia spinosior*), desert broom (*Baccharis sarothroides*), triangle-leaf bursage (*Ambrosia deltoidea*), and fishhook pincushion (*Mammillaria grahamii*). See Appendix D for a summary inventory of native plant species.

Common nonnative species include cow's tongue prickly pear (*Opuntia engelmannii* var. *linguiformis*) and various grasses such as buffel grass (*Pennisetum ciliare*) and Bermuda grass (*Cynodon dactylon*).

Sensitive Species

The U.S. Fish and Wildlife Service (USFWS) maintains a list of federally recognized threatened and endangered species, while the Arizona Game and Fish Department (AGFD) maintains a list of special-status species in Arizona. The Arizona Department of Agriculture maintains a list of protected native plants within Arizona. These lists were reviewed to determine whether any federally listed or state protected special-status wildlife or native plant species had the potential to occur within the project area. In addition, the SDCP list of vulnerable species and the list of birds protected by the International Migratory Bird Treaty Act (IMBTA) were reviewed to determine the potential of these species to occur within the project area.

USFWS and AGFD were contacted through scoping letters requesting comments or concerns regarding protected species with the potential to occur in the project area. USFWS responded with mitigation measures for the lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*). Additional coordination with USFWS occurred to ensure sufficient project-specific mitigation measures were developed for the lesser long-nosed bat. No response from AGFD was received, but the AGFD



on-line environmental review tool was used to determine potential special-status species located within the project area.

One federally endangered species and one federally recognized species of concern have the potential to occur within the project area:

- Lesser long-nosed bat – This bat is listed as endangered and has the potential to utilize areas around and within the project limits for movement and foraging.
- Cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*) – The Arizona distinct population of the pygmy owl is federally recognized as a species of concern; it is also an Arizona wildlife species of concern. It has the potential to occur within the project area. Surveys conducted within the project area in 2006, 2007, and 2008 reported negative results for the cactus ferruginous pygmy owl. However, the area supports appropriate forage and movement habitat. Pima County will continue to conduct cactus ferruginous pygmy owl surveys within the project area until the onset of construction.

AGFD identified state-recognized wildlife species of concern, salvage restricted plants, and one federally recognized species of concern as occurring within 3 miles of the project area. The following three wildlife species of concern were identified as having the potential to occur within the project area:

- California leaf-nosed bat (*Macrotus californicus*) – The bat may be present while foraging, but no potential roosting structures exist within the project area; therefore, there will be no disruption to the species.
- Cactus ferruginous pygmy owl – The pygmy owl is an AGFD species of concern (see discussion above).
- Western burrowing owl (*Athene cunicularia hypugaea*) – The owl is federally recognized as a species of concern and may inhabit areas adjacent to the project limits, especially open areas near washes. In the desert, the Western burrowing owl chooses nesting habitat in areas of short, open scrubland, such as mesquite and creosote bush. The owl can be tolerant of human presence and will nest in areas that include abandoned lots near rapidly developing urban areas, roadsides, irrigation canals, storm drains, and parking lots. They nest in abandoned burrows created by burrowing mammals and in artificial nest burrows (e.g., erosion channels or storm drain pipes). The project area is characterized by native vegetation throughout the R/W, as well as several major washes with native vegetation and easements on several large lots with native vegetation. Much of the habitat within the project area presents appropriate habitat for the burrowing owl. Field reconnaissance by HDR biologists has identified the presence of burrows of suitable size for the burrowing owl throughout the project area, but no litter or white wash associated with nests used by the owl were observed. The AGFD on-line environmental review tool indicated the owl had been sighted within 3 miles of the project area.

The following state recognized salvage restricted plants were identified as having the potential to occur within the project area:

- Staghorn cholla (*Opuntia versicolor*) – This cactus was identified as occurring within the project area. PCDOT will notify the Arizona Department of Agriculture of its presence at least 60 days prior to the start of construction.



- Thornber fishhook cactus (*Mammillaria thornberi*) – This cactus was not located within the project area during field visits.
- Tumamoc globeberry (*Tumamoca macdougalii*) – This plant was not located within the project area during field visits.

The vulnerable species listed in the SDCP were reviewed to determine the potential for these species and/or suitable habitat to occur in the project area. The complete list of SDCP vulnerable species is evaluated in Appendix C. It was determined that seven of these species may occur in the project area. One of these species is also an AGFD wildlife species of concern, and one species is federally recognized as a species of concern.

The following mammals, considered vulnerable by SDCP, have the potential to occur within the project area:

- California leaf-nosed bat, AGFD wildlife species of concern
- Pale Townsend’s big-eared bat (*Plecotus townsendii pallescens*)
- Southern yellow bat (*Lasiurus xanthinus*)

The following birds considered vulnerable by the SDCP have the potential to occur within the project area:

- Abert’s towhee (*Pipilo aberti*)
- Bell’s vireo (*Vireo bellii*)
- Rufous-winged sparrow (*Aimophila carpalis*)
- Western burrowing owl, USFWS species of concern

Migratory birds protected by the IMBTA have the potential to use the project area for nesting and/or forage.

- Cactus ferruginous pygmy owl
- Western burrowing owl
- Bird species considered vulnerable by SDCP
- Additional bird species protected under IMBTA may use the area for movement, nesting, or forage.

Permits

Pima County will file a Notice of Intent to clear land with the Arizona Department of Agriculture 60 days prior to the removal or salvage of native plants.

Protocol burrowing owl surveys will be required and will need to be conducted by a qualified biologist with an appropriate permit from AGFD.

Potential Impacts

The project will widen La Cañada Drive, encroaching on some areas that currently have native vegetation. A Native Plant Preservation Plan is being developed; it identifies plants to be preserved in place, salvaged and relocated, or mitigated. Drainage improvements will affect designated



riparian habitat protected under the Pima County Regional Flood Control District Riparian Ordinance. Impacts to regulated riparian habitat will be assessed and, if needed, mitigation will be developed in cooperation with the Regional Flood Control District.

Implementation of the project landscape plan will include placement of new and salvaged vegetation, including saguaros, ironwoods, and riparian plant species. The landscape plan is expected to match the vegetation density of the undisturbed surrounding areas and approximate the mitigation densities of Pima County's ESR guidelines, although this is not an ESR project.

Construction activities will affect potential forage and movement habitat for the lesser long-nosed bat, cactus ferruginous pygmy owl, and other bird and bat species identified in the SDCP and IMBTA. Construction activities will affect potential nesting habitat for the Western burrowing owl and other vulnerable or protected species identified in the SDCP and IMBTA.

A biological evaluation was prepared to evaluate impacts to the lesser long-nosed bat and the cactus ferruginous pygmy owl. Based on the absence of roosting sites in the project area and planned native vegetation densities, the biological evaluation supports a finding that the project will have "no effect" on the lesser long-nosed bat. Based on negative survey results for the cactus ferruginous pygmy owl, the biological evaluation indicates that no impacts to the species are anticipated.

Similarly, native plant mitigation is also expected to benefit other sensitive species. However, mitigation is required to avoid direct impacts to protected nesting birds during project construction.

Mitigation Measures

The following mitigation is recommended to address impacts to native vegetation and to mitigate the effect the proposed activities will have on potential forage habitat, nesting habitat, or movement corridors for the lesser long-nosed bat, cactus ferruginous pygmy-owl, Western burrowing owl, SDCP vulnerable species, and IMBTA protected species:

- Replace removed or destroyed native vegetation within the project right-of-way.
 - Removed or destroyed vegetation will be replaced in densities matching the surrounding undisturbed areas.
 - Saguaros will be replaced within the project area to maintain potential food sources or nesting habitat on a 1:1 basis.
 - Removed or destroyed vegetation in the washes will be mitigated to replace existing densities, thus maintaining migratory corridors or dispersal corridors between forage areas and between forage areas and roosting sites.
- Conduct protocol burrowing owl surveys 90 days prior to disturbance, specifically on open land within and near the major washes, drainage easements, easements on large lots, and right-of-way with native vegetation. This includes soil disturbance or equipment staging at these locations. If owls are absent during the 90-day survey, conduct a follow-up survey 30 days prior to planned activity to confirm continued absence of the owl.
- Conduct biological monitoring (clearance surveys) of the major washes to check for nests of birds protected by the International Migratory Bird Treaty Act.

The following measure is recommended for compliance with the Arizona Native Plant Law:



- Pima County will file a Notice of Intent with the Arizona Department of Agriculture for the removal or salvage of applicable native plants. The Notice of Intent will be filed 60 days prior to the removal or salvage of native plants.

If needed, mitigation measures will be developed by in cooperation with the Pima County Regional Flood Control District to compensate for impacts to regulated riparian habitat.

6.1.2 Drainage and Clean Water Act

This section identifies major washes, existing stormwater and cross drainage facilities, and evaluates the project impacts to washes and facilities. This section also addresses washes regulated under Section 404 of the CWA and regulated by the U.S. Army Corps of Engineers (Corps) and project activities subject to Sections 401 and 402 of the CWA.

Existing Conditions

Watershed Hydrology and Water Quality

This project area is located within the Upper Santa Cruz and Avra Basin, a sole source aquifer designated area. Twenty-three wash crossings occur along La Cañada Drive; the largest two washes drain just over 1 square mile: Roller Coaster Wash, with 1.2 square miles, and Casas Adobes Wash, with 1.1 square miles. Of the 23 wash crossings, only Roller Coaster Wash is in a human-made channel. All other washes have natural channels or graded channels that are returning to a natural state.

The project is in the foothills area of the Santa Catalina Mountains, with all of the drainage basins that cross this project area on the alluvial outwash of the mountains. The existing two-lane road is oriented north–south with the drainage occurring from northeast to southwest; therefore, most drainage crossings of the road occur at angles of 45 to 90 degrees.

A preliminary jurisdictional delineation has been approved by the Corps. The Corps has determined six project area washes are under its jurisdiction: Roller Coaster Wash, Las Lomitas Wash, Citrus Wash, an unnamed tributary of Citrus Wash, Casas Adobes Wash, and Chula Vista Wash (PCDOT 2008c).

Drainage Facilities

The existing roadway crosses eight washes at grade (with dip crossings). During moderate to large storms, the roadway is inundated at wash crossings, limiting access for residents, businesses, and emergency vehicles.

One box culvert at Roller Coaster Wash is sized for a 25-year storm. The channel upstream and downstream is human-made with concrete bank protection in curve sections. The slope of the existing channel varies from 0.5 to 2 percent. During larger storms, break outs flow south along and over the roadway.

Permits

Of the project area washes, six are under the Corps' jurisdiction (Roller Coaster Wash, Las Lomitas Wash, Citrus Wash, an unnamed tributary of Citrus Wash, Casas Adobes Wash, and Chula Vista Wash). PCDOT will obtain a CWA Section 404 Nationwide Permit No. 14 – Linear Transportation



Projects from the Corps for work within these washes and will comply with conditions of the permit. Furthermore, a preconstruction notification to the Corps will be required.

Regarding Section 401 water quality requirements, which are administered by the Arizona Department of Environmental Quality (ADEQ), the six jurisdictional washes in the project area would be conditionally certified under the terms of Nationwide Permit No. 14 because those washes are not classified as impaired, unique, or tribal waters.

Because the project will disturb more than 1 acre of land, the project will also require a CWA Section 402 permit for compliance with the Arizona Pollutant Discharge Elimination System (AZPDES) program. Section 402 compliance requires that Pima County and the contractor file a Notice of Intent to use the statewide Construction General Permit with ADEQ. It also requires preparing and implementing a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP identifies potential sources of stormwater pollution at the construction site and defines methods for preventing stormwater pollution. These best management practices include erosion and sediment control, good housekeeping measures (i.e., site cleanup, hazardous materials management, and equipment maintenance), efforts to protect natural resources, and maintenance/inspection procedures. The SWPPP also identifies procedures to comply with requirements in the Construction General Permit.

Potential Impacts

The proposed improvements include installation of a closed storm drain system with 10-year storm flow carrying capacity and culverts with 100-year storm flow carrying capacity. At the current dip crossings, the road will be raised and culverts will be placed under the road, providing all-weather access for vehicles during inclement weather. As a result, La Cañada Drive will provide improved access for emergency services, residents, and business customers. Culverts will be designed to manage flow velocities and transport sediment to minimize future maintenance.

Two channels will require substantial downstream channel work. The Roller Coaster Wash channel is undersized, and has sedimentation problems that will require channel excavation downstream. La Cañada Drive crosses Chula Vista Wash at a dip crossing that drains to a developed channel 400 feet downstream. A box culvert will be installed at the road crossing and the developed channel will be extended to La Cañada Drive. Other moderate size washes will require box culverts and the remaining small washes will require pipe culverts.

A closed storm drain system will be constructed along La Cañada Drive, thus removing water flow from the roadway. The storm drains will outlet at the appropriate cross drainage culverts, so stormwater will remain in its natural watershed.

Project construction will temporarily disturb and expose soil along the R/W and temporarily introduce potential stormwater pollutants associated with construction equipment and materials. Soil disturbance and excavation will also occur in washes during installation of flood control features (culverts, intake structures, etc.).

Raising the roadway to eliminate dip crossings at washes will decrease soil erosion and water pollution associated with wind, water, and vehicle disturbance.



Mitigation Measures

The following mitigation measures address pertinent regulatory requirements:

- Pima County will obtain a Clean Water Act Section 404 Nationwide Permit No. 14 and comply with the permit conditions. This permit will provide conditional water quality certification for the six jurisdictional washes in the project area in compliance with Section 401 of the Clean Water Act.
- Pima County and the contractor, in compliance with Clean Water Act Section 402, will file a Notice of Intent to use the statewide Construction General Permit (CGP AZG 2008-001) with the Arizona Department of Environmental Quality and prepare and implement a Stormwater Pollution Prevention Plan.

6.1.3 Floodplain

This section evaluates potential impacts to Federal Emergency Management Agency (FEMA) floodplain areas as defined on FEMA Flood Insurance Rate Maps, and other areas that may be subject to inundation. Requirements of Pima County's Riparian Ordinance are also addressed.

Existing Conditions

Two Flood Insurance Rate Maps (FEMA 1999) were reviewed and showed that no portion of the project area falls within the special flood hazard areas of the 100-year floodplain. The project corridor is in areas designated as Zone X, determined to be outside the 500-year floodplain. However, irrespective of the FIRM designation, numerous at-grade wash crossings along La Cañada Drive are subject to inundation during large storm events.

Permits

The project will not affect floodplains. However, the project will affect greater than one-third acre of designated riparian areas, which triggers regulation under the Pima County Regional Flood Control District's Riparian Ordinance. Impacts to regulated riparian habitat will be evaluated and, if needed, mitigation will be developed in cooperation with the Regional Flood Control District.

Potential Impacts

The project includes the replacement of existing culverts with a size large enough to convey a 100-year storm. This will return the 100-year flow to a natural condition that existed before 1978, with the effect that some channels will experience nominally higher flow than under current conditions. However, these sections will be limited because existing breakouts return to the channel downstream.

The project includes replacing dip crossings with culverts, which requires that the roadway be raised above 100-year storm flows, thereby improving access to the project area.

Mitigation Measures

While no adverse impacts to floodplains have been identified, designated riparian habitat will be affected.

- A riparian impact assessment will be prepared and, if needed, mitigation will be developed in conjunction with the Pima County Regional Flood Control District to compensate for impacts to regulated riparian habitat.



6.1.4 Air Quality

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: ground-level ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM_{2.5} and PM₁₀), and lead. This section evaluates the project impacts related to these criteria pollutants. It also discusses compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP), specifically with regard to project demolition activities that may release asbestos or lead into the air.

Existing Conditions

The Pima County Department of Environmental Quality (PDEQ) operates air quality monitoring stations at various sites throughout Pima County to monitor the levels of the criteria air pollutants (except for lead). The closest monitoring station to the project area is the Children’s Park monitoring station, approximately 0.75 mile east of La Cañada Drive near the confluence of the Rillito River and Pima Wash. This station monitors levels of CO, O₃, NO₂, and particulate matter less than 2.5 microns in aerodynamic diameter (PM_{2.5}). Table 3 presents the federal standards and the averaging period over which the standard is measured for the pollutants monitored at this site. The table also compares the most recently reported results from this site (2006) to the NAAQS. The monitoring data indicate that the project area meets the NAAQS for monitored pollutants.

Table 3. 2006 air quality monitoring data from Children’s Park site

Pollutant ^a	Averaging period	Federal standard	Monitored 2006 value
Particulate matter (PM _{2.5})	maximum 24-hour concentration	65 µg/m ³ ^b	16 µg/m ³
	annual arithmetic mean concentration	15 µg/m ³	5.79 µg/m ³
Carbon monoxide (CO)	maximum 1-hour concentration	35 ppm ^c	1.7 ppm
	maximum 8-hour concentration	9 ppm	1.1 ppm
Ozone (O ₃)	maximum 1-hour concentration	0.12 ppm	0.082 ppm
	fourth highest 8-hour concentration	0.08 ppm	0.072 ppm
Nitrogen dioxide (NO ₂)	annual arithmetic mean concentration	0.053 ppm	0.0148 ppm

Sources: Pima County Department of Environmental Quality (2006); U.S. Environmental Protection Agency (49 Code of Federal Regulations 50)

^a PM₁₀ and lead are not monitored at this location.

^b micrograms per cubic meter

^c parts per million

Pima County is in attainment for all criteria pollutants; however, two pollutants (CO and PM₁₀) merit further discussion. Although still considered an attainment area, Pima County exceeded the PM₁₀ NAAQS in 1999. As a result, PDEQ developed a Natural Events Action Plan to protect public health, educate the public about high wind events, mitigate health impacts from future events, and identify and implement control measures for human-made sources of dust. The Natural Events Action Plan (and the ensuing Pima County ordinance) requires an activity permit from PDEQ before activities such as earthmoving, trenching, or road construction—disturbing 1 acre or more—are conducted. The ordinance also limits the amount of dust generated from these activities to a maximum opacity (cloudiness) of 20 percent.



CO concentrations within the project area are determined by pollutants emitted into the air (primarily from motor vehicles) and the lack of pollutant dispersion related to topographical and meteorological characteristics of the Tucson basin. As a result of these conditions, exceedances of the CO NAAQS were relatively common in the 1970s; however, no CO violations have been recorded since 1984. The improvement in CO levels resulted in the Tucson Air Planning Area being designated by EPA as an attainment area for CO in 2000. A limited maintenance plan was approved that establishes procedures and contingency measures to be implemented, if necessary, in the future. The plan requires additional monitoring and modeling of CO concentrations at intersections with the worst levels of service and highest average daily traffic. A limited maintenance plan applies to areas where the monitored CO concentrations are equal to or less than 85 percent of the 8-hour CO NAAQS for at least 8 consecutive quarters.

Permits

An activity permit from PDEQ will be required prior to initiating any construction activities, and it will require dust control measures.

A NESHAP permit from PDEQ will also be required for the demolition of two residential structures.

Potential Impacts

The proposed project is located within an area that is in attainment for all criteria pollutants. Construction-related soil disturbance and operation of heavy equipment would produce an increase in particulate matter during roadway construction, but these impacts would be short-term in nature and mitigated as described below.

The long-term impacts of the project on air quality will be positive. The project will relieve existing and projected traffic congestion on area roadways. Decreasing traffic congestion would result in lower emissions from stop-and-go traffic and idling vehicles, which would otherwise negatively affect air quality. In addition, pedestrian and bicycle facilities within the area would be improved; therefore, increased use of less polluting alternative transportation modes could be expected.

The majority of the roadway currently lacks curbs and culverts. As a result, soils and other materials from the unpaved roadway shoulders are tracked onto the roadway by vehicles as they enter the roadway and are washed onto the roadway by storms. This situation is exacerbated after rainfall. As traffic passes over this material, it is ground into finer and finer particles and is liberated from the roadway as fine particulate matter. The provision of curbs and culverts along the roadway will decrease the amount of particulate matter that is tracked onto the roadway and will result in lower fine particle emissions from the roadway surface.

Two properties (5335 and 5365 N. La Cañada Drive) will be acquired and the residential buildings demolished. The buildings will be assessed for the presence of lead and asbestos prior to demolition.

Mitigation Measures

The following mitigation measures are recommended:

- Prior to initiating any construction activities such as earthmoving, trenching, or road construction, the contractor will obtain an activity permit from the Pima County Department of



Environmental Quality. The contractor will monitor dust generation from the construction area and limit the amount of dust generated to a maximum opacity of 20 percent. The contractor will follow the Pima County Department of Transportation standard specifications for dust suppression during construction and will comply with the Stormwater Pollution Prevention Plan prepared for this project.

- Prior to demolition of any building, a National Emission Standards for Hazardous Air Pollutants permit will be obtained from the Pima County Department of Environmental Quality.
- Prior to demolition of the two residential structures, Pima County shall retain an Asbestos Hazard Emergency Response Act Certified Building Inspector to complete asbestos and lead testing of the structures. If lead- or asbestos-containing materials are present, an approved contractor shall develop and implement an Asbestos Removal and Disposal Plan for the removal of the asbestos or asbestos-containing material from the two residential structures. The plan shall be submitted to the County Engineer for review and approval at least 10 working days prior to implementation.

As a result of these mitigation measures, the proposed project would have only temporary, short-term, and minimal impacts to particulate levels during project construction. The project would improve long-term air quality by decreasing traffic congestion, improving alternative modes of transportation, and reducing particulate emissions associated with exposed soil.

6.1.5 Noise

Noise is unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. This section evaluates potential noise impacts to sensitive properties based on a project-specific traffic noise report (PCDOT 2008d and Appendix E) that documented the modeling of existing and future noise levels along La Cañada Drive using the proposed design plans for the project and future 2030 traffic forecasts. The noise report is consistent with the PCDOT procedure on *Traffic Noise Analysis and Mitigation Guidance for Major Roadway Projects* (PCDOT 2008a), commonly referred to as the Pima County Noise Abatement Procedure (PC NAP), and complies with FHWA's Procedure for Abatement of Highway Traffic Noise and Construction Noise. Potential construction noise impacts are also described.

The PC NAP provides guidance to evaluate traffic noise and identifies criteria for the application of noise mitigation for Pima County's major roadway projects. It includes procedures for noise analysis, traffic noise abatement, and reporting requirements. Under the PC NAP, noise abatement is considered when noise levels are predicted to reach 66 A-weighted⁴ decibels (dBA) or higher at sensitive properties, or when noise levels substantially exceed existing levels, defined as a 15-dBA increase. Sensitive properties include housing and may include parks and recreation areas, schools, churches, libraries, hospitals, and cemeteries.

The PC NAP includes a provision for the use of rubberized asphalt, which reduces roadway noise. The PC NAP applies a noise credit of 3 dBA for the use of rubberized asphalt. However, this project is receiving federal funds, and FHWA does not currently recognize rubberized asphalt for

⁴ A decibel is a logarithmic unit of measurement for sound energy. The A-weighted decibel scale approximates the sensitivity of the human ear. The approximate threshold of hearing is 0 dBA, while the approximate threshold of pain is 140 dBA. Most suburban areas have daytime noise levels ranging from 50 to 70 dBA.



noise abatement. Rubberized asphalt will be used to surface the La Cañada Drive roadway; however, a credit will not be used as part of the noise evaluation for this project.

Noise abatement measures must be feasible, reasonable, and desired by owners of the properties benefited by the abatement. Feasibility is the ability to provide the abatement in a given location with consideration to the physical and acoustical limitations of the site. This takes into account topography, access, drainage, safety considerations, maintenance requirements, and whether other noise sources are present. Reasonability means that PCDOT believes mitigation measures are prudent, based on consideration of the following conditions:

- The cost of the noise abatement shall not exceed \$35,000 per benefited receiver, at \$25 per square foot of constructed barrier.
- The noise barrier will benefit more than one sensitive property.
- The noise barrier will provide a 5-dBA noise reduction without being more than 10 feet high.

If potential barriers are deemed feasible and reasonable, then desirability will be considered. Fifty-one percent of owners of benefited properties must approve the barrier for it to be constructed.

Existing Conditions

Noise sensitive properties within the project area are predominantly single-family homes. Some multifamily residential areas are located in the southern portion of the project area. Churches and La Cima Middle School are also considered noise sensitive properties.

During peak traffic hours, roadway noise is the dominant noise source in the project area. Field readings were taken at four locations (see Figures 9 to 13) to measure existing noise conditions during peak-hour traffic flows. Readings were taken on January 17, 2007, from 7 to 8:30 a.m. and from 4 to 5:30 p.m., and on January 24, 2007, from 7 to 8:30 a.m. and from 4 to 5:30 p.m. Field conditions were replicated in the traffic noise model and noise levels were then calculated by the model. Existing traffic noise levels from the field measurements were then compared with the model's calculations to verify the accuracy of the model. For this project, the traffic noise model calculated noise levels 2 to 3 dBA less than the measured levels. This discrepancy is largely due to the condition of the roadway at the monitoring sites. No adjustments were made to the model to represent the noise produced by the degraded roadway because the new roadway will have new pavement without the existing cracking and associated noise.

Existing noise levels were modeled at 114 noise sensitive receiver locations within the project area. Modeled existing peak-hour noise levels along La Cañada Drive ranged from 53 to 65 dBA. Therefore, modeled existing noise levels did not exceed the PC NAP criteria of 66 dBA at any of the noise sensitive properties.

Permits

No permits with regard to traffic noise impacts have been identified.

Potential Impacts

The proposed project would widen La Cañada Drive from River Road to Ina Road from a rural two-lane undivided road to an urban four-lane divided road with dedicated turn lanes at median openings



and intersections. A frontage road will be constructed for the residential lots on the eastern side of the road, between Roller Coaster Wash and Whispering Hills Road.

Traffic volumes on the roadway are expected to increase because of regional growth and expanded roadway capacity associated with the improvements, as indicated in Table 4. The increase in traffic volumes will result in an increase in traffic noise along the roadway. Likewise, adding lanes to the road will carry traffic closer to noise sensitive properties, thus increasing traffic noise levels at these properties. The project will use rubberized asphalt, which lessens the noise produced by traffic on the road.

Table 4. Existing (2007) and future (2030) peak-hour traffic volumes

Location	2007	2030	Increase
Between River Road and Orange Grove Road	1,768	3,816	2,048
Between Orange Grove Road and Ina Road	1,744	3,502	1,758

Source: Pima County Department of Transportation (2007a)

Future (2030) noise levels were predicted at 114 locations adjacent to La Cañada Drive. These locations included residential properties, La Cima Middle School, and churches (see Figures 9 to 13). Future peak-hour noise levels will range from 56 to 71 dBA. The expected increase from existing levels will range from 2 to 7 dBA at individual locations, with an average increase of approximately 5 dBA.

See Section 6.1.8, *Construction Activities*, regarding construction noise impacts.

Mitigation Measures

Predicted future noise levels would exceed the 66-dBA criterion for 65 noise sensitive properties (59 receivers). The provision of noise barriers was evaluated for feasibility and reasonableness for all of these locations. Thirty-six distinct areas were evaluated for noise barriers (Table 5). Figures 9 to 13 show the potential noise barrier locations.

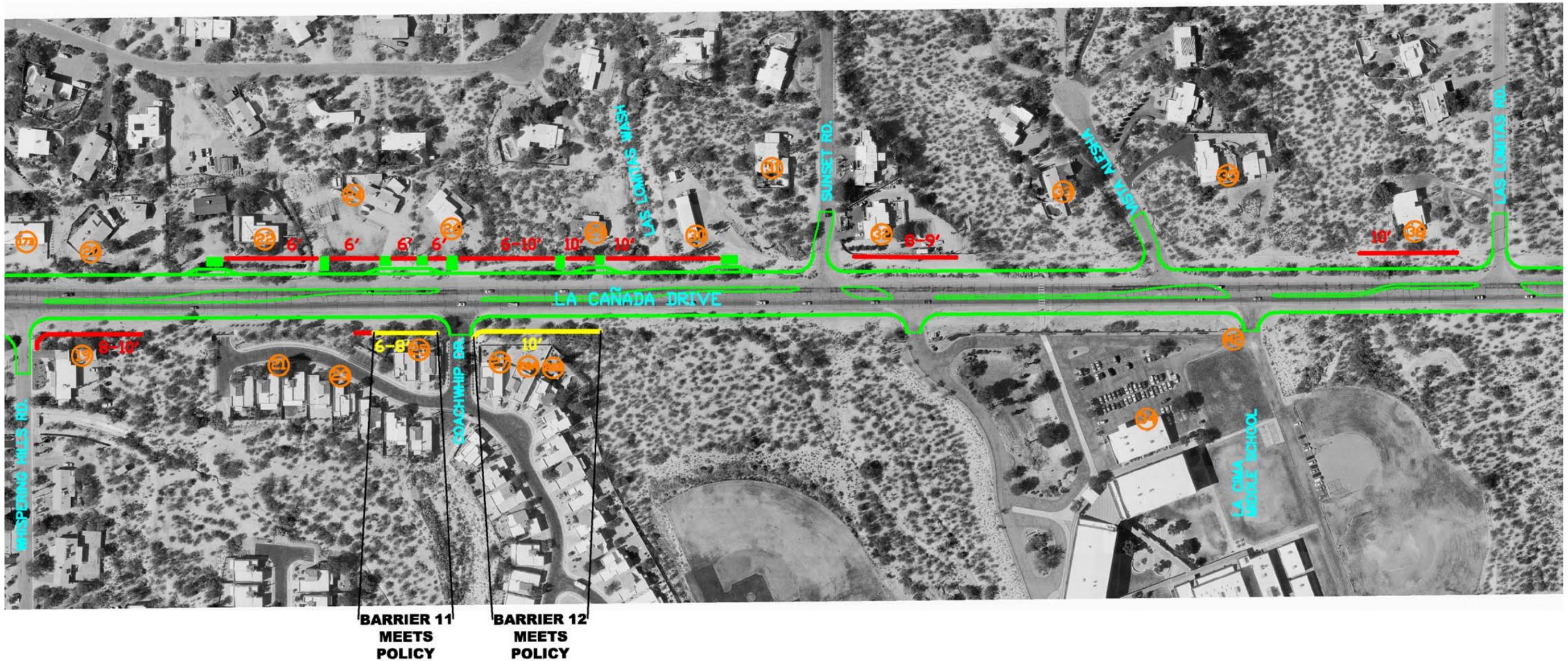
Barriers 2, 5, 14, 17, 20, 28, 30, 24, and 35 were unable to achieve a 5-dBA reduction for the associated properties. Barriers 9, 10, 13, 15, 18, 21–27, 29, 31, and 33 were able to reach a 5-dBA reduction at some or all of the associated properties, but in doing so the cost exceeded \$35,000 per benefited property. Barriers 4, 8, 16, 19, 32, and 36 were able to achieve a 5-dBA noise reduction while costing \$35,000 or less per benefited property. However, the barriers benefited only one property—less than the minimum number of benefited units required by the PC NAP. Therefore, all barriers discussed above do not meet Pima County reasonability criteria and are not recommended.

Barriers 1, 3, 6, 7, 11, and 12 meet PC NAP reasonableness and feasibility criteria and are recommended. Figure 8 in Section 4.0, *Proposed Project*, shows the typical roadway sections with noise barriers. Actual barrier lengths may need to be adjusted to accommodate safety requirements, such as ensuring that the barriers do not obscure sight distance needed for drivers and that an adequate buffer is included to negate vehicle damage in the case of a collision with the barrier.

Figure 9. Noise monitoring sites, sensitive receivers, and potential barriers (River Road to Whispering Hills Road)



Figure 10. Noise monitoring sites, sensitive receivers, and potential barriers (Whispering Hills Road to Las Lomitas Road)

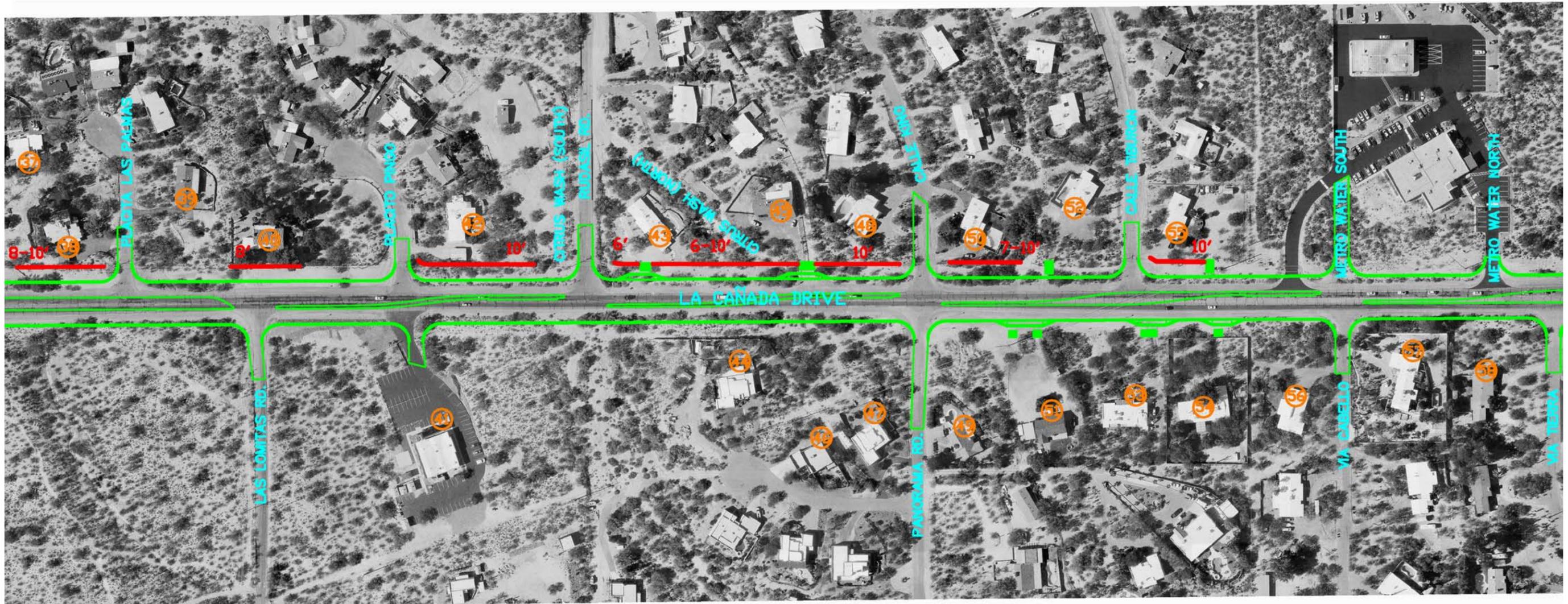


MI MONITORING SITE
1 RECEIVER LOCATION

10' POTENTIAL BARRIER LOCATION WITH HEIGHT, MEETING PCDOT CRITERIA
10' POTENTIAL BARRIER LOCATION WITH HEIGHT, NOT MEETING PCDOT CRITERIA
PROPOSED ROADWAY DESIGN WITH SIDEWALK AND PUBLIC TRAIL



Figure 11. Noise monitoring sites, sensitive receivers, and potential barriers (Placita Las Palmas to Via Tierra)



MONITORING SITE
 RECEIVER LOCATION

10' POTENTIAL BARRIER LOCATION WITH HEIGHT, MEETING PCDOT CRITERIA
 10' POTENTIAL BARRIER LOCATION WITH HEIGHT, NOT MEETING PCDOT CRITERIA
 PROPOSED ROADWAY DESIGN WITH SIDEWALK AND PUBLIC TRAIL



Figure 12. Noise monitoring sites, sensitive receivers, and potential barriers (Via Tierra to 6745 N. La Cañada Drive)

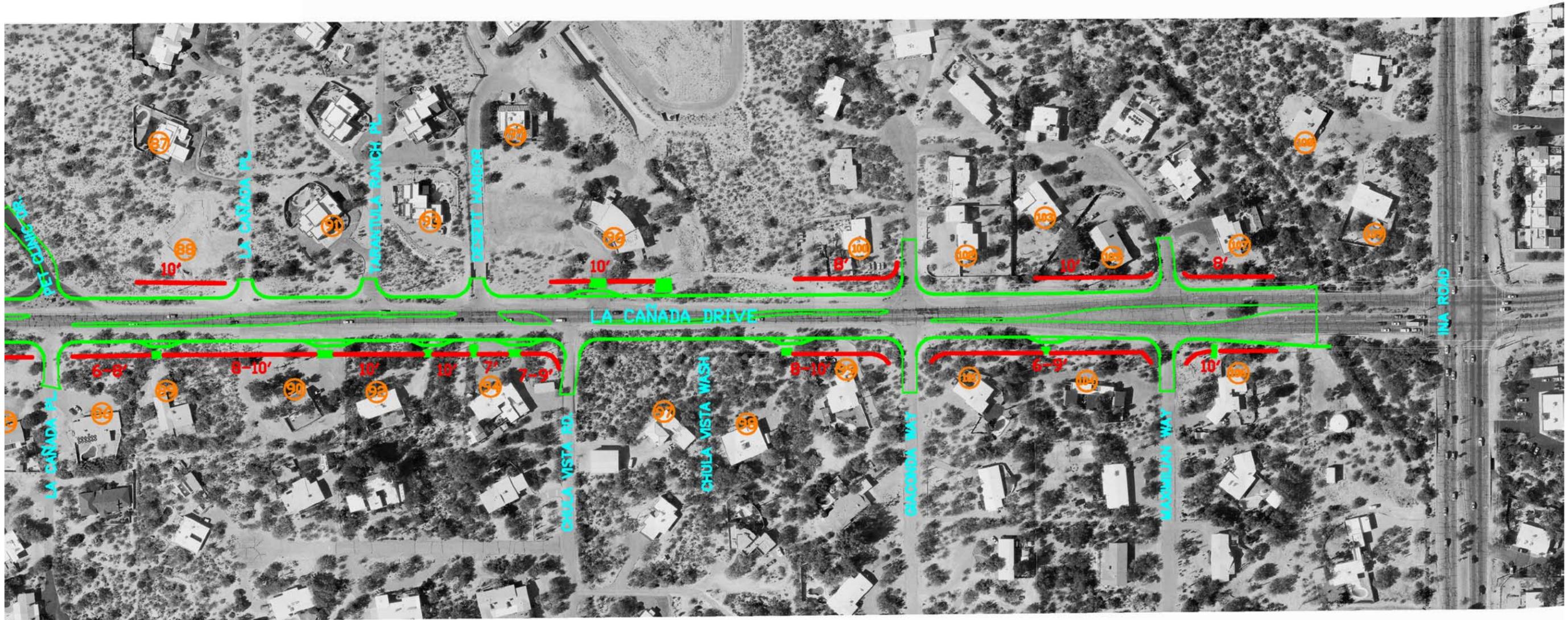


MI MONITORING SITE
1 RECEIVER LOCATION

10' POTENTIAL BARRIER LOCATION WITH HEIGHT, MEETING PCDOT CRITERIA
10' POTENTIAL BARRIER LOCATION WITH HEIGHT, NOT MEETING PCDOT CRITERIA
PROPOSED ROADWAY DESIGN WITH SIDEWALK AND PUBLIC TRAIL



Figure 13. Noise monitoring sites, sensitive receivers, and potential barriers (La Cañada Place to Ina Road)



MI MONITORING SITE
① RECEIVER LOCATION

10' POTENTIAL BARRIER LOCATION WITH HEIGHT, MEETING PCDOT CRITERIA
10' POTENTIAL BARRIER LOCATION WITH HEIGHT, NOT MEETING PCDOT CRITERIA
PROPOSED ROADWAY DESIGN WITH SIDEWALK AND PUBLIC TRAIL

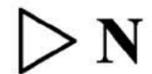




Table 5. Noise barrier evaluation

Barrier number	Length and height	Location description	Number of units^a	Units benefited	Consistency with PC NAP^b criteria
1	446 feet 8 feet	Single segment, east side of La Cañada Drive, north of River Road	6	6	Consistent with PC NAP
2	167 feet 10 feet	Single segment, west side of La Cañada Drive, north of Albertson's plaza	1	0	Does not meet noise reduction goal
3	306 feet 6–10 feet	Single segment, east side of La Cañada Drive, north of Kimberly Street	2	2	Consistent with PC NAP
4	154 feet 9 feet	Single segment, east side of La Cañada Drive, north of Roller Coaster Road	1	1	Does not meet minimum number of benefited units
5	110 feet 10 feet	Single segment, west side of La Cañada Drive, south of Neosho Place	1	0	Does not meet noise reduction goal
6	614 feet 6–10 feet	Single segment, east side of La Cañada Drive, south of Whispering Hills Road	6	4	Consistent with PC NAP
7	248 feet 7–9 feet	Two segments, west of La Cañada Drive, south of Flint Avenue	2	2	Consistent with PC NAP
8	106 feet 8 feet	Single segment, west side of La Cañada Drive, north of Flint Avenue	1	1	Does not meet minimum number of benefited units
9	221 feet 8–10 feet	Single segment, east side of La Cañada Drive, north of Whispering Hills Road	1	1	Exceeds maximum cost per benefited unit
10	726 feet 6–10 feet	Multiple segments, west side of La Cañada Drive, south of Sunset Road	4	2	Exceeds maximum cost per benefited unit
11	126 feet 6–8 feet	Single segment, east side of La Cañada Drive, south of Coachwhip Drive	2	2	Consistent with PC NAP
12	248 feet 10 feet	Single segment, east side of La Cañada Drive, north of Coachwhip Drive	2	2	Consistent with PC NAP
13	201 8–9 feet	Single segment, west side of La Cañada Drive, north of Sunset Road	1	1	Exceeds maximum cost per benefited unit

(continued on next page)



Table 5. Noise barrier evaluation (*continued*)

Barrier number	Length and height	Location description	Number of units^a	Units benefited	Consistency with PC NAP^b criteria
14	192 feet 10 feet	Single segment, west side of La Cañada Drive, south of Las Lomas Road	1	0	Does not meet noise reduction goal
15	170 feet 8–10 feet	Single segment, west side of La Cañada Drive, south of Placita Las Palmas	1	1	Exceeds maximum cost per benefited unit
16	136 feet 8 feet	Single segment, west side of La Cañada Drive, north of Placita Las Palmas	1	1	Does not meet minimum number of benefited units
17	229 feet 10 feet	Single segment, west side of La Cañada Drive, north of Placito Pingo	1	0	Does not meet noise reduction goal
18	505 feet 6–10 feet	Multiple segments, west side of La Cañada Drive, north of Rudasill Road	2	2	Exceeds maximum cost per benefited unit
19	140 feet 7–10 feet	Single segment, west side of La Cañada Drive, north of Calle Kino	1	1	Does not meet minimum number of benefited units
20	110 feet 10 feet	Single segment, west side of La Cañada Drive, north of Calle Tiburon	1	0	Does not meet noise reduction goal
21	317 feet 7–10 feet	Single segment, east side of La Cañada Drive, south of Via Hacienda	2	2	Exceeds maximum cost per benefited unit
22	188 feet 8–10 feet	Single segment, east side of La Cañada Drive, north of Via Hacienda	1	1	Exceeds maximum cost per benefited unit
23	249 feet 10 feet	Multiple segments, west side of La Cañada Drive, north of Orange Grove Road	2	1	Exceeds maximum cost per benefited unit
24	507 feet 6–10 feet	Two segments, west side of La Cañada Drive, south of Montebella Drive	3	3	Exceeds maximum cost per benefited unit
25	206 feet 8 feet	Single segment, east side of La Cañada Drive, south of San Nicholas Drive	1	1	Exceeds maximum cost per benefited unit

(*continued on next page*)



Table 5. Noise barrier evaluation (*continued*)

Barrier number	Length and height	Location description	Number of units ^a	Units benefited	Consistency with PC NAP ^b criteria
26	310 feet 10 feet	Single segment, west side of La Cañada Drive, north of Montebella Drive	2	1	Exceeds maximum cost per benefited unit
27	634 feet 10 feet	Multiple segments, east side of La Cañada Drive, south of La Cañada Place	3	1	Exceeds maximum cost per benefited unit
28	188 feet 10 feet	Single segment, west side of La Cañada Drive, south of La Cañada Place	1	0	Does not meet noise reduction goal
29	819 feet 6–10 feet	Multiple segments, east side of La Cañada Drive, north of La Cañada Place	4	3	Exceeds maximum cost per benefited unit
30	169 feet 10 feet	Two segments, west side of La Cañada Drive, north of Desert Harbor	1	0	Does not meet noise reduction goal
31	182 feet 8–10 feet	Single segment, east side of La Cañada Drive, south of Giaconda Way	1	1	Exceeds maximum cost per benefited unit
32	114 feet 8 feet	Single segment, west side of La Cañada Drive, south of Giaconda Way	1	1	Does not meet minimum number of benefited units
33	420 feet 6–9 feet	Two segments, east side of La Cañada Drive, north of Giaconda Way	2	2	Exceeds maximum cost per benefited unit
34	230 feet 10 feet	Single segment, west of La Cañada Drive, south of Maximilian Way	1	0	Does not meet noise reduction goal
35	111 feet 10 feet	Two segments, east of La Cañada Drive, north of Maximilian Way	1	0	Does not meet noise reduction goal
36	169 feet 8 feet	Single segment, west of La Cañada Drive, north of Maximilian Way	1	1	Does not meet minimum number of benefited units

^a Refers to the number of noise sensitive properties associated with each receiver.

^b Pima County Noise Abatement Procedure

Even with consideration of the above mitigation measures, noise levels would still exceed the PC NAP criterion of 66 dBA at 47 individual residences.



6.1.6 Utilities

This section identifies the utilities present in the project area, describes potential impacts to utility customers, anticipated utility relocation, and the party responsible for notifying utility customers regarding any service interruptions.

Existing Conditions

Numerous utility facilities are located within the project R/W. They include utilities from the following providers:

- AT&T
- Comcast Cable
- MCI-Verizon
- Metropolitan Domestic Water Improvement District
- Pima County Regional Wastewater Reclamation
- Qwest Communications
- Southwest Gas Corporation
- Time Warner/Xspedius
- Tucson Electric Power Company
- Tucson Water Department
- Western Area Power Administration

Permits

For any work related to the municipal sewer system, a public sewer construction permit will be required from Pima County Regional Wastewater Reclamation District and will provide for construction coordination, as well as reporting, coordination, and guidance for cleanup in the event of any wastewater release.

Potential Impacts

Overhead utilities will need to be relocated outside the future travel lanes for the project. Western Area Power Administration may need to relocate up to seven poles in the project area. Some of the underground utilities will need to be relocated to accommodate drainage facilities, to accommodate changes in grade for the new roadway, and to allow future access to utilities for repairs or maintenance. Water lines will be affected by the installation of new drainage facilities associated with the project. The water lines will be relocated prior to or during project construction. No impacts to wastewater lines are anticipated.

The relocation of gas, telephone, cable, and overhead electric lines will be conducted in advance of roadway construction by the utility providers. Any necessary relocation of high-voltage electric lines, high-pressure gas lines, and water lines may be conducted during months when demand for these services is lower. The party responsible for each utility relocation is identified in Table 6.



Table 6. Utility relocation responsibilities

Provider and utility type	Party to conduct relocation	Party to notify customers^a	Relocation period
Comcast Cable television	Utility	Utility	Not applicable
MCI-Verizon Communication	Utility	Utility	Not applicable
Metropolitan Domestic Water Improvement District Water pipes	Utility	Utility	Not applicable
Qwest Communications Cable, telephone	Utility	Utility	Not applicable
Southwest Gas Corporation High-pressure gas	Utility	Utility	April to September
Time Warner/Xspedius Communication	Utility	Utility	Not applicable
Tucson Electric Power Company Electric	Utility	Utility	September to May
Tucson Water Department Water pipes	Contractor	PCDOT ^b	Not applicable
Western Area Power Administration High-voltage electric	Utility	Utility	Not applicable
AT&T Fiber optic telephone	Utility	Utility	Not applicable

^a If sufficient time is available, utility customers will be notified by mail. Otherwise, notices will be provided on a door-to-door basis (door hangers, etc.).

^b Pima County Department of Transportation

Utility relocation may result in temporary service interruptions to area residents and businesses. Utility providers endeavor to minimize service interruptions and will reroute service where feasible. Service interruptions can generally be limited to a few non-peak hours per day, over a few days, or a half-day interruption. Some utility work may be conducted at night when service demand is low to minimize effects on customers; this will reduce direct utility impacts, but may result in a temporary noise impacts during relocation.

Mitigation Measures

- Affected customers will be notified by the utility regarding any planned service interruptions. The contractor will notify affected customers regarding Tucson Water Department service interruptions.

6.1.7 Hazardous Materials

This section evaluates potential impacts related to hazardous materials based on hazardous materials investigations of the surface, subsurface, and groundwater (PCDOT 2007c and Appendix F). The investigative methods used in preparation of the Initial Site Assessment (ISA) generally conform to



the American Society for Testing and Materials E-1527-05 guidance document for the preparation of Environmental Site Assessment reports (also known as Phase 1 reports).

Existing Conditions

An ISA (PCDOT 2007c) was prepared to evaluate the potential for recognized environmental conditions related to past or existing land uses and activities that may adversely affect roadway construction or R/W acquisition. The ISA included the following activities: a review of published documentation; review of public records, documents, and engineering plans (if available and applicable); review of local, state, and federal environmental files pertaining to known regulated environmental sites within the project area; interviews with subject site occupants, property owners, and longtime residents of the area (if available and applicable) regarding the development history of the area and issues of concern; and physical inspection and documentation of the project area.

Land uses in the project area include residential and commercial land uses, with interspersed undeveloped parcels. Development of the area began during the mid-1960s.

One site was identified to be of moderate to high risk with the potential to affect project development. This site is an operating service station at the northwestern corner of La Cañada Drive and River Road; it has an active underground storage tank. Additional investigation in the form of a Preliminary Site Investigation is recommended if portions of this site are likely to be acquired, or if ground disturbance is expected to be greater than 18 inches below ground surface (bgs). However, since no acquisition is slated to occur at the site in question, and the planned activities near the site involve excavation of less than 18 inches bgs, a Preliminary Site Investigation is not recommended.

Permits

No permits with regard to hazardous materials have been identified.

Potential Impacts

This project includes excavation and earthmoving activities; however, work near the one site identified as being moderate to high risk for recognized environmental conditions would not exceed 18 inches bgs.

See Section 6.1.4, *Air Quality*, for information regarding lead and asbestos.

Mitigation Measures

The following mitigation measures are recommended to address hazardous materials conditions:

- If any suspected hazardous materials are encountered during construction, work shall cease at the location and the Pima County Engineer shall be contacted to arrange for proper assessment, treatment, or disposal of these materials.

6.1.8 Construction Activities

This section evaluates impacts that may result from construction activities associated with the project such as traffic control, dust generation, and noise.



Existing Conditions

Land uses along the project corridor are primarily residential. Other land uses include commercial businesses, churches, a school, and intermittent open space, including wash areas. Other public uses are present to a lesser extent.

Permits

Prior to initiating construction activities such as earthmoving, trenching, or road construction that affect 1 acre or more, the contractor will obtain an activity permit from PDEQ. The contractor will monitor dust generation from the construction area and limit the amount of dust generated to a maximum opacity of 20 percent. The contractor will follow PCDOT standard specifications for dust suppression during construction and will implement the SWPPP prepared for this project.

A NESHAP permit from PDEQ will be required for the demolition of the residential structures.

The contractor will comply with Pima County's Noise Ordinance (Pima County Code Chapter 9.30.070), which sets the construction start and stop times in order to avoid noise disruptions at night. If nighttime work is required—perhaps to avoid utility service disruptions during the day—the contractor will need to obtain a permit from Pima County.

Potential Impacts

Project construction is expected to begin in fall 2011 and last from 24 to 30 months. A traffic control plan will be implemented by the contractor in conjunction with PCDOT's Field Engineering Division, and will employ measures such as construction signs, cones, and reduced speed limits. No detours or temporary roads are anticipated to be constructed. Although access will be maintained, traffic control measures are likely to temporarily slow traffic during construction. Some drivers may avoid this route in favor of alternate routes, resulting in a temporary increase in traffic on other routes during the La Cañada Drive construction.

Earthmoving, grading, and demolition activities will temporarily generate dust within the project area (see Section 6.1.4, *Air Quality*).

Construction of the proposed improvements will cause temporary impacts associated with the operation of construction equipment during site clearing, earthwork/grading, foundation preparation, and base preparation. Construction noise will be intermittent, with the highest noise levels occurring during the grading/earthwork phase, reaching instantaneous sound levels of 93 dBA at the project R/W (PCDOT 2008d). Table 7 further illustrates the noise created by construction equipment.



Table 7. Construction equipment noise

Phase	Equipment	Equipment maximum ^a	Number of feet to right-of-way	Maximum ^a sound levels at right-of-way
Site clearing	Dozer	84	50	88
	Backhoe	85	50	
Grading/earthwork	Scraper	92	75	93
	Grader	91	75	
Foundation	Backhoe	85	100	85
	Loader	84	100	
Base preparation	Compressor	85	100	85
	Dozer	84	100	

Source: Pima County Department of Transportation (2008d)

^a maximum instantaneous sound level in decibels

Noise impacts from construction equipment may be minimized through use of properly designed equipment, good maintenance of equipment, and placement of equipment away from noise sensitive properties. The contractor will comply with Pima County’s Noise Ordinance (Pima County Code Chapter 9.30.070), which sets the construction start and stop times in order to avoid noise disruptions at night. If nighttime work is required, the contractor will need to obtain a permit from Pima County.

As previously discussed in Section 6.1.4, *Air Quality*, any building to be demolished as part of the construction project will need to be tested for the presence of asbestos and lead. If lead or asbestos is present, abatement will be conducted prior to building demolition.

Mitigation Measures

The following measures are recommended to address construction impacts:

- The contractor shall maintain access to businesses and residences.
- The contractor shall provide signs to identify business access during construction.
- The contractor will comply with Pima County’s Noise Ordinance (Pima County Code Chapter 9.30.070), which sets the construction start and stop times in order to avoid noise disruptions at night. If nighttime work is required, the contractor will need to obtain a permit from Pima County.
- Exhaust systems for construction equipment will be kept in good working order. Equipment will be maintained on a regular basis, and may be subject to inspection.
- Properly designed engine enclosures and intake silencers will be used where appropriate.
- New equipment will be subject to new product noise emission standards.
- Stationary equipment will be located as far away from sensitive receivers as possible.



6.1.9 Cultural Resources

This section discusses potential impacts to cultural resources based on a project-specific Class III cultural resources assessment conducted in accordance with Section 106 of the National Historic Preservation Act by HDR Engineering, Inc. (HDR) (Touchin 2009). The report abstract is provided in Appendix G. The report presents the results of a records check and pedestrian survey, evaluates the potential impacts of the project to cultural resources, and recommends mitigation to reduce impacts to resources.

Existing Conditions

A records search of previous surveys indicates that 18 surveys and 1 monitoring project have been undertaken within 0.5 mile of the project. Seven previously recorded sites were identified within the project area, as recorded by the Arizona State Museum (ASM). Four of those sites were identified within the area of potential effects:

- AZ BB:5:123 (ASM) is the historical Oracle-Tucson transmission line constructed during the early 1940s and completed in 1943. The original line consisted of wooden H-frame structures or single post structures that have been completely dismantled. The portion of the transmission line within the area of potential effects has since been completely replaced with modern infrastructure and no longer retains integrity as a historical resource.
- AZ BB:9:81 (ASM) is a trash dump containing brick piles; mortar; glazed ceramics interspersed with clear, amber, and blue glass fragments; and plastic and metal items.
- AZ BB:9:244 (ASM) is a Pre-Classic/Classic period Hohokam limited use area. This site was recorded as three locations that included artifact scatters, culturally-stained soils, roasting pit areas, plainware sherds, fire-altered rocks, and dark ashy soil.
- AZ BB:9:268 (ASM) is a Sedentary/Classic period Hohokam limited use area. It includes an oval charcoal and ash stain with a light sherd and lithic scatter.

HDR conducted a pedestrian survey of the project's area of potential effects in March and September 2008. The survey area consists of the existing La Cañada Drive R/W from River Road to Ina Road, 22 drainage easements, 2 temporary construction easements (TCEs), and 5 parcels of new R/W. One drainage easement was inaccessible for survey and one TCE was only partially surveyed because of landscaping. No new archaeological sites were identified. Of the four previously recorded sites, the survey identified remnants of two: AZ BB:9:81 (ASM) and AZ BB:5:123 (ASM).

Site AZ BB:9:81 (ASM) was located by HDR; however, the site has been affected by surrounding development and no longer appears as was previously documented. The site is no longer intact, and the potential for finding intact subsurface deposits is low. It has, therefore, been determined that this site is not eligible for the National Register of Historic Properties (NRHP).

Site AZ BB:5:123 (ASM), the historical transmission line, was located by HDR. However, the portion of the transmission line within the area of potential effects has been completely replaced with modern infrastructure and, therefore, no longer retains integrity as a historical resource.

No traces of two previously recorded Hohokom sites, AZ BB:9:244 (ASM) and AZ BB:9:268 (ASM), were found within the survey area. Soil discoloration associated with site



AZ BB:9:268 (ASM) was located by HDR. However the soil discoloration is located outside of the area of disturbance and will not be affected by the proposed construction activities.

Three cultural resources not meeting archaeological site definition criteria established by the ASM were discovered during the survey of the area of potential effects. None of these isolated occurrences are eligible for inclusion in the NRHP.

One drainage easement was not surveyed because it was inaccessible. One temporary construction easement and three drainage easements were partially surveyed because of previous ground disturbance. Given the results of the survey in general and the absence of sites in the immediate vicinity as demonstrated by the records search, no further work is recommended for these areas.

The project is likely to require the acquisition and demolition of two residences in order to accommodate the roadway widening. The evaluation of the two residences concluded that one property did not meet age requirements to be considered historic. The other property was recommended as not eligible for listing in the National Register of Historic Places because of extensive recent alterations.

Concurrence from the State Historic Preservation Office on these recommendations will be obtained in order to comply with Section 106 of the National Historic Preservation Act.

Permits

No permits with regard to cultural resources have been identified for the proposed project.

Potential Impacts

The project does not have the potential to impact any cultural resources.

Mitigation Measures

The project does not have the potential to impact any cultural resources. No further cultural work is required.

- If previously unidentified cultural resources are encountered during construction within project areas that are not being monitored, the contractor should stop work immediately at that location, take all reasonable steps to secure the preservation of those resources, and contact the archaeological monitor.

6.1.10 Visual Resources

This section describes the characteristics of the viewsheds in the project area including the level of development, drainage features, vegetation, and topography. This section evaluates the project impacts on visual resources, with photographs illustrating typical views in the project area. Photograph locations are identified in Figure 14, with the project area views shown in Photographs 1 through 7.

Existing Conditions

The project area is visually characterized by developed land uses, native vegetation, varying topography, and washes.



Figure 14. Photograph locations





Development

Within the project area, La Cañada Drive is primarily a two-lane arterial road characterized by dip crossings and shoulders without curbs (see Photographs 1 and 2). The unpaved R/W has areas with no vegetation, areas with dense vegetation, areas with high berms, and developed features.

Land use between River Road and Ina Road is predominantly single-family residential on approximately 1-acre lots. Apartment buildings exist at River Road, with moderate density residential properties between Roller Coaster Wash and Coachwhip Drive. Most commercial areas are concentrated at the northwestern corner of River Road. Additional nonresidential areas are interspersed along the remaining project corridor, such as La Cima Middle School on the eastern side of La Cañada Drive between Coachwhip Drive and Panorama Road. Vacant land is adjacent to the school and at Orange Grove Road. The Casas Adobes Pet Clinic and Metropolitan Domestic Water Improvement District are commercial and public facilities, respectively. Both businesses occur on large properties vegetated with native plants. Churches are located on the western side of La Cañada Drive at Maximillian Way, and on the eastern side of La Cañada Drive across from Placito Pingo.

Dominant Visual Features

The elevation of the project area increases—with moderate sloping—from River Road to Orange Grove Road, with a less pronounced incline from Orange Grove Road to Ina Road. A majority of the vegetation along the roadway is native, with some landscaping along residential and commercial properties (see Photographs 2 and 6). The roadway crosses several washes along the project corridor (see Photograph 7). The Santa Catalina Mountains on the east can be seen from most of the project area (see Photograph 4). The Tucson Mountains on the west can be seen from many locations along La Cañada Drive (see Photograph 6). Overhead utility transmission lines and poles are visible from both sides of the road (see Photographs 1, 2 and 5).

Views

Foreground views predominantly consist of the unpaved R/W, moderate- and low-density housing, and undeveloped land in some areas. Middle ground views encompass the foreground views, as well as additional landscaped areas, native vegetation areas, washes, and utility lines. Background views include the Santa Catalina Mountains and Tucson Mountains.

Permits

No permits pertaining to visual resources have been identified for the proposed project.

Potential Impacts

The project will involve the widening of La Cañada Drive, converting the existing two travel lanes and unpaved R/W to four travel lanes with raised medians, turning lanes, and sidewalks. Noise barriers between 6 and 10 feet in height are proposed for some roadway segments based on noise study results (see Section 6.1.5, *Noise*). The roadway will be raised up to 5 feet in some areas to eliminate the dip crossings. The project will also have landscaping, artwork, and aesthetic treatments. The landscape plan will integrate the roadway project with the proposed drainage improvements. As a result of the proposed improvements, the road corridor will have more hardscape associated with sidewalks, curbs, a marked bike lane, and culvert inlets and outlets,



particularly at Roller Coaster Wash and Chula Vista Wash (see Section 6.1.2, *Drainage and Clean Water Act*).

Foreground and middle ground views from the roadway will experience the most change because the unpaved R/W will be replaced with hardscape, and noise barriers will be installed at some locations. Landscaping elements will somewhat soften the view. Background views will be affected where 6- to 10-foot-high noise barriers are constructed. If no noise barriers are constructed, background views will not change.

Photograph 1. View of La Cañada Drive near Ina Road, looking south, with the Tucson Mountains in the background



Photograph 2. View of La Cañada Drive near Orange Grove Road, looking east



Photograph 3. View of La Cañada Drive near Orange Grove Road, looking north





Photograph 4. View of La Cañada Drive at the Orange Grove Road intersection, with the Santa Catalina Mountains in the background, looking northeast



Photograph 5. View of commercial property on La Cañada Drive with the Tucson Mountains in the background, looking south



Photograph 6. View north of the Orange Grove Road and La Cañada Drive intersection, with the Tucson Mountains in the background, looking south



Photograph 7. View of Casas Adobes Wash from La Cañada Drive, looking west





Mitigation Measures

The following measure is recommended to soften the hardscape associated with noise barriers:

- Include landscaping plantings in front of noise barriers, where practicable, to soften the hardscape.

6.2 Neighborhood/Social Environment

This section evaluates impacts to the neighborhood and social environment, including R/W acquisition and displacement, temporary and permanent access, parking, neighborhood disruption, parks and recreational areas, and consistency with other plans.

6.2.1 Right-of-Way Acquisition and Displacement

This section describes the existing land use, zoning, and planned development in the project area, and evaluates the potential impacts resulting from acquisition of new R/W, TCEs, and drainage easements for the project, including displacement of uses.

Existing Conditions

Land uses in the project area include low-density residential and an apartment complex near River Road. Other uses include commercial, public (Metropolitan Domestic Water Improvement District, La Cima Middle School), churches, vacant land, and flood control/washes. Zoning in the project area is predominantly Single Residence (CR-1), Transitional Zone (TR), and Single Ranch (SR).

Multifamily residences are planned for construction in the vacant lot at the southwestern corner of La Cañada Drive and Roller Coaster Road.

Potential Impacts

The proposed project will construct a road that requires more space than the existing road. New R/W is needed to accommodate the widened road, additional turning lanes, bicycle route, sidewalk, and public use trail. Drainage easements are needed to support the construction of the improved drainage along La Cañada Drive. Temporary construction easements are needed to accommodate project construction and temporary impacts that may extend beyond the R/W limits.

Property acquisition from 12 properties, totaling approximately 2.9 acres, is needed to achieve the proposed roadway improvements (see Table 8). Total acquisition of two residential properties is required. The balance of the R/W acquisitions are relatively minor; most of them being less than 0.2 acre each, and they would not affect continued use or development of these properties.



Table 8. Right-of-way acquisition acreage

Parcel	Location	Ownership	Acreage
104-01-072C	5101 N. La Cañada Drive	John W. and Dena K. Hesser	0.057
104-01-072B	5101 N. La Cañada Drive	John W. and Dena K. Hesser	0.026
104-01-070B	5131 N. La Cañada Drive	Dona Davenport	0.106
105-07-013B	1358 W. Roller Coaster Road	Sanders C. and Louise R. Watson	0.108
104-02-1710 ^a	5335 N. La Cañada Drive	Albert N. and Mary Louise Martinez	0.447
104-01-0500 ^a	5365 N. La Cañada Drive	James Lynn and Sheralyn F. McElhiney	0.775
105-06-002B	no address listed with County Assessor	JMK Family Properties	0.266
102-16-0740	1340 W. Via Hacienda	Gina L. and Peggy N. Genova	0.032
102-16-0690	1341 N Orange Grove Road	Orange Grove Property LLC	0.078
102-11-131A	no address listed with County Assessor	Constantino T. and Nelda Panousopoulos	0.933
102-09-3970	6411 N. La Cañada Drive	Manual D. Verdugo and Cecilia S. Aparisi	0.069
102-09-3980	6431 N La Cañada Drive	Kim C. and Mary Ann Stewart	0.044
Total			2.941

^a total property acquisitions

R/W acquisitions exceeding 0.2 acre are described below:

- Two residential properties will be acquired. These properties are located across the street from the intersection of La Cañada Drive and Whispering Hills Drive between Roller Coaster Road and Orange Grove Road.
 - 5365 N. La Cañada Drive is being acquired because the new R/W is too close to the house.
 - 5335 N. La Cañada Drive is being acquired because it is located on a hill, and the cuts required for the new road would result in driveway slopes that are too steep to be usable.
- Acquisition of approximately 25 feet of frontage from an undeveloped property (0.266 acre of parcel 105-06-002B) on the eastern side of La Cañada Drive between Coachwhip Drive and Sunset Road is required to complete the 75-foot half width of the R/W and to accommodate the roadway improvements. The R/W at this location is currently 50 feet from the road centerline. This acquisition would not affect future use of this property.
- Acquisition of approximately 70 feet of frontage from an undeveloped property (0.933 acre of parcel 102-11-131A) on the southern side of Orange Grove Road is required to accommodate the improvement of the Orange Grove Road intersection. Future development of this parcel would still be feasible, but may be constrained by this acquisition. A drainage easement from this property will also be required; see the discussion below.

Drainage improvements, including culverts, have been designed to minimize acquisition requirements and impacts to residences. Nonetheless, some acquisition for drainage easements will be required to construct improvements and provide maintenance access. Drainage easements will be needed from 25 property owners, totaling approximately 3.4 acres. See Appendix H for a table of needed drainage easements. The drainage easement acquisitions are relatively minor; most of them would be less than 0.2 acre and would not affect continued use or development of these properties.



Easements exceeding 0.2 acre are needed from five properties, as described below:

- A drainage easement for an existing wash on a residential property at the southeastern corner of Panorama Road and La Cañada Drive (0.40 acre from 6099 N. Panorama Ridge Place) is needed to accommodate the culvert inlet for Citrus Wash.
- A drainage easement for an existing wash on a vacant lot at the southwestern corner of Orange Grove Road and La Cañada Drive (0.48 acre from parcel 102-11-131A) is needed to accommodate the culvert outlet channel for Casas Adobes Wash. Since the wash is an existing constraint, this acquisition would not inhibit future development of this property.
- A drainage easement for an existing wash on a residential property at the northeastern corner of Chula Vista Road and La Cañada Drive (0.27 acre from 1350 W. Chula Vista Road) is needed to accommodate the culvert inlet channel for Chula Vista Wash. This easement would not affect the existing use of this property.
- A drainage easement for an existing wash on church property—Tucson Church International, located west of La Cañada Drive across from Chula Vista Road (0.48 acre from 6901 N. La Cañada Drive)—is needed to accommodate the culvert outlet channel for Chula Vista Wash. This easement would not affect the existing use of this property.

Approximately 4.9 acres of TCEs are needed along the corridor to facilitate project construction; see Appendix H for a table of TCEs. Most of the easements are from properties adjacent to La Cañada Drive. These TCEs involve approximately 16 parcels and range from 0.007 to 0.590 acre. Temporary construction impacts may affect existing vegetation, walls, and other property improvements. No structures would be affected. Property owners will be compensated for the temporary use of their property, and are responsible for restoring their property.

Figure 15 shows R/W and easements greater than 0.2 acre needed for the project.

Mitigation Measures

The following mitigation measure is recommended:

- A property acquisition program would be implemented in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), the Uniform Relocation Act Amendments of 1987 (Public Law 100-17), Title VI of the Civil Rights Act of 1964, and Arizona law. Private property owners would be compensated at fair market value for land to be acquired for project right-of-way and easements.

Figure 15. New right-of-way and drainage easements⁵



Right-of-Way Acquisition
 Drainage Easement

⁵ New right-of-way and drainage easements exceeding 0.2 acre are shown in this figure.



6.2.2 Temporary and Permanent Access and Parking Impacts

This section evaluates the potential impacts to access and parking resulting from the project, including access for cars, buses, pedestrians, and bicyclists, as well as compliance with ADA requirements.

Existing Conditions

Vehicle Access and Parking

Within the project limits, La Cañada Drive has two travel lanes with turning lanes at River Road, Orange Grove Road, and Ina Road. North of Orange Grove Road, west of La Cañada Drive, a deteriorating asphalt strip that appears to be an old road runs parallel to La Cañada Drive providing access to several adjacent homes (see Photograph 3).

Currently, access to La Cañada Drive is unrestricted throughout the project area. Vehicles originating from residences and businesses can access northbound and southbound La Cañada Drive from existing side streets and driveways.

Parking is accommodated on side streets or on properties adjacent to La Cañada Drive. Cars are not typically parked on La Cañada Drive.

Pedestrian, Equestrian, Bicycle, and Bus Transit Facilities

No curbs or sidewalks currently exist within the project area. The 2- to 4-foot paved shoulders of La Cañada Drive have signs identifying them as bike routes. The unpaved R/W is used as a walking path, bike route, and equestrian trail. Two dedicated school crossings within the project area serve the following schools:

- Lulu Walker Elementary School at 1750 W. Roller Coaster Road
- La Cima Middle School at 5600 N. La Cañada Drive

Bus transit facilities do not currently serve the entire project corridor. An existing route along River Road provides bus service at the intersection of La Cañada Drive and River Road, south of the southern project termini. At the northern end of the project area, two bus routes along Ina Road serve the intersection of La Cañada Drive and Ina Road.

Potential Impacts

The project will construct raised medians with designated left-turn lanes, thus controlling turning movements. Drivers along the project area will no longer be allowed to make certain turning movements, resulting in drivers executing U-turns at the median openings or using alternate routes to access neighborhoods and driveways. The concentrated turning movements will improve traffic operation and reduce the number of potential collision points along the corridor. Medians will generally be evenly spaced, with openings favoring cross streets with the greatest traffic volumes.

A frontage road will be constructed on the eastern side of La Cañada Drive in front of six residences south of Whispering Hills Drive to consolidate access to the roadway. Driveway pullouts will be constructed for mail and waste collection services, thus preventing traffic congestion from trucks stopping in the travel lanes.



The project will provide sidewalks, a public use trail, and a marked on-street bike lane. Sidewalks, crosswalks, and access ramps will be ADA compliant. The existing crosswalks at La Cima Middle School and Roller Coaster Road will remain, with signs and stripes after construction. No additional crosswalks are planned to be provided after construction. The public use trail is also approved for equestrian use. The public use trail will connect area washes, some of which are designated as trails by Pima County (see Figure 16 for trails and parks in the project area). Roadway construction will temporarily affect bicycle and equestrian use of the roadway corridor. During construction, pedestrians, bicyclists, and equestrians will be rerouted.

Bus pullouts will be constructed on the departure side of La Cañada Drive at Roller Coaster Road and Orange Grove Road. Sun Tran bus service has a new express route connecting Oro Valley, downtown Tucson, and Raytheon (on the south side of Tucson), and it travels on La Cañada Drive.

La Cañada Drive access will be improved by providing an all-weather travel surface. The vertical alignment of the roadway currently follows the terrain, crossing the numerous medium-sized to large washes near- or at-grade. As a result, rain storms can impede area access until storm flows abate. The installation and replacement of culverts, as proposed by the project, will provide an all-weather travel surface, thereby improving emergency service access and commuter reliability.

The project will have no impact on parking because there is sufficient parking on connecting side streets and on adjacent residential properties. Commercial and school parking will not be affected. Access to businesses and residences will be maintained during construction.

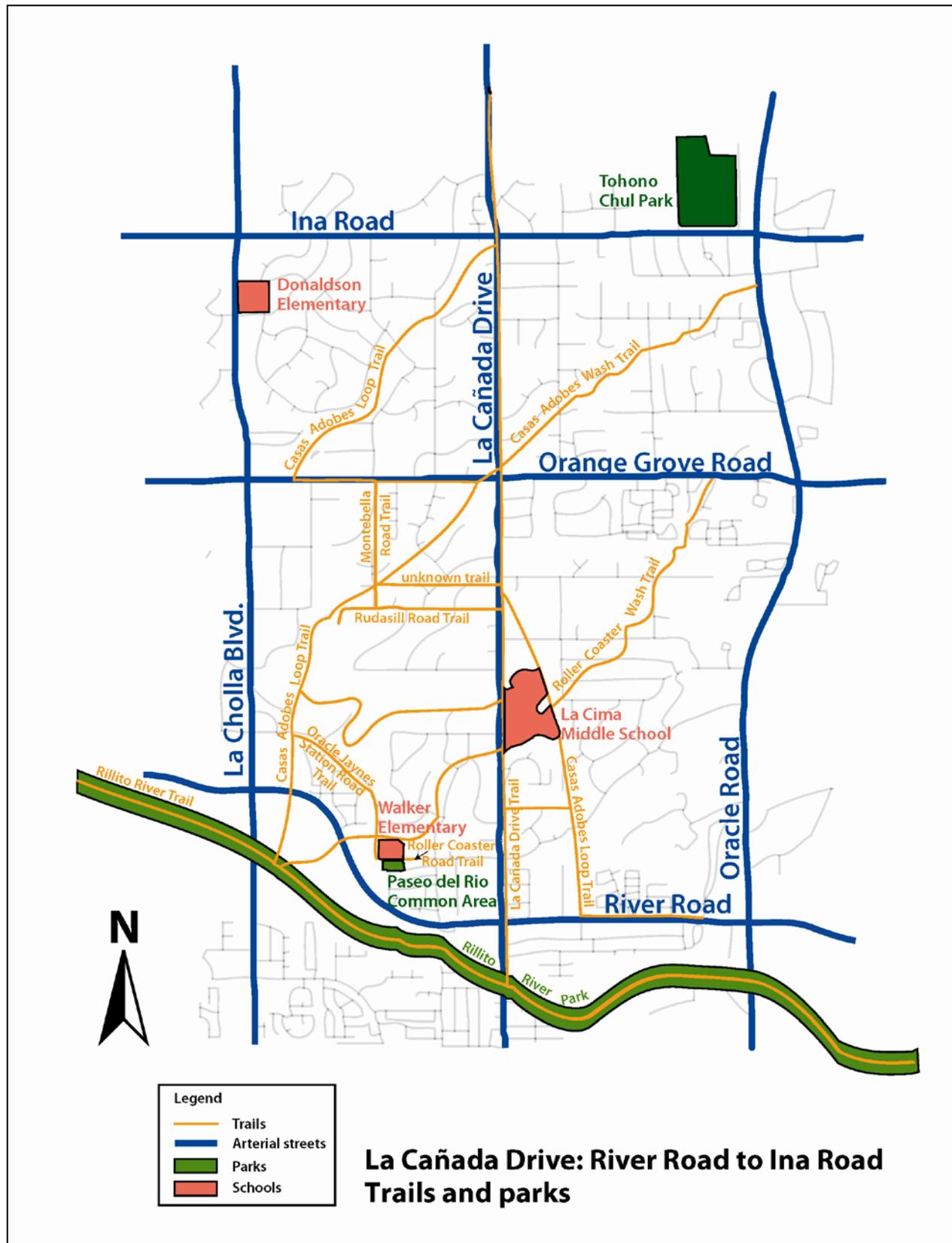
Mitigation Measures

No substantial adverse impacts on parking have been identified. However, access will be changed because of the addition of raised medians throughout the project corridor.

- Access to businesses and residences will be maintained throughout the project corridor during construction.
- Adjacent residences and businesses will be notified 7 days prior to the construction start date and will be notified of any access changes.
- During construction, the contractor shall designate pedestrian, bicyclist, and equestrian routes around the work zone where possible.



Figure 16. Trails and parks





6.2.3 Neighborhood Disruption

This section evaluates potential impacts to the neighborhood in which the project is located. Neighborhood disruption is largely related to construction, access, noise, and other topics that were previously addressed in this report. Key impacts covered in those sections will be summarized in this section.

Existing Conditions

Land uses in the project area include residential, commercial, public, churches, vacant land, and flood control/washes. Residential properties occur along the majority of the project corridor, including an apartment complex located at the northeastern corner of River Road and La Cañada Drive. The commercial properties are interspersed along the corridor with the greatest concentration at the River Road and La Cañada Drive intersection. La Cima Middle School is located between River Road and Panorama Road on the eastern side of La Cañada Drive. Metropolitan Domestic Water Improvement District is located on the western side of La Cañada Drive, between Calle Tiburon and Orange Grove Road. In addition, two churches are adjacent to the project corridor.

Vehicular access from intersecting roads to La Cañada Drive is currently unrestricted. The existing roadway corridor lacks pedestrian amenities such as sidewalks. (See also Sections 6.15, *Noise*; Section 6.1.8, *Construction Activities*; and Section 6.2.2, *Temporary and Permanent Access and Parking Impacts*).

Potential Impacts

Project construction will temporarily produce dust, noise, and traffic delays within the project area. Standard measures to control noise and dust will be implemented during construction. With regard to construction noise, the contractor will comply with Pima County's Noise Ordinance, which will require a permit for instances when nighttime work is required. While these activities will be somewhat disruptive, they will be temporary (see Section 6.1.8, *Construction Activities*, for further discussion).

Traffic volumes on the road are expected to increase because of regional growth and expanded roadway capacity associated with the improvements, resulting in an increase in traffic noise along the roadway. Rubberized asphalt will be applied to the new roadway, and six noise barriers are proposed to abate traffic noise at the adjacent properties. Even with these noise abatement measures, predicted future noise levels would still exceed 66 dBA at 47 noise sensitive properties (see Section 6.1.5, *Noise*, for additional discussion).

The installation of a raised median along La Cañada Drive will improve safety and operations at turning points, but will also modify access. Vehicle operators may choose to use alternate routes to access neighborhoods and driveways. Traffic seeking alternate routes through neighborhoods on other roads is not anticipated to be a significant concern; however, Calle Kino/Panorama Road, Roller Coaster Road, and Rudasill Road should be monitored after construction is completed to determine whether there is a significant impact to traffic volumes resulting from the roadway design (PCDOT 2007a).

The widened road and R/W, as well as the addition of the frontage road, will create a greater partition between properties on either side of La Cañada Drive. However, the project will also promote overall connectivity by improving pedestrian and bicycle facilities and constructing a



public use trail. Improved pedestrian amenities include replacing the unpaved R/W with sidewalks and landscaping. School crossing striping and signs will be installed at La Cima Middle School and Roller Coaster Road, and the school district will provide crossing guards at these locations on school days. The bicycle route will be an established lane, with signs and striping, adjacent to the road travel lanes. The public use trail will be expanded to connect area washes and the associated Pima County designated trails. These improvements to pedestrian and bicycle amenities will make nonvehicular transportation safer and more convenient. The frontage road will provide separation between residences and La Cañada Drive travel lanes.

Additional improvements for continued and future enhancements to the corridor include the installation of conduits at the northern and southern driveways of La Cima Middle School and at Roller Coaster Road should traffic signals and/or HAWK signals be warranted in the future. Bus pullouts will be constructed on La Cañada Drive at Roller Coaster Road and at Orange Grove Road.

Mitigation Measures

The following measure is recommended to minimize cut-through traffic in the project area:

- Following construction, Pima County will periodically evaluate the project area to identify substantial impacts to traffic movement patterns through adjacent neighborhoods resulting from La Cañada Drive's new roadway design. If warranted, monitoring and traffic calming measures are recommended. Initial monitoring is recommended along Calle Kino/Panorama Road, Roller Coaster Road, and Rudasill Road (if extended to the east). Initial monitoring is recommended approximately 18 months following the completion of construction. Monitoring shall be conducted, reviewed, and evaluated under the direction of a qualified traffic engineer (PCDOT 2007a).

6.2.4 Parks and Recreational Areas

This section identifies parks and recreation facilities adjacent to the project including parks, trails, and school facilities, and evaluates any resulting impacts on these facilities, including bike lanes and equestrian trails along La Cañada Drive. These facilities were previously illustrated in Figure 16.

Existing Conditions

Signs along La Cañada Drive identify the 2- to 4-foot paved shoulders as a bike route. Although no sidewalks are located along the road, pedestrians may use the shoulder. The unpaved R/W of La Cañada Drive is also designated as an equestrian trail. An equestrian crossing sign is located along La Cañada Drive between Orange Grove Road and Ina Road. La Cima Middle School is adjacent to the project corridor.

Potential Impacts

Roadway construction will temporarily affect access to the existing bike route and equestrian trail. Access to these routes will be affected for the duration of construction, which is scheduled to begin in fall 2011 and last 24 to 30 months. Pedestrians, bicyclists, and equestrians will be routed around the construction zone within the project limits. Access to La Cima Middle School will be maintained during construction.



This project will improve mobility and connectivity through the construction of bike lanes, sidewalks with curbs, and a public use trail on the western side of the road. The *Regional Transportation Plan* (RTA 2006) identifies specific improvements to improve bicycle and pedestrian options in the region.

The project will include the installation of landscape improvements in accordance with PCDOT guidelines. The project landscape plan will include:

- drought-tolerant, low-maintenance trees, shrubs, and accent plants
- passive water harvesting features (opportunities for water harvesting will be evaluated during final design to ensure that such features do not affect the roadway subgrade nor create mosquito control issues)
- surface and slope treatments such as decomposed granite, rock, rip-rap, sidewalks, and walls

Native plants for the project corridor have been inventoried and evaluated. Protected plants will be preserved in place, salvaged and replanted, or replaced.

Mitigation Measures

- During construction, the contractor shall designate a pedestrian, bicyclist, and equestrian route around the work zone when needed.

6.2.5 Consistency with Other Plans

This section evaluates the project's consistency with applicable Pima County plans including the Pima County *Comprehensive General Plan Update* (Pima County 2001), the *Regional Transportation Plan* (RTA 2006), and the *Pima County Roadway Design Manual* (PCDOT 2003).

Consistency with the Regional Transportation Plan

The purpose of the project is to implement improvements to La Cañada Drive consistent with the *Regional Transportation Plan*, which provides for widening La Cañada Drive between River Road and Calle Concordia to a four-lane arterial road, adding a bike lane, providing an equestrian trail, and completing drainage improvements. This project will involve the construction of improvements to La Cañada Drive between River Road and Ina Road. Equestrian use will be accommodated in the planned public use trail on the western side of the road. Construction of the portion north of Ina Road is being completed as a separate project.

Consistency with the Pima County Roadway Design Manual

The project has been designed and evaluated consistent with the *Pima County Roadway Design Manual* (PCDOT 2003), and no design exceptions are anticipated. Additionally, the project design conforms to American Association of State Highway and Transportation Officials design criteria.

Consistency with the Pima County Comprehensive General Plan Update

Policies from the Circulation Element of the *Comprehensive General Plan Update* are the most applicable to the project. An evaluation of the project's consistency with key policies is provided below.



Policy B of the Circulation Element states:

“Environment—Roadway and transportation infrastructure shall be designed in an environmentally- or context-sensitive manner to the greatest extent feasible.”

Because of the characteristics of the project area, PCDOT has determined that ESR design requirements are not applicable for the project. Thus, the context for design and evaluation of the project is predominantly a low- to medium-density residential area with native vegetation and moderate sized washes as considerations. The primary environmental factors are: (1) the presence of sensitive land uses (residences, schools, churches), (2) recreational access (public use trails, bike lanes, equestrian access to washes), (3) native vegetation, and (4) numerous washes.

With regard to sensitive land uses, the project will use rubberized asphalt, which produces less roadway noise than standard materials. All feasible and reasonable noise mitigation will be implemented consistent with the PC NAP. Nonetheless, noise levels at 47 noise sensitive properties will still exceed the PC NAP criterion of 66 dBA.

Regarding access, the project will improve overall connectivity in the project area through the construction of bike lanes, sidewalks, and a public use trail that facilitates equestrian use along La Cañada Drive and connects to washes that equestrians use.

With regard to native vegetation, an inventory of Pima County protected native plants and Arizona Native Plant Act protected native plants was conducted for this project. Removed or destroyed protected plants will be replaced to match adjacent, undisturbed densities. Saguaros will be mitigated at a 1:1 ratio. The replacement native plants will be incorporated into the landscaping plans for this project.

Regarding the washes, the project involves the installation of culverts to raise the roadway above washes. Culverts will be sized to allow wildlife passage (i.e., coyotes, javelina). CWA requirements (Sections 401 and 404, AZPDES) provide protection for the washes during project construction. However, permanent impacts to washes are anticipated, including removal of some vegetation and replacement with flood control structures. These impacts are necessary to accommodate 100-year storm flows.

Based on these considerations, the project is moderately consistent with Policy B.

Policy C of the Circulation Element states:

“Neighborhoods—Existing residential areas shall be mitigated from vehicular traffic impacts to the greatest extent feasible when roadway improvements occur.”

The primary vehicular traffic impact on neighborhoods is traffic noise; another is cut-through traffic. As discussed previously, the project will use rubberized asphalt, which reduces roadway noise, and will implement all feasible and reasonable mitigation consistent with the PC NAP. The project will improve safety at the minor neighborhood roads, but will also modify access. Cut-through traffic is not anticipated, but is possible, at Calle Kino/Panorama Road, Roller Coaster Road, and Rudasill Road. Monitoring is recommended to determine any future needs for traffic calming measures. Therefore, the project is generally consistent with Policy C.



Policy D of the Circulation Element states:

“Alternative Modes—Multi-modal transportation infrastructure shall balance the needs of all users and provide viable alternatives to driving where appropriate and to the greatest extent feasible.”

The project will provide bus stops on La Cañada Drive. The project also provides striped bike lanes, sidewalks, and a public use trail. Therefore, the project improves and supports multimodal transportation and is consistent with Policy D.

Policy H of the Circulation Element states:

“Pima County standards for roadway design may be modified by the Board of Supervisors if the design provides substantial environmental protection and meets minimum safety standards.”

The project is consistent with County standards for roadway design. Therefore, the project is consistent with Policy H.

Policy K1 of the Circulation Element states:

“All arterial and collector streets which are part of the Regional Bikeway Plan shall be constructed according to the classification shown on the plan. All other major streets should have sufficient pavement width to accommodate bicycle travel.”

The Pima Association of Governments *Regional Bicycle Facilities Map* (2001) is considered the Regional Bikeway Plan and classifies La Cañada Drive in the project area as a bike route with a striped shoulder, bike route signs, a white edge line, and a 4- to 10-foot-wide shoulder (Pima Association of Governments 2001). The project will construct 6-foot bike lanes on both sides of La Cañada Drive along most of the corridor. Therefore, the project is consistent with the Regional Bikeway Plan and with Policy K1.

Policy L of the Circulation Element states:

“The development shall provide pedestrian facilities necessary for linkages to the regional trail system and for safe access to community facilities, employment centers, schools, and adjacent commercial nodes.”

Ten trails were identified in the project area using the *Eastern Pima County Trail System Master Plan* (dated August 1989), the *Eastern Pima County Trail System Master Plan Revised Master Trails List* (dated August 1996), and the online Pima County MapGuide Map (accessed on March 16, 2007). The trails are: La Cañada Drive, Rillito River, Casas Adobes Loop, Casas Adobes Wash, Roller Coaster Wash, Oracle Jaynes Station Road, Roller Coaster Road, Montebella Road, Rudasill Road, and an unnamed trail (see Figure 16).

The proposed improvements to La Cañada Drive would include sidewalks on both sides of the road throughout the length of the project area and a public use trail along the western side of the road between Roller Coaster Road and Ina Road. These facilities would facilitate linkages to the regional trail system and other facilities along the road. Therefore, the proposed project is consistent with Policy L.



7.0 Agency Coordination

An agency scoping meeting was held on August 30, 2007, to identify and address agency issues as they relate to this project. Pima County and the Arizona Department of Transportation (ADOT) have and will continue to coordinate with several agencies for this project.

These efforts include:

- Pima County is coordinating with FHWA, which is providing funding for the project. Pima County is preparing a categorical exclusion to address federal environmental requirements for the project under the National Environmental Policy Act.
- Pima County is coordinating with ADOT, which is administering the federal funding and environmental requirements for the project on behalf of FHWA.
- Pima County is coordinating with the RTA, which is providing funding and conducting business outreach for the project.
- Pima County consulted the Pima Association of Governments *Regional Bicycle Facilities Map* (2001) to determine designated bicycle facilities in the project area.
- Pima County is coordinating with Sun Tran on the design of transit facilities that need to be accommodated in the project corridor. The project will provide bus pullouts and stops.
- Pima County is coordinating with the Western Area Power Administration regarding the relocation of utility poles that will be affected by the new roadway. Pima County is also providing environmental reports for Western's use in completing its National Environmental Policy Act compliance.
- Pima County is coordinating with private and municipal utilities regarding impacts to facilities within the project limits.
- Pima County is coordinating with the Corps to obtain a Section 404 CWA permit for work in jurisdictional waters of the United States.
- Pima County is coordinating with ADEQ regarding CWA compliance. The six jurisdictional washes in the project area would be conditionally certified by ADEQ to comply with Section 401 of the CWA under the terms of the Corps Nationwide Permit No. 14. Compliance with Section 402 of the CWA will require preparing a SWPPP and filing a Notice of Intent with ADEQ to comply with the statewide Construction General Permit.
- The project involves the removal of native plants and will require notification to the Arizona Department of Agriculture and development of a Native Plant Preservation Plan.
- AGFD was contacted through a scoping letter requesting concerns pertaining to special status plants and animals that may occur within the project area. No response was received to the letter. Therefore, the AGFD On-line Environmental Review Tool Receipt was reviewed to address state concerns.
- USFWS was contacted through a scoping letter requesting concerns pertaining to special status plants and animals that may occur within the project area. A response letter was received, citing special status species occurring within the project area. USFWS biologist, Scott Richardson, provided technical assistance in developing mitigation for the lesser long-nosed bat during a meeting on July 16, 2008.



- EPA was contacted by letter regarding sole source aquifer coordination. The letter stated that the proposed project would not affect groundwater quality. It requested EPA's concurrence that the project would comply with the Safe Drinking Water Act of 1974, as amended.
- On behalf of FHWA and Pima County, ADOT will consult with interested tribes and the State Historic Preservation Office to mitigate impacts to cultural resources.
- In addition, PCDOT is coordinating with the following Pima County departments: Cultural Resources and Historic Preservation; Environmental Quality; Natural Resources, Parks, and Recreation; Regional Flood Control District; and Regional Wastewater Reclamation.
- Several environmental organizations were contacted through a scoping letter to request comments or concerns regarding the proposed project: Center for Biological Diversity, Sierra Club Rincon Group, Sky Island Alliance, and Tucson Audubon Society.

8.0 Public Participation

8.1 Public Participation Activities

Public involvement activities have included conducting partnering workshops, forming a CAC, holding CAC meetings, holding two workshops to gather public comments on this project and the adjacent La Cañada Drive roadway widening project from Ina Road to Calle Concordia, and holding a public meeting. See Appendix A for a list of public involvement activities and public participation materials including meeting notices, meeting summaries, materials that were distributed at meetings, correspondence from PCDOT, and public comments.

Partnering workshops were held on March 1 and 2, 2007, to outline the project management and team organization, as well as the partnering principles. Both workshop days included a project site visit with follow-up comment and response sessions addressing issues and concerns.

The CAC was formed to provide PCDOT with input throughout the design process. Property owners and residents within a 0.5-mile radius of La Cañada Drive were invited to express interest in joining the CAC. One hundred membership applications were received, and 15 members were selected, all residential property owners.

CAC meetings have been held on the following dates and for the purposes outlined below:

- May 8, 2007 – organizational meeting providing an overview of the CAC process and project components including project overview, coordination with the La Cañada Drive project to the north, preparation of technical reports, public art, etc.
- August 28, 2007 – meeting focusing on the roadway alignment and planning, an update on surveys and reports, and an introduction to the EAMR
- November 27, 2007 – meeting providing an update on surveys and reports, coordination with homeowners and agencies, and an introduction to the noise study
- May 27, 2008 – meeting focusing on the environmental process, the status of the reports, and the findings of the noise report
- October 7, 2008 – meeting providing an update on engineering and environmental tasks and reporting on the screening wall consideration by Pima County
- January 21, 2009 – meeting focusing on the proposed public art (see Appendix I)



- March 24, 2009 – joint meeting with northern project CAC; focused on the public art concepts and included a schedule overview
- May 7, 2009 – meeting focusing on the Draft DCR, Draft EAMR, and the recommendation letter to be prepared by the CAC

Each meeting involved CAC member input, and meeting summaries were prepared to document that input. Additional CAC meetings will be held to discuss other key stages of project design.

Public workshops were held on June 23, 2008, and June 25, 2008. Ninety people attended the June 23 workshop and 115 people attended the June 25 workshop. The project team provided aerial maps showing the roadway design and comment forms to encourage attendees to submit comments regarding the project. A public meeting was held on May 14, 2009. Sixty-eight people attended. At the meeting, the project team presented the proposed roadway design and draft versions of the DCR and EAMR. People were invited to provide comments on the project. A public hearing before the Board of Supervisors will be held on the EAMR.

In December 2008, a newsletter was distributed to the entire mailing list. The newsletter included a message to the community from PCDOT director, Priscilla S. Cornelio, summarizing the project history, providing estimated project costs, and responding to community petitions. The remaining content of the newsletter provided additional detail for the project description, funding sources, and completed and future tasks. It also outlined key community concerns and interests with detailed responses.

In addition, business outreach is being conducted by the RTA as part of the Main Street business outreach program.

8.1.2 Community Comments

Key subjects of CAC and community comments arising from public involvement activities are outlined below, followed by Pima County's responses. The responses are based on feedback previously provided to the CAC or public and specific information on the project design.

Noise barriers. The County has received differing opinions on the desirability of noise barriers, with many residents favoring the provision of noise barriers between the roadway and residences. A noise study was conducted for the project and, based on the study, noise barriers are warranted in six areas:

- two noise barriers located in front of the apartment buildings at the northeastern corner of River Road and La Cañada Drive
- one noise barrier located in the island to be constructed between La Cañada Drive and the frontage road along the eastern side of La Cañada Drive, north of Roller Coaster Road and south of Whispering Hills Road
- two noise barrier segments located in front of the residences along the western side of La Cañada Drive, north of Neosho Place and south of Flint Avenue
- two noise barriers located on the eastern side of La Cañada Drive, between the roadway and the residences flanking Coachwhip Drive



Property owners benefited by the barriers (achieving a 5-dBA or greater noise reduction) will be contacted to determine whether the warranted noise barriers are desired. The PC NAP directs that 51 percent of the benefited property owners must consent to the barrier for it to be constructed.

School zone safety. Pima County has received requests for pedestrian flashers at the school crosswalks serving La Cima Middle School and Lulu Walker Elementary School. HAWK warrant studies were performed at the crosswalk serving La Cima Middle School and at the intersection of La Cañada Drive and Roller Coaster Road, which serves Lulu Walker Elementary School. The results of the studies indicate that neither of the school crossings warrant HAWK pedestrian flashers. However, pursuant to meetings with administrators from each school and with Amphitheater Public Schools transportation staff, the project will install school crossing striping and signs at La Cima Middle School and Roller Coaster Road. Long-term staffing of crossing guards at these locations will be provided by the school district.

The project includes the addition of amenities promoting bicycle and pedestrian use along La Cañada Drive, and Pima County recognizes that the provision of these amenities may increase the number of users at the school crosswalks. Further assessment for additional striping and signalization will be conducted once the project is constructed and vehicular traffic, bicycle, and pedestrian patterns have stabilized. Signal conduit will be installed at the northern and southern driveways of La Cima Middle School and at Roller Coaster Road should traffic signals and/or HAWK signals be warranted in the future.

Drainage. Issues at individual properties being affected by drainage design are being addressed with consideration for property owner concerns. Drainage has been designed to make La Cañada Drive all-weather-access by directing flow under the road. Concrete box culverts with channel improvements to improve hydraulic performance are proposed to be constructed at five major wash crossings and smaller culverts at 18 other locations. A closed stormwater system consisting of catch basins, manholes, and storm drains will be constructed to collect and discharge stormwater from La Cañada Drive to the adjacent washes. Stormwater runoff from La Cañada Drive draining onto adjacent properties will be eliminated by this project.

Access. Residents have expressed concern about convenient access to their properties once the raised medians have been constructed. Business comments regarding access have been favorable. Raised medians consolidate access, but also reduce the potential for collisions, by controlling turning movements and lane crossover, and improve operations. U-turns will be allowed at median openings to facilitate access to local streets. Frontage roads will concentrate access to La Cañada Drive from existing properties that currently access directly to La Cañada Drive.

Right-of-way and easement acquisition. Property owners have raised concerns about easements that need to be acquired for the project. The proposed design maximizes use of the existing R/W and existing drainage easements. Additional easements are necessary to provide an adequate buffer for facilities and construction activities and maintenance. Two residential properties will need to be acquired to accommodate the proposed roadway alignment; these acquisitions are unavoidable, and property owners will be compensated at fair market value.

Vegetation. Residents have expressed concern about the loss of native vegetation along the project corridor. Native and landscaped vegetation will be affected by construction activities. A native plant survey has been conducted in accordance with Pima County's Native Plant Preservation Ordinance



and the Arizona Native Plant Law. Native plants in the project corridor will be preserved in place, salvaged and replanted, or replaced.

Property owners with native plants located in TCEs will be compensated prior to construction based on the anticipated number of trees and plants that may be disturbed. Large plants in TCEs are not expected to be affected. Property owners are responsible for any replanting. Permanent easements and Pima County property within washes and R/W will be revegetated and irrigated according to the landscape and irrigation plans. Compared with existing conditions, less area will be available for landscaping and revegetation. The number of plants used in landscaping the new R/W will not equal the existing number of native plants. However, postconstruction plant density will be similar to the adjacent density of undisturbed areas.

Equestrian use. Equestrian users commented that the provision of a buffer between the sidewalk and the public use trail would make the horses and riders feel safer when using the trail. At the request of the Pima Trails Association, the public use trail has been narrowed to accommodate a vegetative buffer between the sidewalk and the public use trail. Where there is sufficient R/W and an appropriate grade, the trail will be widened to meander farther away from the sidewalk.

Truck route signing. Pima County has received requests to restrict truck use in this segment of La Cañada Drive. Oro Valley has designated the segment of La Cañada Drive within the town limits as a truck route; residents of the current unincorporated project area have expressed concerns that the remaining segments of La Cañada Drive may follow suit. The Pima County Engineering Division monitors heavy vehicle usage on Pima County roadways by means of classification studies. In April 2006, a classification study performed for La Cañada Drive revealed that the percentage of trucks using the road ranged from 0.2 percent to 1 percent depending on the truck type (number of axles). The percentage of large trucks (four to six axles) was insignificant. Additionally, changes have not been observed for any particular type of vehicle using La Cañada Drive for the past several years. PCDOT records show no complaints about traffic conflicts related to truck use on La Cañada Drive. Based on this information, no changes to the designation or restrictions related to truck use on La Cañada Drive are warranted. Current traffic trends are expected to remain the same after the project construction is completed.



9.0 Conclusions and Recommendations

For the adverse impacts identified in this assessment, a summary describing the impact, recommended mitigation, necessary coordination with other agencies, and the parties responsible for implementing the mitigation is provided in Table 9.

Table 9. Impact and mitigation summary

Potential impacts	Recommended mitigation	Agency coordination and consultation	Parties responsible for implementation
Removal of native plants	Comply with Arizona Native Plant Law and Pima County’s Native Plant Preservation Ordinance and mitigate removed or relocated vegetation to match existing densities of adjacent, undisturbed areas. Saguaros will be mitigated at a 1:1 ratio.	Arizona Department of Agriculture	Pima County and Contractor
	File a Notice of Intent with the Arizona Department of Agriculture 60 days prior to the removal or salvage of applicable native plants.	Arizona Department of Agriculture	Pima County
Disturbance of nesting birds	Conduct protocol burrowing owl surveys 90 and 30 days prior to construction activities.	Arizona Game and Fish Department	Qualified Biologist and Pima County
	Conduct biological monitoring of the major washes to check for nests of birds protected by the International Migratory Bird Treaty Act.		Qualified Biologist and Contractor
Impacts to waters of the United States	The County will obtain a Clean Water Act Section 404 Nationwide Permit No. 14 and comply with permit conditions. This permit will provide conditional water quality certification for the six jurisdictional washes in the project area in compliance with Section 401 of the Clean Water Act.	United States Army Corps of Engineers	Pima County and Contractor
Regulated riparian habitat impacts	A riparian impact assessment will be prepared and, if needed, mitigation will be developed in conjunction with the Pima County Regional Flood Control District to compensate for impacts to regulated riparian habitat.	Pima County Regional Flood Control District	Pima County and Contractor
Stormwater impacts resulting from soil exposure, erosion, etc.	The County and Contractor will file a Notice of Intent to use the statewide Construction General Permit with the Arizona Department of Environmental Quality and prepare and implement a Stormwater Pollution Prevention Plan.	Arizona Department of Environmental Quality	Pima County and Contractor

(continued on next page)



Table 9. Impact and mitigation summary (*continued*)

Potential impacts	Recommended mitigation	Agency coordination and consultation	Parties responsible for implementation
Dust during construction	Implement standard specifications for dust suppression and comply with the Stormwater Pollution Prevention Plan (referenced above). Obtain an Activity Permit from the Pima County Department of Environmental Quality.	Pima County Department of Environmental Quality	Contractor
Air pollutant emissions resulting from construction	Prior to the demolition of any building, a National Emission Standards for Hazardous Air Pollutants permit will be obtained from the Pima County Department of Environmental Quality.	Pima County Department of Environmental Quality	Contractor
Asbestos and lead emissions	An Asbestos Hazard Emergency Response Act Certified Building Inspector will complete asbestos and lead testing of the structures, and conduct lead/asbestos abatement if needed.	Pima County Department of Real Property	Pima County
Traffic noise	Construct noise barriers as identified in the traffic noise report.	Pima County Department of Transportation	Contractor
Construction noise	Construction equipment will be maintained in good working order, intake silencers will be used where appropriate, new equipment will be subject to new product noise emission standards, stationary equipment will be located as far away from sensitive receivers as possible, and construction activities adjacent to residential areas will be limited to daylight hours to maximum extent practicable. The contractor will comply with Pima County’s Noise Ordinance (Pima County Code Chapter 9.30.070), which sets the construction start and stop times in order to avoid noise disruptions at night. If nighttime work is required, the contractor will need to obtain a permit from Pima County.	Pima County Department of Transportation	Contractor
Utility service interruptions	Customers will be notified in advance of any utility service interruptions.	Applicable utilities	Utility or Contractor

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Table 9. Impact and mitigation summary (*continued*)

Potential impacts	Recommended mitigation	Agency coordination and consultation	Parties responsible for implementation
Exposure of unanticipated hazardous materials	If suspected hazardous materials are encountered during construction, work shall cease at the location and the Pima County Engineer shall be contacted to arrange for proper assessment, treatment, or disposal of those materials.	Pima County Department of Transportation	Contractor
Business, school, and residential access during construction	The contractor shall maintain access to schools, businesses, and residences. The contractor shall provide signs to identify business and school access during construction.	Pima County Department of Transportation	Contractor
Pedestrian, bicyclist, and equestrian routing during construction	During construction, the contractor shall designate a pedestrian, bicyclist, and equestrian route around the work zone when needed.	Pima County Department of Transportation	Contractor
Disturbance of subsurface cultural resources	If site features or previously unidentified cultural resources are encountered during construction at any location other than the monitored locations, the contractor should stop work immediately at that location, take all reasonable steps to secure the preservation of those resources, and contact the archaeological monitor.	Arizona State Museum Applicable tribes State Historic Preservation Office Pima County Cultural Resources and Historic Preservation Office	Contractor
Visual impact associated with preponderance of hardscape	Include landscaping plantings in front of noise barriers and in project medians where practicable to soften the appearance of the hardscape.	Pima County Department of Transportation	Pima County
Permanent acquisition and temporary use of property	The county will compensate property owners at fair market value for the permanent or temporary use of property as mitigation consistent with federal and state law.	Pima County Department of Real Property	Pima County
Cut-through traffic increases on residential streets	Following construction, periodically evaluate Calle Kino/Panorama Road, Roller Coaster Road, and Rudasill Road for the presence of cut-through traffic. Monitoring shall be conducted as directed by a qualified traffic engineer.	Pima County Department of Transportation	Pima County
Impacts at school crosswalks	Following construction when vehicular traffic, bicycle, and pedestrian patterns have stabilized, the crosswalks at La Cima Middle School and Roller Coaster Drive will be assessed for additional striping, signs, and pedestrian flashers.	Amphitheater Public Schools Pima County Department of Transportation	Pima County



10.0 References

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11.0 Abbreviations and Acronyms

ADA	Americans with Disabilities Act
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
ASM	Arizona State Museum
AZ	Arizona
AZPDES	Arizona Pollutant Discharge Elimination System
bgs	below ground surface
CAC	Community Advisory Committee
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
dba	A-weighted decibel
DCR	design concept report
EAMR	environmental assessment and mitigation report
EPA	U.S. Environmental Protection Agency
ESR	environmentally sensitive roadway
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HAWK	high-intensity activated crosswalk
IMBTA	International Migratory Bird Treaty Act
ISA	initial site assessment
m³	cubic meter
µg	microgram
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NO₂	nitrogen dioxide
O₃	ozone



PCDOT	Pima County Department of Transportation
PC NAP	Pima County Noise Abatement Procedure
PDEQ	Pima County Department of Environmental Quality
PM_{2.5}	fine particulate matter (2.5 microns in diameter or less)
PM₁₀	particulate matter (10 microns in diameter or less)
ppm	parts per million
RTA	Regional Transportation Authority
R/W	right-of-way
SDCP	Sonoran Desert Conservation Plan
SO₂	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
TCE	temporary construction easement
U.S.	United States
USFWS	U.S. Fish and Wildlife Service

