

Visual Impact Assessment

Kolb Road: Sabino Canyon Road to Sunrise Drive
Pima County, Arizona



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October 2017

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1.1 Introduction:

The purpose of the visual impact assessment is to assess both the beneficial and adverse visual impacts the proposed Kolb Road – Sabino Canyon Road to Sunrise Drive project will have on the current scenery, identify who will be affected by the changes, and to propose mitigation treatments to ameliorate any potential adverse impacts.

The following topics are covered in this Visual Impact Assessment:

1. Project Description: A narrative of the proposed project elements, the constraints dictating construction, and the extent to which the project will be visible to viewers.
2. Project Inventory: A description of the existing project area identifying who will be affected by the changes.
3. Project Analysis: An assessment of the degree to which the changes will be beneficial, adverse, or neutral.
4. Mitigation Measures: A list of the opportunities, strategies and treatments to mitigate potential adverse visual impacts.

This evaluation is based on the process outlined in the Federal Highway Administration Guidelines for the Visual Impact Assessment of Highway Projects (January 2015). Procedures are adjusted to meet the specific conditions of this project.

The Kolb Road – Sabino Canyon Road to Sunrise Drive Improvement Project is located in unincorporated Pima County, Arizona (See Figure 1-A, Project Location). The site is in the northeast part of the Tucson metro area. The subject section of Kolb Road is located in the foothills of the Santa Catalina Mountains.

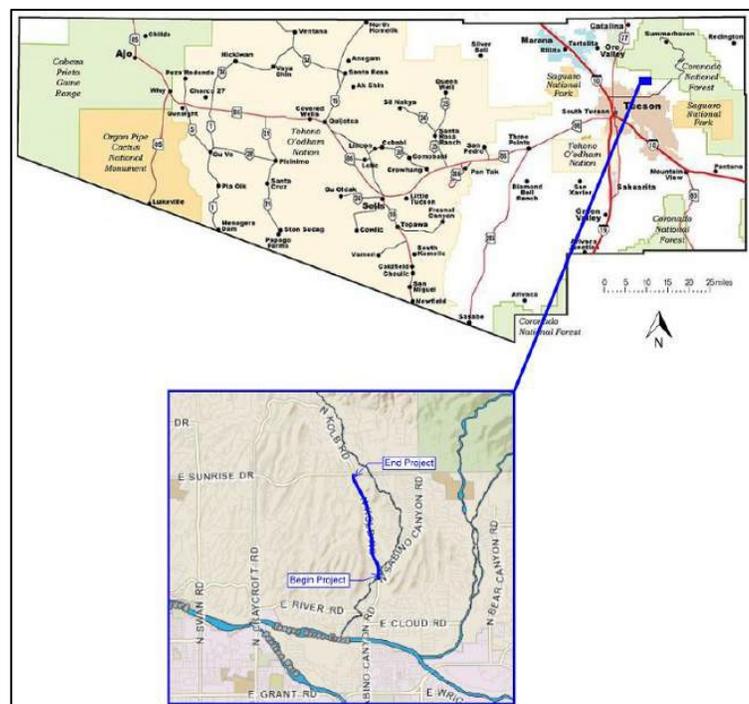


Figure 1-A: Project Location

2.1 Introduction:

The project elements listed below will be part of the roadway improvements and potentially visible to those using the roadway and those viewing it from off-site vantage points.

2.2 Widened Roadway:

The current roadway with two lanes and earthen shoulders will be widened. The new roadway will be three lanes wide with one 11' wide north-bound travel lane, one (11' wide) south-bound travel lane, and one (12') center turn lane. Adjacent to the north and south-bound travel lanes will be (6' wide) paved shoulders suitable for bicycle use. The travel lanes, turn lane, and shoulders will be paved with asphaltic concrete. Portions of the roadway will be curbed with a vertical concrete curb.

The typical roadway cross-section will be as illustrated in Figure 2-A, below.

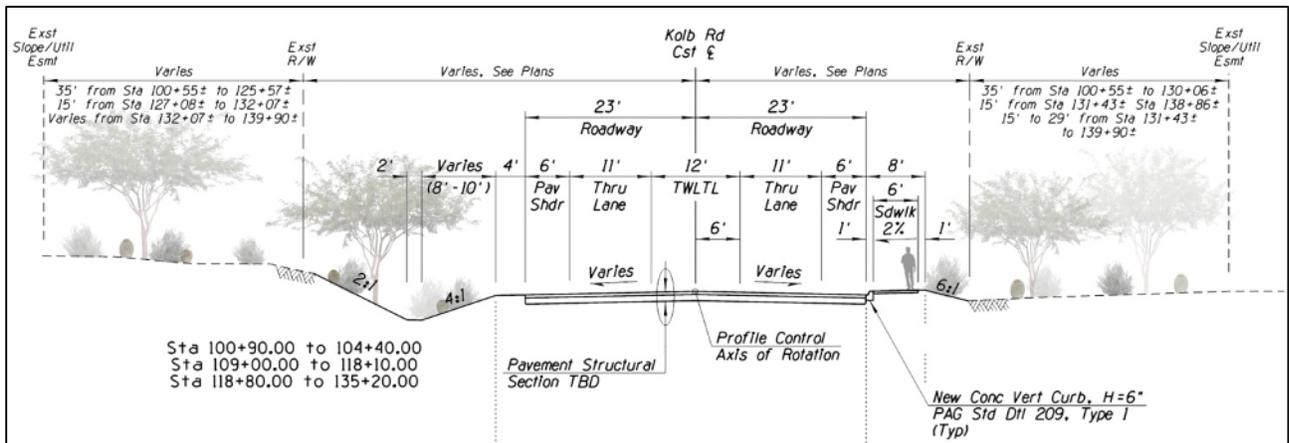


Figure 2-A: Typical Cross Section of Roadway after Widening

2.3 Roundabout at North Kolb Road and East Territory Drive:

A traffic circle or round-about is proposed for the intersection of North Kolb Road and East Territory Drive. This project feature will replace what is currently a four-way intersection with stop signs on the east and west legs. The configuration of the round-about is shown on Figure 2-B.



Figure 2-B: Configuration of Proposed Round-About at North Kolb Road and East Territory Drive

2.4 Retaining Walls

To address grade changes along the corridor and to keep the new construction within the existing right-of-way, retaining walls will be used in several locations. The most common retaining wall condition associated with the project is to have the roadway higher than the adjacent ground surface. In this condition, the exposed face of the retaining wall will be visible from adjacent properties.

There will also be conditions where the adjacent ground surface is above the roadway. In these instances, the exposed face of the retaining wall will be visible from the roadway.

Cross sections showing the typical retaining wall conditions, and noting their project locations, are shown in Figures 2-C, 2-D, and 2-E, below.

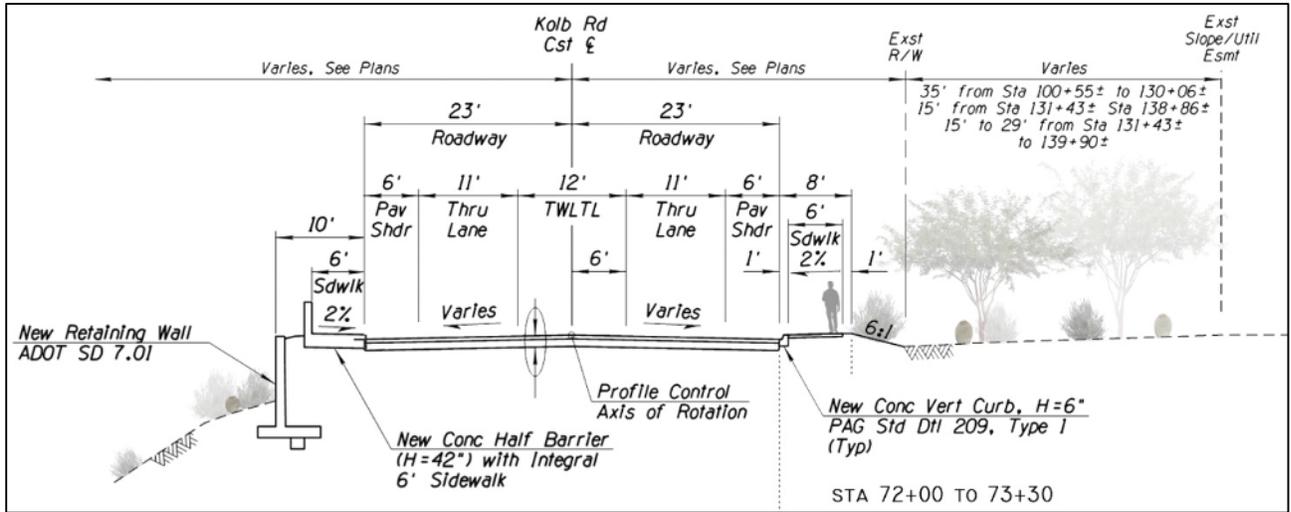


Figure 2-C: Cross Section through Retaining Wall – Station 72+00 to Station 73+30

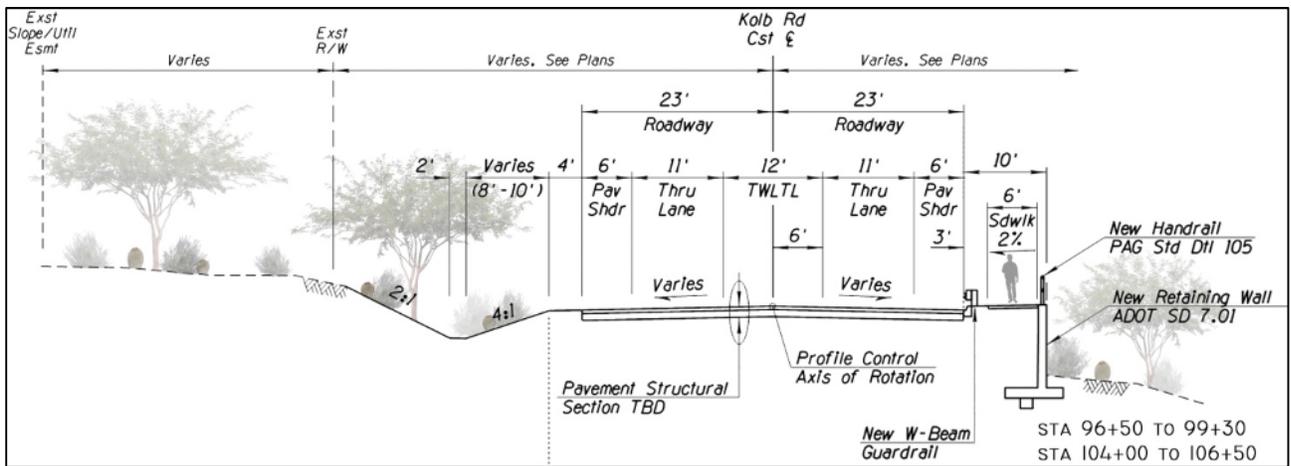


Figure 2-D: Cross Section through Retaining Wall Station 96+50 to Station 99+30 and Station 104+00 to 106+00

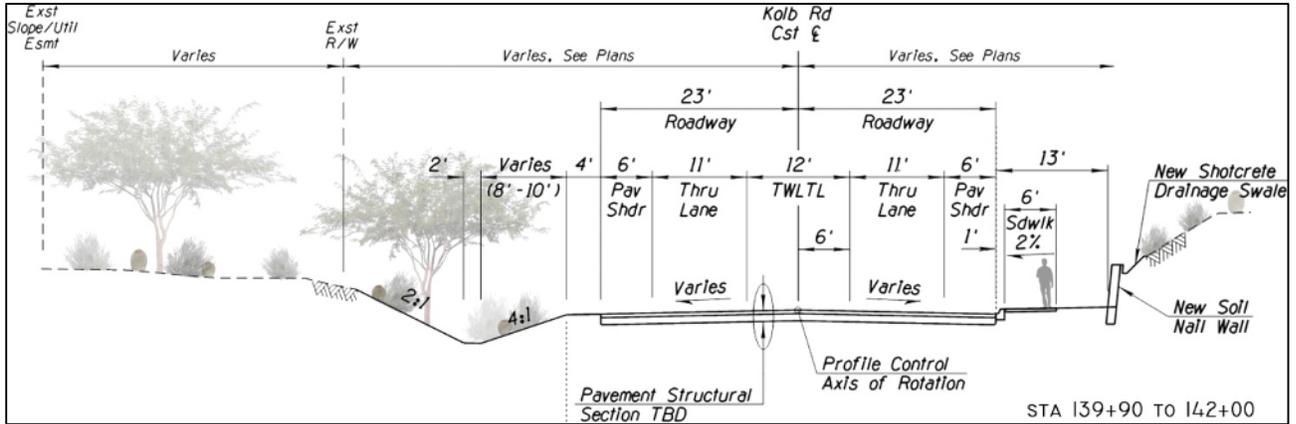


Figure 2-E: Cross Section through Retaining Wall – Station 139+90 to Station 142+00

2.5 Guard Rails:

Guard rails will be utilized in various locations along the project corridor where there is a significant grade change between the roadway pavement surface and the adjacent / nearby ground surface or to separate the roadway from the adjacent pedestrian walkway. The guard rail will be standard Arizona Department of Transportation (ADOT) steel guard rail with timber posts. The guardrail will be made of Corten steel providing a rust colored finish. The approximate location and length of guard rail to be installed is as follows:

Location	Approximate Length	Side of Roadway
South of Snyder Road	1,100 LF	East Side
North of Snyder Road	800 LF	East Side
At Drainage Structure (Sta. 81+00)	100 LF	West Side

2.6 Pedestrian Facilities

Pedestrian facilities, walkways or pathways, will be provided continuously along the improved roadway corridor. These facilities will be provided on both sides of the road between North Sabino Canyon Road and East Snyder Road. They will also be provided on both sides of the road from North Gate Ridge Road to East Sunrise Drive. Figure 2-F illustrates the typical configuration where pedestrian facilities are provided on both sides of the road.

Pedestrian facilities will be provided only on the east side of Kolb Road between East Synder Road and North Gate Ridge Road. Figure 2-G illustrates the typical configuration where pedestrian facilities are provided on one side of the road only.

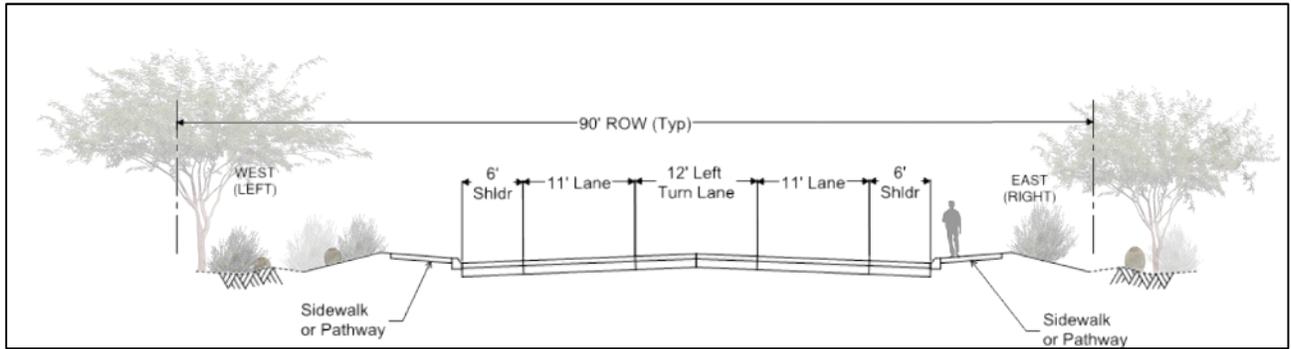


Figure 2-F: Typical Configuration where Pedestrian Facilities are on both sides of Road

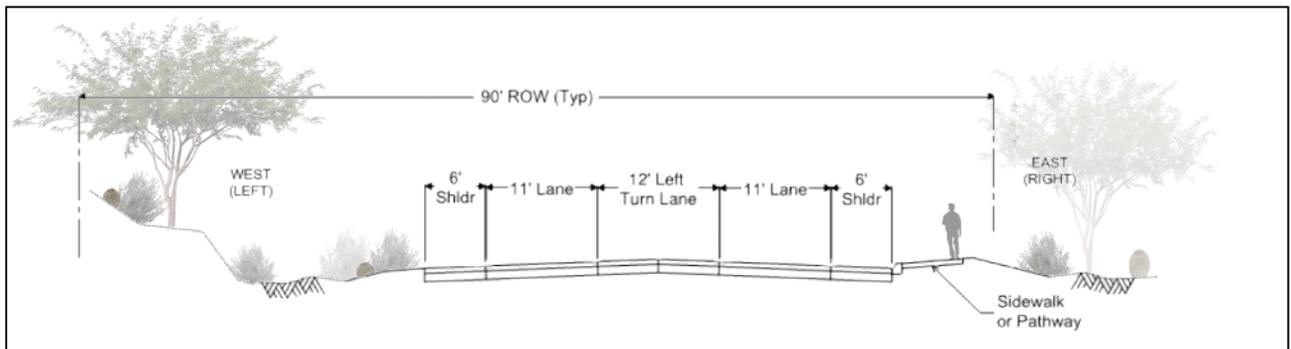


Figure 2-G: Typical Configuration where Pedestrian Facilities are on one side of Road

2.7 Drainage Improvements:

Storm water drainage will be conveyed under the roadway in 17 locations. These storm drains will range from a single-barrel 24" pipe to a three-barrel 48" box culvert. An existing box culvert at the Ventana Canyon Wash crossing will be retained.

The various headwalls and aprons associated with the drainage improvements will be constructed of reinforced concrete in accordance with Pima County Department of Transportation standards. Because these structures will be associated with pipes and culverts that are below the grade of the roadway, they will typically not be visible from the roadway and visible from a limited number of off-site vantage points.

2.8 Street Lighting:

Street lighting will be included in the scope of the roadway improvements in selected locations. These include:

Roadway Section	Proposed Street Lighting
Sunrise Drive to Territory Drive	Staggered Poles with average pole spacing = 123' (+/-)
Kolb Road and Snyder Road Intersection	Existing lighting will be retained with HPS luminaires replaced with more efficient LED fixtures.
Kolb Road at Rural Metro Fire Station	Two new LED luminaires, one on each side of the fire station driveway or alternatively LED luminaires on the two HAWK-style fire station flashers.

The new light poles and fixtures will meet current Pima County Traffic Engineering Department standards with fixtures mounted approximately thirty feet above the pavement surface. All new fixtures will meet applicable Dark Sky ordinances and standards.

2.9 Utility Relocations:

Certain existing underground utilities will be relocated or replaced in conjunction with this project. As underground improvements, visible elements of these utilities will typically be limited to pull-box, valve access boxes, and man-hole covers. Features that may extend above grade include electrical boxes for traffic signals and street lights.

There are no overhead electric lines in the right-of-way within the project limits except for a crossing line at Sta. 128+00, which is north of Rocky Ridge Drive. This overhead line will not be modified and no new overhead utility lines are proposed by this project.

2.10 Noise Mitigation:

Noise walls and other constructed noise-mitigation elements were determined to be Not Warranted by the traffic noise assessment. No walls or other visible noise mitigation devices are planned as part of this project.

2.11 New Landscape Development:

Landscape improvements planned for this project consist of irrigated plantings and inorganic groundcover. Key features of the landscape design include: native plant mitigation, vegetative screening, slope revegetation / stabilization, and viewshed enhancement.

Protected native plants within the right-of-way have been inventoried and mitigation plantings will be used to strategically screen views of the roadway from adjacent residential properties and to enhance significant views of the mountains to the north and south. The landscape palette will include mitigation species, native plant species observed to grow within or near the site, and drought tolerant species chosen to complement existing private landscapes along the corridor.

As part of this project, the Pima County Native Plant Nursery will: salvage cacti and shrubs from areas within the limits of disturbance; store and maintain these plants off-site during project construction; and return these plants to the project site for installation as part of the landscape improvements.

Project construction will require cut slopes on the western side of the roadway and slope revegetation will be an important feature of the landscape development. Various slope revegetation planting techniques will be used to ensure timely and aesthetically pleasing plant establishment on slopes resulting from roadway construction.

2.12 Project Constraints

A constraint limiting mitigation of the visual impacts associated with the project is the limited existing right-of-way. The existing right-of-way is typically 90' wide with certain portions of the corridor where the right-of-way is up to 150' wide. This relatively narrow right-of-way limits the area available for screen planting. It also necessitates steeper slopes that can be more difficult to revegetate. This constraint is offset by dramatic views of the Santa Catalina Mountains to the north and the mountain foothills to the east and west.

3.1 Inventory Approach

The inventory phase discusses the current visual character of the project area and identifies the current users' relationships to the existing landscape. This section discusses:

- Current land use, natural features (landforms and vegetation) and built features.
- The viewers who will be affected, including those moving through the project area and those viewing the project from off-site vantage points. The typical visual preferences of these groups will be discussed.

3.2 Overview of the Project Area

Kolb Road is a 2-lane paved road with graded shoulders within an area composed mainly of low density residences. Large multi-family apartment complexes occur on the northeast and southeast corners of Kolb Road and Snyder Road. The only commercial development within the project area is at the north end near Sunrise Drive. A Rural Metro Fire Station lies within the project area.

There currently are no existing County maintained landscape improvements within the right-of-way. Constructed landscapes associated with private development are present in several locations. Figure 3-A provides an overview of the existing land uses along the project corridor. Figure 3-B provides an overview of the existing zoning along the corridor. The zoning map suggests that, except for a future rezoning, the land uses along the corridor are likely to remain similar to what exists today.

3.3 Affected Viewers – Viewers Moving Through the Project

Viewers moving through the project include commuters, visitors, pedestrians and bicyclists (both commuting and recreational), and service vehicles.

- Commuters: These travelers use the route on a regular basis. The frequency may vary, but there are peaks, such as morning and evening rush hours and holidays. Most commuting occurs as short trips between home and work. Commuters generally prefer orderly landscapes that contribute to wayfinding.
- Visitors: This group uses the roadway intermittently to arrive at pre-determined destinations, typically for recreational or leisure purposes. Destinations in the area include the Ventana Canyon Resort, the Sabino Canyon Recreational Area, and shopping centers at the north end of the project. Many viewers in this category choose to come to the area based on its visual character. This group typically prefers that the existing visual appearance of the project be maintained or that it be improved to enhance their experience.
- Service Vehicles Providing Goods or Services to Area: This group includes school buses, environmental service (trash and recycling) vehicles, mail and delivery vehicles, and other vehicles servicing the businesses in the area. This group prefers orderly landscapes that contribute to wayfinding.

- **Recreational:** Recreational users include pedestrians and bicyclists moving through the project area. This group typically prefers that the existing visual appearance of the project be maintained or that it be improved to enhance their experience. Shade is typically appreciated by pedestrians.

3.4 Affected Viewers - Viewers Adjacent to Project

Viewers of the project from off-site vantage points include local residents, the owners and users of retail establishments, and those visiting institutional facilities. Typical preferences of these groups are as follows:

- **Local Residents:** Those residing in properties abutting the project area form the vast majority of project viewers. This includes residents of both single family homes and apartment complexes. Typically residential neighbors adjacent to a project area prefer that the existing landscape appearance remains in its current condition. This group is typically opposed to significant visual changes.
- **Owners and Patrons of Retail Establishments:** Retailers, those selling goods and services to the public prefer visibility, free of visual obstructions to their place of business. The preference is typically for orderly landscapes that will encourage shoppers to get to their destination most easily.
- **Institutional:** The Rural Metro Fire Station can be classified as an institutional user. This user typically prefers landscapes where a high level of access and visibility is maintained.

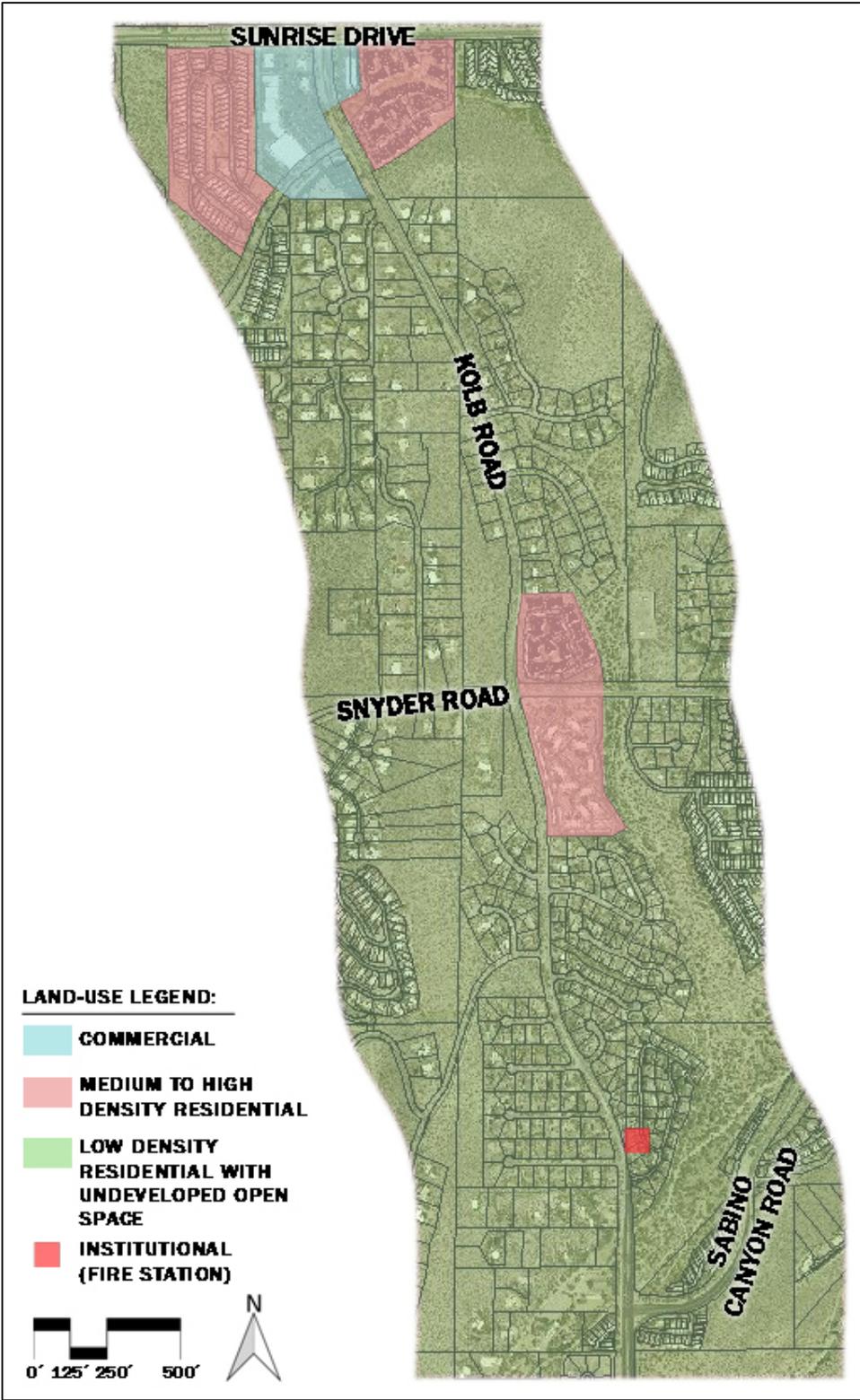


Figure 3-A: Existing Land Use in the Vicinity of the Project Corridor

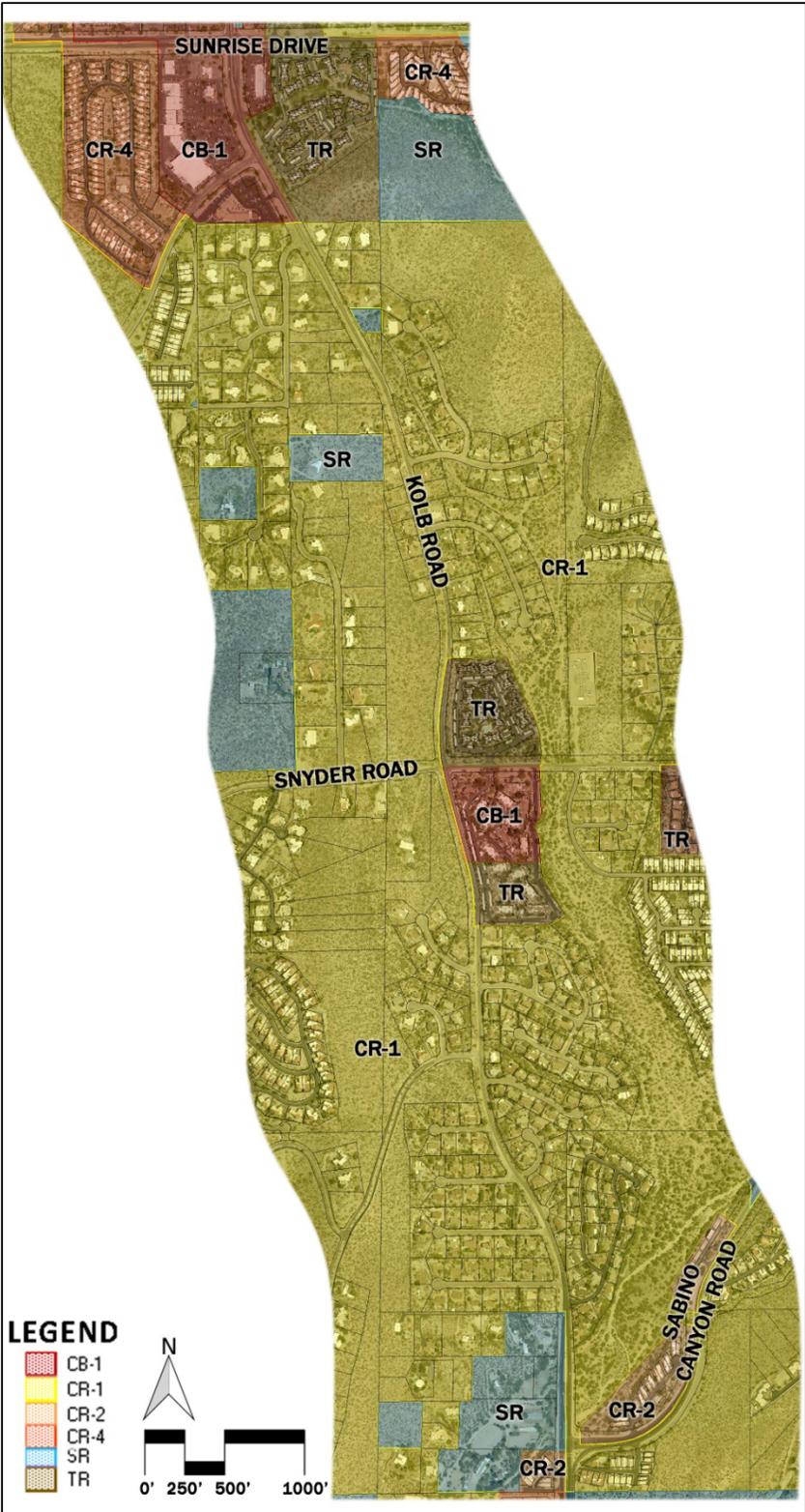


Figure 3-B: Existing Zoning in the Vicinity of the Project Corridor

3.5 Views from the Roadway – Views to the North

The Santa Catalina Mountains dominate the views to the north. In many locations, the ridges to the east and west of the roadway frame the dramatic views of the mountains to the north. Large portions of the slopes on the western side of the roadway are vegetated with undisturbed native vegetation contributing to a natural appearance along the corridor. Views of the foreground and middle-ground on both sides of the roadway include a combination of residential structures, constructed landscapes, and native vegetation. Photographs of typical views, and the location of the subject vantage points, are provided below.



Photo from Point A – Looking North



Photo from Point B – Looking North



Photo from Point C – Looking North

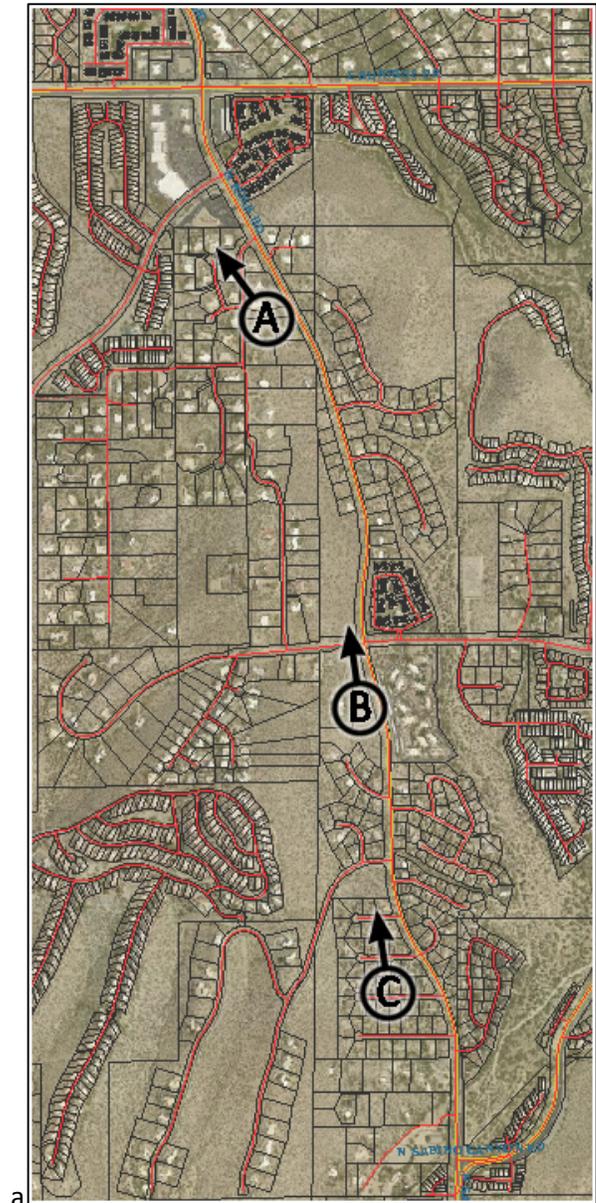


Figure 3-C: Photo Locations – Looking North

3.6 Views from the Roadway – Views Looking South

Views to the south are less dramatic, with less dominant mountain views. Development on both sides of the roadway is more pronounced as the slope falls away to the east. Mountain views fade into the distance while foreground views are much more prominent. The large variety of landscape plantings and hardscape elements close-up can be distracting to southbound drivers. In selected locations, the constructed landscape improvements screen the adjacent residential development. Photographs of typical views looking south, and the location of the subject vantage points, are provided below.



Photo from Point D – Looking South



Photo from Point E – Looking South



Photo from Point F – Looking South

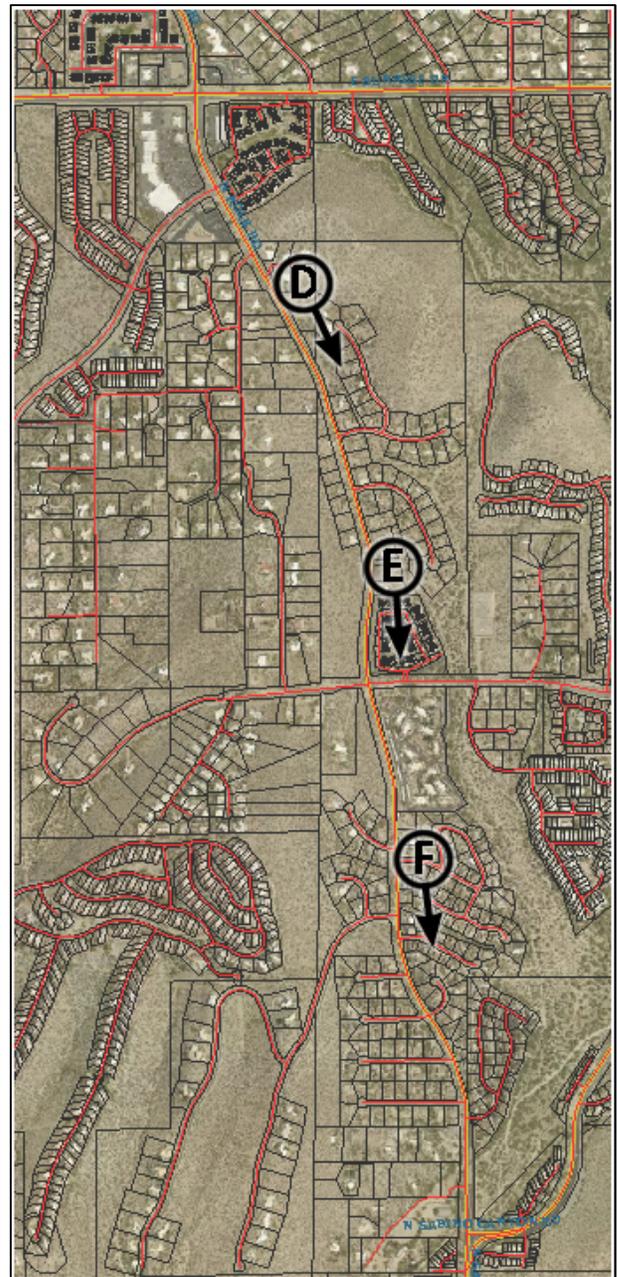


Figure 3-D: Photo Locations – Looking South

3.7 Views of Built Features

The views from the roadway to off-site development are highly variable. In some locations, such as at the north end of the site, there are views of commercial developments and the associated parking lots. In the vicinity of the Snyder Road intersection, there is a large apartment complex with two-story buildings that are visually prominent. In most other locations, views are of single-family, one-story residential buildings on large lots. Some of these residential structures are very close to the road, while others are set-back and screened with native vegetation and/or constructed landscapes. Photos of typical views of built features along the project corridor are provided below.



Photo from Point G – Looking Northwest



Photo from Point H – Looking Northeast



Photo from Point I – Looking Southwest

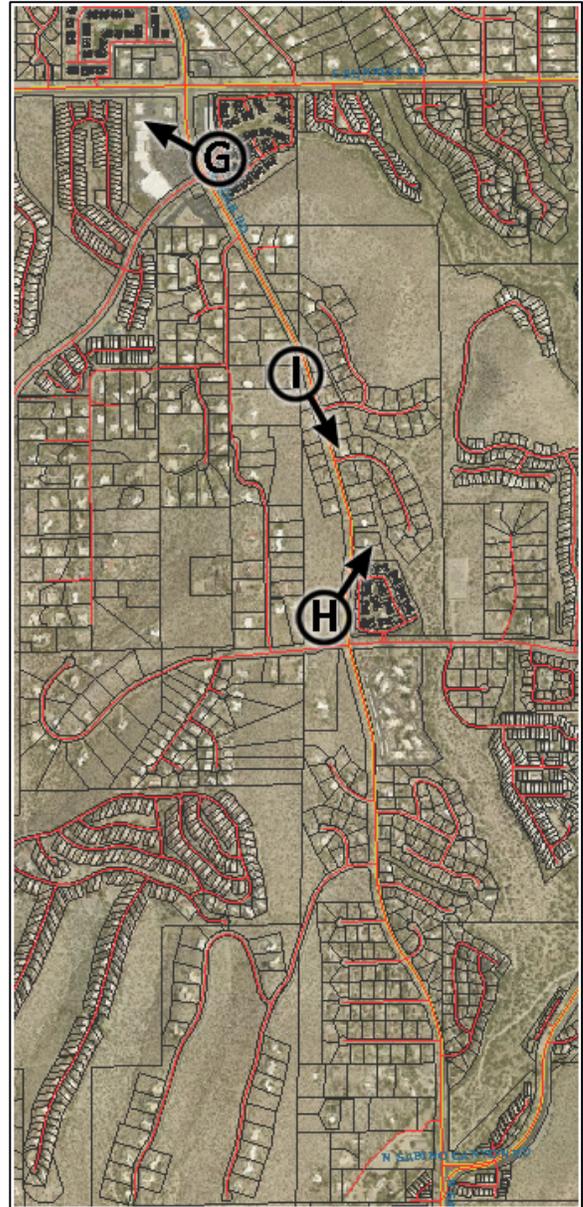


Figure 3-E: Photos of Off-Site Development

3.8 Views of Roadside Edge Features:

The features along the edge of the roadway corridor are variable. In many cases they are views of undisturbed native vegetation. In other locations, they are views of non-native landscape plantings. There are also a variety of walls along the corridor. These are typically masonry or masonry with stucco. There is not, however, a unifying theme to these architectural elements. The photos below illustrate some of these disparate edge conditions.



Photo Point J – Looking Northwest



Photo Point K – Looking Northwest

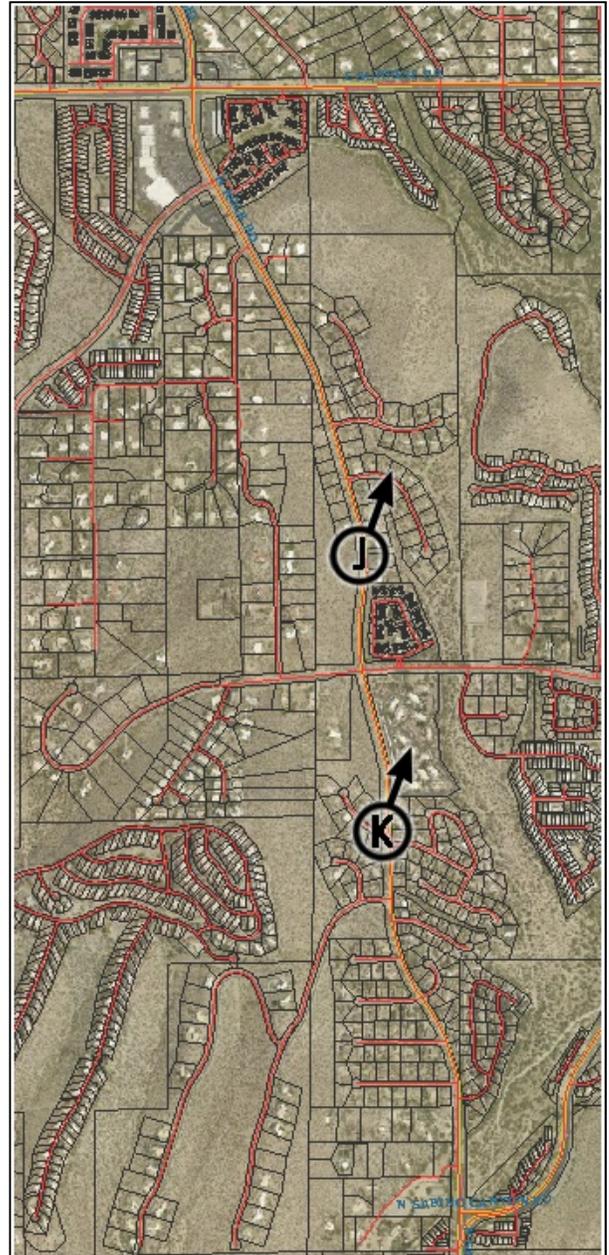


Figure 3-F: Photo Locations - Edge Conditions

3.9 Views of the Roadway from Adjacent Residential Properties

The degree to which the roadway is visible from adjacent residential properties is a function of setback distance, topography, and density of vegetation. There are some homes which are close to the roadway and that have unobstructed views of the corridor. The more common condition has a greater setback with varying degrees of screening produced by topography, vegetation, and/or constructed patio walls. Photos of the roadway from selected properties along the corridor are provided below.



Photo from Point L – Looking towards Roadway



Photo from Point M – Looking towards Roadway



Photo from Point N – Looking Toward Roadway

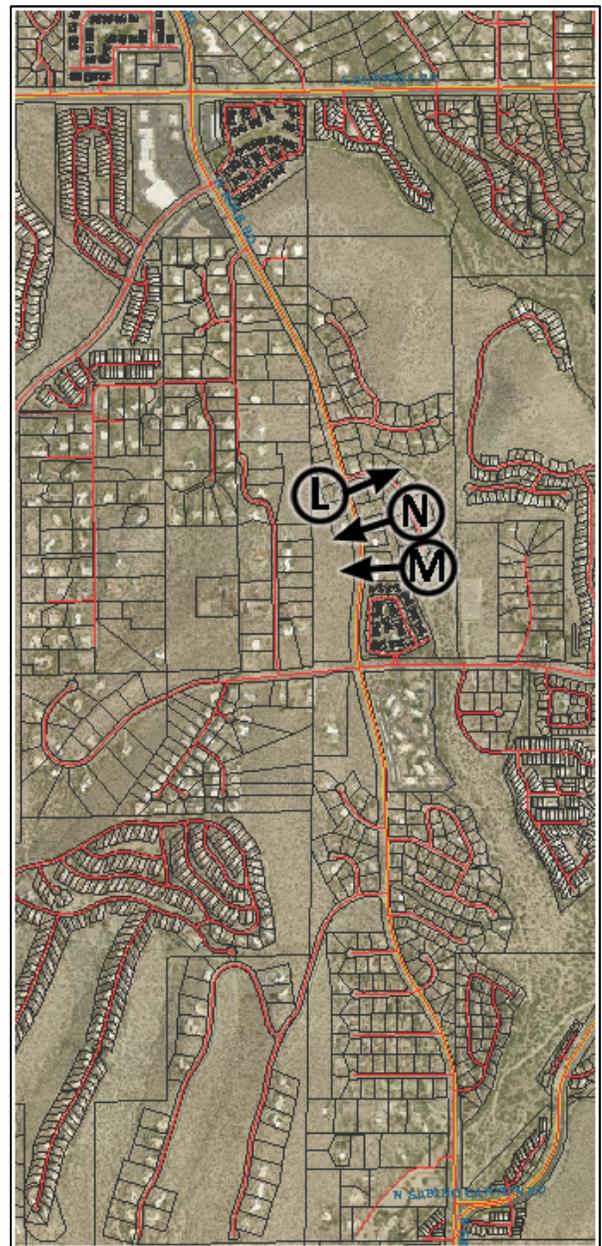


Figure 3-G: Photo Locations – Views to Roadway

3.10 – Views of the Roadway from nearby Ridges

Views of the roadway are not very prominent from the ridges east and west of the roadway corridor. This is a function of the distance to the roadway, the scale of the roadway, and limited screening provided by native vegetation. It is also noteworthy that the subject ridges are protected ridges that will not be developed. As a consequence, very few individuals will view the roadway from these distant vantage points. The photos below are typical of the views toward the roadway from the ridges to the west.



Photo from Point O – Looking Northeast



Photo from Point P – Looking East



Photo from Point Q – Looking Northwest

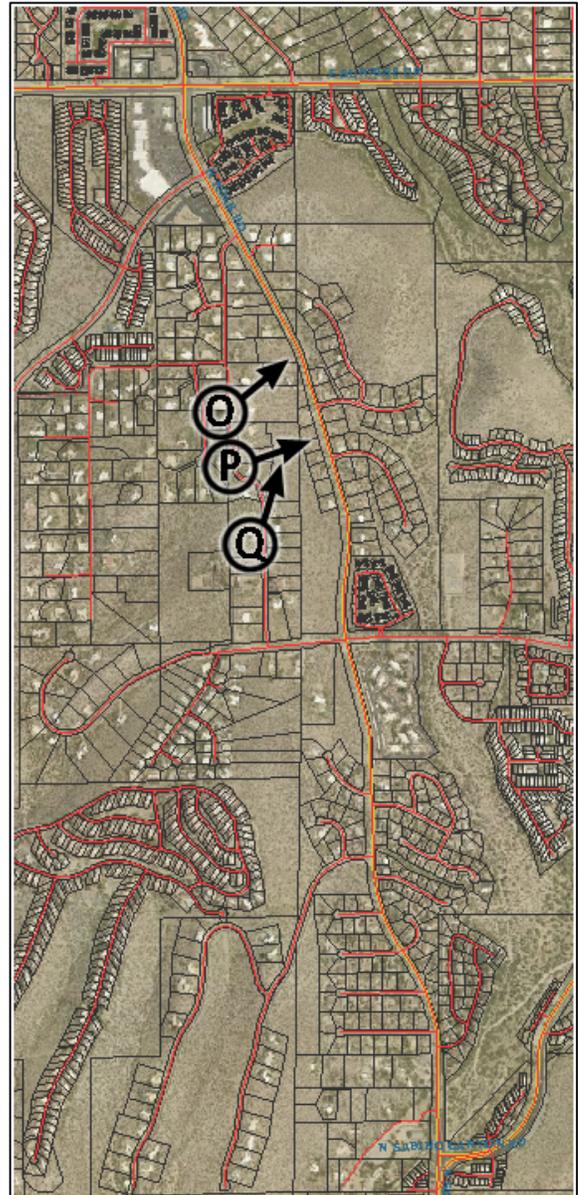


Figure 3-H: Photo Locations – Views from Ridges

4.1 Purpose

In order to document the visual impact of the proposed project on viewers, the degree to which they will be affected by changes will be assessed. By comparing project impacts with current conditions, a determination will be made as to whether mitigation measures are necessary and where they will have the most value. This section will evaluate the project features having visual impacts and show the degree of change.

4.2 Impacts of Roadway Widening

Widening the roadway will more than double the footprint of the paved area, resulting in a significantly wider swath of paved surface within a right-of-way. Because the potential for roadway expansion to the east is limited, much of the work will occur on the western side of the existing right-of-way where sloped conditions will require cutting into existing vegetated slopes, requiring retaining walls in places. New cut slopes will be highly visible from the improved roadway. It is also important to note that the improved roadway will be expanding into existing cleared gravel areas that are free of any vegetation.

Roadway construction will also result in slightly less variation in the vertical alignment of the roadway. The tops of certain vertical curves will be cut and low points along the roadway will be filled to smooth out the vertical alignment of the roadway. Changes from the existing vertical alignment will be limited due to the large number of driveway connections that must be maintained. Where the roadway profile is raised there is potential for additional fill slopes and the slightly higher roadway may be more visible in certain locations. Lowering the profile at existing high points will result in visible cut slopes.

The widening of the roadway and modifications to the vertical alignment will also necessitate the construction of retaining walls and the installation of guard rails where they do not currently exist. The result will be a change in the visual character of the corridor from a somewhat rural / residential character to that of an urban collector street.

Figure 4-A on the following page illustrates the existing condition and conditions that will exist after the project. As shown, there will be a zone of disturbance on both sides of the roadway. Depending on the adjacent topography, there may be several elements in the zone of disturbance that will influence the visual character of the corridor. These include:

- Retaining walls visible from the roadway or from adjacent properties
- Cut slopes visible from the roadway or from adjacent properties
- Fill slopes visible from adjacent properties
- Guardrails where they are not currently present

Some of these changes will be permanent. Others, such as areas that are replanted to replace native plants that were removed for construction, will be temporary.

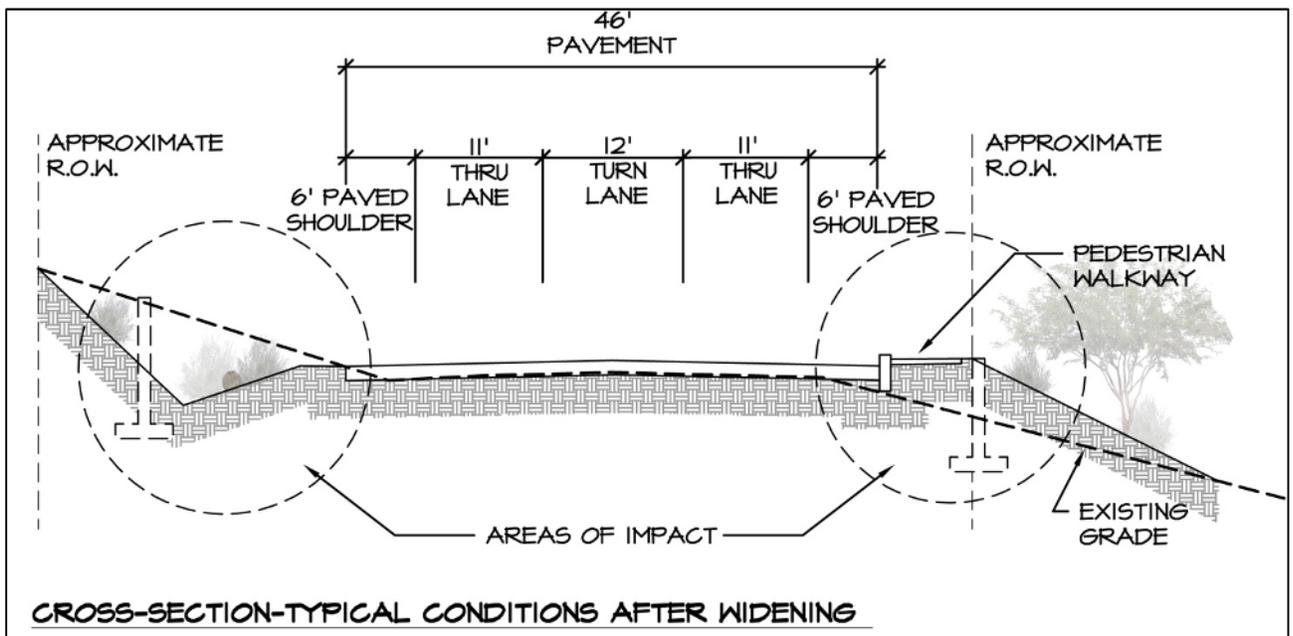
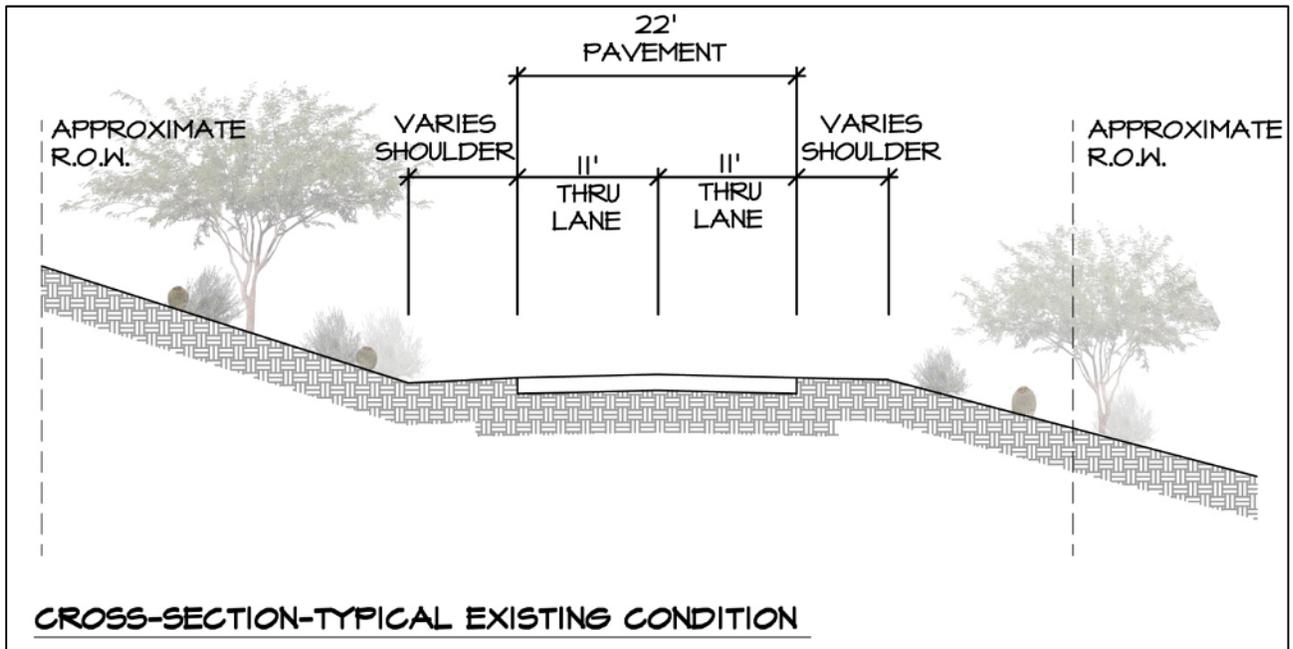


Figure 4-A: Roadway Cross-Sections (Pre-Construction and Post Construction)

4.3 Impacts from the Construction of New Retaining Walls

The initial design phase plans provided in Appendix A-1 of the Design Concept Report shows retaining walls in locations where the right-of-way is insufficient to accommodate the required fill. These walls are below the roadway and not visible from the roadway, but these walls may be highly visible from certain adjacent residential properties.

4.4 Impacts from the Construction of new Guardrail

The initial design phase plans provided in Appendix A-1 of the Design Concept Report show new guard rail and pedestrian handrail along the eastern side of the roadway for approximately 1,700 linear feet. This guardrail is located just behind the curb and will be highly visible from the roadway. It will also be visible from vantage points on adjacent residential properties in the same manner in which the existing guardrails are visible.

4.5 Impacts from the Construction of Pedestrian Improvements

The project will construct pedestrian improvements to provide universal access along the subject section of Kolb Road. The initial design phase plans provided in Appendix A-1 of the Design Concept Report show a 6' wide sidewalk along the eastern side of the roadway for the entire length of the project. The western side does not have continuous sidewalk. The addition of sidewalks adds to the overall width of paved surfaces associated with the roadway and places improvements closer to the limits of the right-of-way.

4.6 Impacts from the Construction of Drainage Improvements

Drainage improvements include the addition or replacement of 25 culverts within the project area. The largest culvert shown on the initial design phase plans is 4' in diameter; most are 2' or 3' in diameter. The culvert end treatments and the removal of existing vegetation during construction may be visible from some locations on adjacent residential properties. The location of the culvert ends, below the grade of the roadway and below the grade of the adjacent residential buildings will result in these project elements having minimal impact on the visual resources of the site.



Figure 4-B: Examples of Drainage Pipe Inlets and Outlets (Concrete Headwall on Left, Galvanized Steel End Section on Right)

4.7 Impacts from the Construction of the Roundabout

A new roundabout is proposed for the intersection of Kolb Road and Territory Drive. This intersection is located with a commercial area near the north end of the project. The center of the roundabout will include landscape plantings and has been identified as a possible location for public art.



**Figure 4-C: Kolb Road and Territory Drive Intersection
(Existing Intersection on left, Proposed Roundabout on right)**

4.8 Impacts from the Installation of Improved Street Lighting

Street lighting is proposed to improve visibility and safety from North Territory Drive to Sunrise Drive, at the Kolb Road and Snyder Road intersection, and at the Rural Metro Fire Station at the south end of the project. The Design Concept Report recommends adding light poles in all three of these locations. The addition of light poles will affect views from the roadway and views to the roadway at these locations.

4.9 Impacts from the Installation / Modification of Utilities

In conjunction with this project, various utility lines will be relocated and/or replaced. The utility work will have very little impact on the visual character of the corridor as the utility lines will be underground. Minor above-ground features, such as utility cabinets, will be installed. These will impact small areas surrounding the location where they are installed.

5.1 Purpose:

The intent of mitigation is to recommend practices that will minimize and compensate adverse visual impacts associated with this project and identify opportunities for enhancing visual quality. Specific recommendations are made for each topic in regard to the impact on both viewers from the roadway and viewers of the roadway. General recommendations for the entire project corridor consist of:

- Using a plant palette that includes species found in adjacent natural areas.
- Selecting hardscape elements and finishes to blend with surrounding natural landscape.
- Stabilizing cut slopes with materials that will blend with the natural surroundings.
- Using best management practices to maximize establishment of vegetation on new cut slopes.
- Developing a consistent palette of materials throughout the project corridor, including rock types and colors, color of guardrails and railings, and hardscape elements.

5.2 Mitigation Recommendations – Roadway Widening

For Viewers from the Roadway:

- Revegetate with native plants species based on the native plant inventory and densities where vegetation is removed for roadway improvements.
- Use a combination of native vegetation and inorganic mulch to naturalize the cut slopes that are a result of the roadway widening.
- Reduce the impact of wider pavement width by seeking opportunities to use materials and colors for sidewalks, handrails, and guardrails that blend with the natural surroundings.



Photo of slope surfaced with inorganic mulch and revegetated with native plants for landscape enhancement and slope stabilization.

For Viewers of the Roadway:

- Provide screening vegetation where necessary and feasible.
- Use materials and colors that blend with natural surroundings for drainage improvements and slope stabilization.

5.3 Mitigation Recommendations – New Retaining Walls:

For Viewers from the Roadway:

- Use materials and colors that blend with the natural surroundings.
- Provide textured surfaces to add visual interest. Textures may be similar to those that might be found on rock outcrops in the adjacent foothills. Another option may be a patterned formliner.
- Provide plantings at the base of the walls, where feasible, to reduce the visual scale of the retaining wall structure.
- Integrate public art where appropriate.



Photos of retaining walls (with public art and planting at base of wall)

For Viewers of the Roadway:

- Provide screening vegetation where necessary and feasible.
- Use materials and colors that blend with natural surroundings for drainage improvements and slope stabilization.
- Integrate public art where appropriate.



Photos of retaining walls (with public art and planting at base of wall)

5.4 Mitigation Measures – New Guardrail

For Viewers from the Roadway:

- Use Corten steel guard rail panels to provide a rust colored surface that blends in with the natural surroundings.

For Viewers of the Roadway:

- Use Corten steel guard rail panels to provide a rust colored surface that blends in with the natural surroundings.



Photo of Corten Steel Guardrail

5.5 Mitigation Measures – Pedestrian Facilities

For Viewers from the Roadway:

- Use finishes for pathways and handrails that blend with the natural surroundings.
- Provide vegetation to help the roadway shoulders blend with the undisturbed natural surroundings.

For Viewers of the Roadway:

- Use finishes for pathways and handrails that blend with the natural surroundings.
- Provide vegetation to help the roadway shoulders blend with the undisturbed natural surroundings.
- Add screening vegetation where appropriate and feasible.

5.6 Mitigation Measures – Drainage Improvements

For Viewers from the Roadway:

- Use materials and finishes that blend with natural surroundings.
- Provide screening vegetation where appropriate and feasible.

For Viewers of the Roadway:

- Use materials and finishes that blend with natural surroundings.
- Provide screening vegetation where appropriate and feasible.



Photos of screening vegetation used to conceal views of drainage improvements

5.7 Mitigation Measures - Roundabout

For Viewers from the Roadway:

- Use materials and finishes that blend with natural surroundings.
- Provide vegetation within the roundabout to soften the hardscape elements (except within designated sight lines).
- Integrate public art, where appropriate.

For Viewers of the Roadway:

- Use materials and finishes that blend with natural surroundings.
- Provide screening vegetation where appropriate and feasible.



Photos of Roundabout with Planting and Topography outside of Sight-Lines (the roundabout is also great space to integrate public art)