Appendix K
Visual Impact Assessment

Jacobs

Red Rock Trail and Intersections Improvement Project

Visual Impact Assessment Technical Report

July 2021

Bureau of Land Management Red Rock/Sloan Field Office and
Federal Highway Administration – Central Federal Lands Highway Division
Prepared in Support of EA: DOI-BLMB-NV-S020-2020-00-EA CFL Project No: NV FLAP 500(1)

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Acronyms and Abbreviations

Acronym	Definition
3-D	three-dimensional
ADA	Americans with Disabilities Act
BLM	Bureau of Land Management
GIS	geographic information system
Jacobs	Jacobs Engineering Group Inc.
KOP	Key Observation Point
mm	millimeter
NCA	National Conservation Area
NDOT	Nevada Department of Transportation
proposed project	Red Rock Canyon Low Water Crossing and Pavement Improvement Project
RMP	Resource Management Plan
ROW	right of way
RRCNCA	Red Rock Canyon National Conservation Area
SF	square feet
SR	State Route
VIA	Visual Impact Assessment
VRI	Visual Resource Inventory
VRM	Visual Resource Management

This Visual Impact Assessment (VIA) describes the environmental and regulatory setting, data collected, and data analysis used to evaluate visual resources for the Red Rock Trail and Intersections Improvement Project (proposed project). The Bureau of Land Management (BLM) Red Rock/Sloan Field Office will use this information to evaluate potential impacts to visual resources associated with the proposed project.

1. Purpose

This VIA discusses and evaluates the existing visual quality and potential effects of the proposed action on visual characteristics and quality, assesses the consistency of changes with BLM Red Rock/Sloan Field Office visual management objectives, and examines mitigation requirements that apply to these effects. The VIA was compiled to assist in the evaluation of the visual impacts of the proposed project and to provide background information and analysis that can be used in preparing the Environmental Assessment for the proposed project. Included in this VIA is a systematic assessment of existing visual conditions in the proposed project vicinity, the visual changes that would result from the proposed project, and how the proposed project would affect the public's experience of aesthetic qualities in the region. Preparation of the analysis followed the VIA procedures established by the BLM.

2. Description of the Proposed Action

The Federal Highway Administration's Central Federal Lands Highway Division, in partnership with the BLM Red Rock/Sloan Field Office and in cooperation with Clark County and the Nevada Department of Transportation, is proposing to undertake the Red Rock Trail and Intersections Improvement Project, which will make improvements to Red Rock Canyon National Conservation Area (RRCNCA) near Las Vegas, in Clark County, Nevada. Red Rock Canyon was the first designated National Conservation Area (NCA) in Nevada. Its designation arises from its unique geologic features, plants, and animals that represent the Mojave Desert.

The proposed project includes a variety of elements to address safety, access, conservation, and recreation needs. To separate bicycles and pedestrians from motorized travel on State Route (SR)-159, to improve access to the RRCNCA, and to reduce the development of social trails, the proposed project includes a 5.5-mile-long multi-use path connecting the Summerlin development to the RRCNCA entrance and fee station. The multi-use trail template is 12-feet of pavement with 1-foot gravel shoulders on each side of the pavement. Two alignment alternatives are being considered for the east 1.5 miles of the trail; the west 4 miles of trail alignment is shared between the two alternatives. Alternative 1.a. takes a more northerly route along the southern border of the Summerlin development and Alternative 1.b. continues south before paralleling SR-159 for its remainder (Figure 1). Trail grades range from 0.5 percent to 8.0 percent. The trail meets the Americans with Disabilities Act (ADA) compliance requirements.

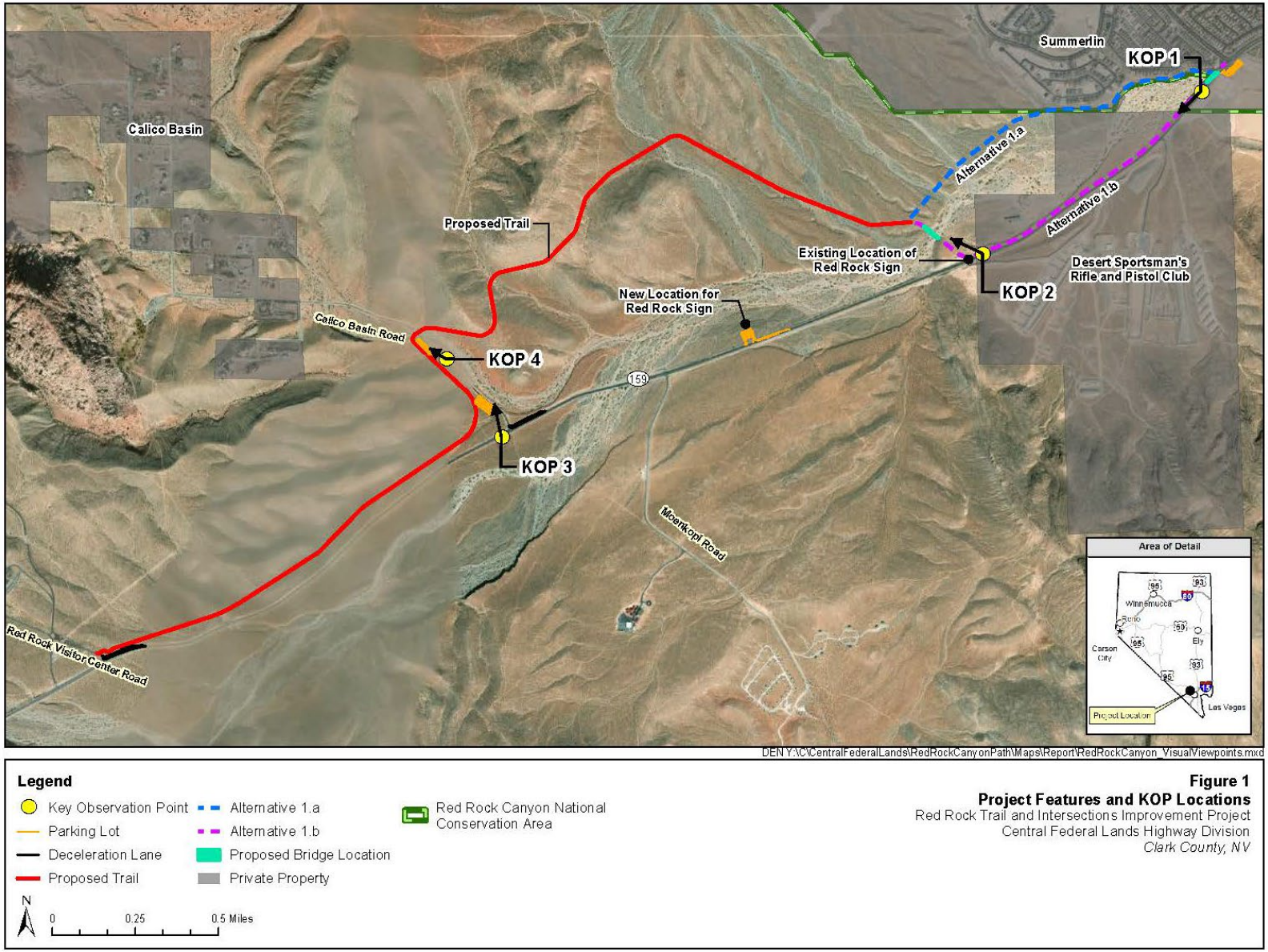

Figure 1. Project Features and KOP Locations

To address the substandard deceleration distances and lack of queuing capacity at Calico Basin Road and the RRCNCA entrance station intersections, at the approaches to these intersections SR-159 would be widened on its north side by approximately 12 feet to accommodate lengthened deceleration lanes. The deceleration lane at Calico Basin Road would be lengthened from 120 feet to 505 feet and the paved shoulder width increased from 1 foot to 6 feet. The deceleration lane at the entrance station intersection would be lengthened from 300 feet to 605 feet and the shoulder widened from 1 foot to 6 feet. For cyclists who chose to continue using the SR-159 shoulder, an additional 5 feet of widening and bike lane striping in the area approaching the entrance station road would clearly demarcate the path for non-motorized travel through the entrance station intersection.

To provide access to the new multi-use trail and to reduce the number of vehicles parked on the SR-159 shoulder, the proposed project includes four parking area improvements. A new 9,300 square foot (SF) parking area would be located near the Summerlin development, south of SR-159. A new 10,000 SF parking area would be constructed on the north side of SR-159, approximately 0.75 miles east of the Calico Basin Road intersection. The existing RRCNCA gateway sign would be moved to this location where visitors would have adequate space to park and take photos of the popular gateway sign. A 530-foot deceleration requiring a 12-foot widening of SR-159 would also provide safe access to this parking area.

At the northwest corner of the Calico Basin Road/SR-159 intersection, an 18,600 SF parking lot would provide direct access to the multi-use trail and additional parking area. Approximately 2,000 feet north of this location along Calico Basin Road, an existing 5,400 SF gravel area used for informal parking would be formalized and paved to provide additional trail access and parking. These improvements will be designed and implemented in accordance with the Nevada Department of Transportation (NDOT), Central Federal Lands Highway Division, and the American Association of State Highway and Transportation Officials Highway Design Standards, in cooperation with the BLM and RRCNCA.

2.1 Bridge/Structures

The existing 2-span SR-159 bridge over Red Rock Detention Basin will remain. A new parallel bike/pedestrian bridge is proposed parallel to the existing SR-159 bridge for the Summerlin Connection component. It is assumed that the new bridge adjacent to SR-159 would be approximately 260 feet long and 10 feet high. A new bridge is also proposed to cross Red Rock Wash in the vicinity of the existing “Red Rock Canyon” sign. This bridge is assumed to have dimensions of 200 feet long by 6 feet high, since it is spanning a smaller portion of the wash. The other structures included for consideration are low water crossings and box culverts.

The design would also include an at-grade crossing of SR-159 in Summerlin so that eastbound cyclists can access the existing eastbound bike lanes. ADA-compliant ramps and flashing beacons are recommended for this crossing. Other options to cross the wash and connect to the eastbound bike lanes were considered but not recommended due to impacts to the wash and right of way (ROW).

2.2 Parking

Relocation of the “Red Rock Canyon” sign and the addition of a small parking lot is being proposed to solve the existing issue at the current sign location where motorists pull off the shoulder of the road to take photos. The relocation of the “Red Rock Canyon” sign and addition of a formalized parking area will require a deceleration lane and parking lot design to meet ADA requirements. The current location of the sign has poor sight distance for eastbound drivers due to the crest curve and roadside parking and pedestrian crossings make the poor sight distance a greater risk. The proposed lot would be short-term parking for photos and would remain within the NDOT ROW. Additionally, a deceleration lane to the parking lot would be provided.

A second parking lot is proposed for the area at the northwest corner of the Calico Basin Road/SR-159 intersection. This lot would encompass an area of 18,600 SF and is designed to provide direct access to the multi-use trail that passes close to the lot's western edge.

A third parking lot is proposed near the point where the proposed trail will make an at-grade crossing of Calico Basin Road. This parking lot will provide additional access for users as well as emergency services. At present, Calico Basin Road has wide unpaved shoulders where visitors frequently park their cars. The intent of the two proposed parking areas planned along Calico Basin Road is to end this now-irregular parking by creating safe, well organized parking lots that that get cars off the side of the road and minimize any additional disturbance to the land that the users of the proposed trail who access it from Calico Basin Road may potentially create.

2.3 Right of Way

The trail would mostly lie within BLM land, but portions of Alternative 1.a fall within the Desert Sportsman property where NDOT has a highway easement that is approximately 150 feet in width. Additionally, Hughes Corporation owns the land just west of the proposed development in Summerlin, bordering the BLM land. For the two deceleration lanes that are proposed to be lengthened, a NDOT ROW Encroachment Permit is expected.

3. Regulatory Framework

This section provides a summary of regulations and relevant BLM plans that govern visual resources within the study area. The study area occurs nearly entirely within BLM administered land and, therefore, the proposed project would be subject to BLM standards for visual resources.

3.1 Federal Regulations

Under the Federal Land Policy and Management Act of 1976 [U.S. Code Chapter 43 §1712(c)(9)], the BLM is required to consider scenic values of lands under its jurisdiction. The BLM Visual Resource Management (VRM) system establishes management objectives for visual resources (BLM, 2009). A Visual Resource Inventory (VRI) is required as part of the baseline for National Environmental Policy Act analyses on BLM land and all field offices must have VRI and VRM classes delineated as part of the land use planning process. In the event a field office does not have VRI data, an inventory must be completed to process permit applications.

3.2 BLM Plans

Red Rock Canyon National Conservation Area Resource Management Plan. Federal lands in the proposed project study area are managed by the BLM Red Rock/Sloan Field Office, which issued the *Red Rock Canyon National Conservation Area Resource Management Plan* (RMP) in 2005 (BLM, 2005). The RMP establishes management direction for lands administered by the BLM Red Rock/Sloan Field Office and identifies VRM goals and planned actions for specially designated areas located within the proposed project study area. The RMP cites the Keystone Thrust Fault, which extends north-south along the western boundary of the area forming the Spring Mountains, as one of the region's most unique geologic features. The RMP also references the Calico Hills, which run along the northern edge of the area north of the entrance to the Scenic Loop Drive, as providing a dramatic grouping of sandstone formations for RRCNCA visitors to view.

4. Data Collection Methods

This section describes the methods used to evaluate the proposed project for effects on visual resources. The methods were established in coordination with Katharine August, BLM Red Rock/Sloan Field Office Recreation Planner, during an in-person meeting that took place in July 2020. The methods apply the procedures and concepts of the BLM VRM system.

This section describes the following data collected and analyses performed:

- Obtaining BLM VRI and VRM data
- Identifying sensitive areas (communities, recreational areas, travel routes, and designated scenic areas)
- Selecting Key Observation Points (KOPs)
- Creating visual simulations for KOPs
- Completing BLM visual contrast rating worksheets

4.1 Analysis Area for Visual Resources

The analysis area for this visual resource assessment encompasses:

- The corridors along the alignments for trail Alternatives 1.a. and 1.b.
- The corridor along SR-159, which parallels much of the proposed trail alignment, along which one of the parking lots is proposed, and on which there will be additions of deceleration lanes to provide safe access to the parking lot that will be constructed at the new location of the Red Rock Canyon sign, to Calico Basin Road, and to the road that provides access to the RRCNCA entrance station.
- The corridor along Calico Basin Road that will be crossed by the trail and paralleled by sections of trail that will be built in the areas to the east and west of it. In addition, two large parking lots will be located along the western edge of the road in this area.

These areas and the proposed project's features are visible on Figure 1. In conducting the analysis, emphasis was placed on changes to views seen from SR-159 and Calico Basin Road because many of the proposed project's components are located immediately alongside or close to these roads and because these roadways are the places where there the largest numbers of viewers who would see the proposed project's features would be concentrated.

4.2 Applicable Methods

To analyze potential visual impacts, this VIA uses the BLM's VRM system (BLM, 1986a; 1986b), which consists of the following two stages:

1) Inventory: VRI
2) Analysis: Visual resource contrast rating

4.3 Visual Resource Inventory

BLM's VRI process, as outlined in BLM *Handbook H-8410-1, Visual Resource Inventory* (BLM, 1986a), determines visual values and classifies BLM land according to those values. The inventory consists of the following three steps:

1) Scenic quality evaluation
2) Viewer sensitivity-level analysis
3) Delineation of distance zones

Through these three analyses, BLM-administered lands are placed into one of four VRI classes based on value of the visual resources. Lands placed in VRI Class I and VRI Class II are the most valued; lands in VRI Class III are of moderate value; while lands in VRI Class IV are of least value. VRI results are an important component considered in the development of BLM's RMP for the area. The RMP establishes how the public lands will be used for different purposes and considers visual values, along with public input, throughout the RMP process. The area's visual resources are then assigned to VRM classes with the following established objectives:

- VRM Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- VRM Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- VRM Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- VRM Class IV Objective: To provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

4.4 Visual Resource Contrast Rating

Visual resource contrast rating is used to analyze the potential visual impacts of a proposed project and determine whether the impacts would be consistent with BLM's management objectives. The contrast rating process is laid out in BLM *Handbook H-8431-1, Visual Resource Contrast Rating* (BLM, 1986b) and is based on a comparison of the existing landscape to the way it would appear following construction of the proposed project. Because it is not possible to analyze every view toward proposed project features, the contrast rating process requires selection of representative views referred to as KOPs. KOPs represent a range of views available to the public, including common views and sensitive views, the latter of which consists of views from communities, recreational areas, and travel routes.

For each KOP, the existing and with-proposed project conditions are assessed for land and water features, vegetation, and structures in terms of the elements of form, line, color, and texture. The degree of contrast (strong, moderate, weak, or none) is assessed for each of these features and elements based on the criteria in Table 1. Landscape VRM classes are presented in Table 2.

Table 1. VRM Degrees of Contrast and Criteria

Degree of Contrast	Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Source: BLM, 1986b.

The degree to which the proposed project is consistent with the VRM classification of the land on which it would be located is based on the thresholds discussed further in the following text.

Table 2. Landscape VRM Classes

Degree of Contrast	Existing Landscape's VRM Class
None	I
Weak	II
Moderate	III
Strong	IV

The BLM visual resources contrast rating process involves analysis of contrast between existing visual conditions and the visual conditions that would result from the proposed project. The difference between the two landscapes is described by the extent of contrast (strong, moderate, weak, or none). To properly assess the contrasts between the proposed and existing condition, it is necessary to break each down into the basic features (i.e., landform/water, vegetation, and structures) and basic elements (i.e., form, line, color, and texture) so that the specific features and elements that cause contrast can be accurately identified and put in context. Additionally, ten factors are considered in evaluating the degree of contrast and include:

1) Distance –The contrast created by a project usually is less as viewing distance increases.
2) Angle of observation –The apparent size of a project is directly related to the angle between the viewer's line-of-sight and the slope upon which the project is to take place. As this angle nears 90 degrees (vertical and horizontal), the maximum area is viewable.
3) Length of time the project is in view –If the viewer has only a brief glimpse of the project, the contrast may not be of great concern. If, however, the project is subject to view for a long period, as from an overlook, the contrast may be very significant.
4) Relative size and scale –The contrast created by the project is directly related to its size and scale as compared to the surroundings in which it is placed.
5) Season of use –Contrast ratings should consider the physical conditions that exist during the heaviest or most critical visitor use season, such as snow cover and tree defoliation during the winter, leaf color in the fall, and lush vegetation and flowering in the spring.
6) Light conditions –The amount of contrast can be substantially affected by the light conditions. The direction and angle of lighting can affect color intensity, reflection, shadow, form, texture, and many other visual aspects of the landscape.
7) Recovery time –The amount of time required for successful re-vegetation should be considered.
8) Spatial relationships –The spatial relationship within a landscape is a major factor in determining the degree of contrast.
9) Atmospheric conditions –The visibility of projects due to atmospheric conditions such as air pollution or natural haze should be considered.
10) Motion –Movement such as waterfalls, vehicles, or plumes draws attention to a project.

Completed BLM Visual Contrast Rating Worksheets (Form 8400-4) for each of the KOPs evaluated in this VIA are provided in Appendix B.

4.5 Data Collection, Fieldwork, and Selection of Key Observation Points

Jacobs Engineering Group Inc. (Jacobs) obtained available BLM VRI and VRM data from the BLM Red Rock/Sloan Field Office. Jacobs used these data to create a map of the proposed project area using the ArcInfo™ geographic information system (GIS) that identified the locations of the proposed project's features. To provide context, this map was displayed on an air photo base on which highways and main roads were delineated. Analysis of this map provided a basis for understanding the proposed project's relationship to its setting and areas where there are concentrations of viewers, making it possible to identify the areas where the proposed project could have a potential effect on visually sensitive views. Based on a review of this map in consultation with the BLM Red Rock/Sloan Field Office representative, Katharine August, BLM Red Rock/Sloan Field Office Recreation Planner, Jacobs identified a set of locations around the proposed project area from which views toward the proposed project needed to be photo documented.

On July 1, 2020, Jacobs' visual resource specialist and Katharine August of the BLM Red Rock/Sloan Field Office conducted field work in the proposed project area and during this time visited the viewpoints where, based on map analysis, it had been determined that the proposed project could potentially affect visually sensitive views, took photographs, and recorded the global positioning system coordinates of each of the viewpoints from which views toward the proposed project alignment were photo documented. All photographs were taken with a digital camera with a lens set to take photos equivalent to photos taken with a 35-millimeter (mm) camera using a lens with a 48 mm focal length. Based on observations made during the field visit, and in consultation with Katharine August, BLM Red Rock/Sloan Field Office Recreation Planner, Jacobs selected four locations as KOPs to be used as the basis for evaluation of the proposed project's visual impacts.

4.6 Proposed Project Simulations

Jacobs prepared four visual simulations using computer modeling techniques to depict the views from the KOPs as they would appear after the proposed project is completed. A combination of computer-aided drafting, GIS, and rendering programs was used to produce the images of the proposed project facilities that were superimposed on photographs.

To produce the simulations, a digital site model was created using topographic and site data. Next, three-dimensional (3-D) models of proposed project features were prepared using proposed project plans and superimposed on the digital site model. For each KOP, viewer location was digitized from topographic maps using 1.5 meters (5 feet) as the assumed eye level. Computer "wire-frame" perspective plots were overlaid on the photographs of the KOPs from the simulation viewpoints to verify scale and viewpoint location. Digital visual simulation images were produced based on renderings of the 3-D model combined with the high-resolution digital base photographs.

4.7 Issues for Analysis

Potential environmental changes are described in this VIA in terms of their effects on the form, line, color, and texture of the elements visible in the landscapes in which they will take place. The acceptability of these visual changes is determined by comparing the proposed project's effects on each of these dimensions with degree of visual contrast that is consistent with the visual quality objectives established for the VRM class assigned to the area in which the proposed project feature will be located.

5. Affected Environment

5.1 Regional Setting

The proposed project's features will be developed almost entirely within the boundaries of the RRCNCA. The RRCNCA is located in southern Nevada at the western edge of the city of Las Vegas. NCAs are designated by Congress to conserve, protect, enhance, and manage public lands for the benefit and enjoyment of present and future generations. These lands feature exceptional scientific, cultural, ecological, historical, and recreational values. Congress conferred NCA status to the area in 1990. Red Rock Canyon was the first designated NCA in Nevada. Its designation arises from its unique geologic features, plants, and animals that represent the Mojave Desert. Today, it is one of only three NCAs designated within Nevada. The RRCNCA reports over one million visits every year to its Visitor Center. The area is a destination for locals and for national and international visitors who visit it in conjunction with stays in Las Vegas. The Red Rock Canyon Scenic Loop Drive is a BLM National Scenic Backcountry Byway and traverses approximately 13 miles of the RRCNCA with trailheads, scenic overlooks, and picnic facilities along its route. The RRCNCA has more than 100 miles of known trails of various standards for hikers, rock climbers, horse riders, and cyclists, although bicycles and motorized vehicles are prohibited from off-highway use in the area.

Although most of the proposed project is located within the boundaries of the RRCNCA, short segments of the eastern ends of trail Alternative 1.a. and Alternative 1.b. are located outside of the RRCNCA's boundaries. A 0.2-mile segment of Alternative 1.a., which lies adjacent to the Summerlin development, is on privately owned property. The portion of Alternative 1.b. that parallels SR-159 lies within NDOT's highway ROW. A 0.8-mile segment of Alternative 1.b. in the NDOT ROW is located outside the boundaries of the RRCNCA.

The northern terminus of the trail is located at Sky Vista Drive, a boulevard that provides access from SR-159 into a large subdivision of single-family homes, some of which have been recently completed and others of which are currently under construction. An approximately 0.6-mile segment of trail Alternative 1.a. is located immediately downslope of the back lot lines of homes located on the southern sides of Valley Chase Avenue and Skyracer Drive. The segment of trail Alternative 1.b. that extends 1 mile from Sky Vista Drive to the current location of the Red Rock Canyon sign is located along the northern edge of SR-158. On the southern side of SR-159 directly across from the alignment of trail Alternative 1.b is a several hundred acre site on land that is not a part of the RRCNCA that is occupied by the Desert Sportsman's Rifle and Pistol Club, whose features include a parking lot, clubhouse, and a large number of shooting ranges. In the Calico Basin, which is located approximately 0.3 miles northwest of where the proposed trail will cross Calico Basin Road, there is a small rural residential community consisting of approximately 20 residences sited on large lots. Aside from the homes that are adjacent to a portion of Alternative 1.a. and the homes in the Calico Basin, there are no other residences located in proximity to the proposed project's features.

SR-159, also named Red Rock Canyon Road, is the major travel route in the area, providing access to RRCNCA from both northwest and southwest Las Vegas. The 2020 estimated average daily traffic on this segment of the highway was estimated to be 6,646 vehicles per day. Southbound SR-159 from Sky Vista Drive in Summerlin to the Red Rock Visitor Road can be considered the gateway to the RRCNCA in that the majority of visitors to Las Vegas who drive out the see Red Rock Canyon approach the RRCNCA using this route and after passing Sky Vista Drive, a panorama of a pristine desert landscape framed by dramatic, intensively colored rock formations opens up to them, providing a prelude to the scenery on the Scenic Loop Drive within the NCA.

No designated historic landmarks are present within the study area.

The RMP for the RRCNCA, adopted May 20, 2005, assigned the VRM Classification of Class II to the lands in the proposed project area. The objective of VRM Class II is to retain the existing character of the landscape and it specifies that the level of change to the characteristic landscape should be kept low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

5.2 Existing Visual Conditions at the Key Observation Points

5.2.1 The Key Observation Points

Four KOPs were selected to provide a basis for evaluating the proposed project's visual effects. The locations of these KOPs are indicated on Figure 1. KOPs 1, 2, and 3 were selected to represent views from SR-159, which is the proposed project area's most highly sensitive viewing zone because of the large numbers of travelers who use the road and because it serves as the gateway to the NCA for a large percentage of visitors driving to it from the Las Vegas Strip and other areas of central Las Vegas. KOPs 1 and 2 were also selected because they include views toward the segment of Alternative 1.b. located next to the highway and of the bridge over the Red Rock Wash near the existing location of the Red Rock Conservation Area sign, providing a basis for evaluating Alternative 1.b. and comparing it against the impacts of Alternative 1.a., which will not be visible from the highway. KOP 3 was selected to provide an understanding of the trail's potential effects on the hillsides of the depression through which Calico Basin Road travels and the visual effects of the parking lots proposed for development along this road. KOP 4, located along Calico Basin Road, was selected to provide a basis for understanding the effects of the trail in the areas where it will be located close to this road and of the new parking lots that will be developed alongside it.

5.2.2 KOP 1

KOP 1 (Figure 2.a, Appendix A) is located on SR-159 at a point approximately 0.12 mile west of Sky Vista Drive. The view looks southwest down the highway and along the proposed alignment of trail Alternative 1.b. It takes in a large expanse of the desert floor that is relatively flat and loosely covered by a tapestry of green low-lying shrubs, between which patches of coarsely textured grayish-tan soils can be seen. The view is framed by large horizontal cliffs on the left and in the right half of the view by large, jagged rock outcrops with reddish-brown, tan, and gray stripes. Behind them, the ridgeline of a purple-gray mountain form can be seen. The paved roadway of SR-159 and its shoulder, which consists of a strip of bare, coarsely textured grayish-tan gravel alongside it, create sharply defined linear forms that cut through and contrast with the surrounding landscape.

5.2.3 KOP 2

KOP 2 (Figure 3.a, Appendix A) is located on SR-159 a short distance to the east of the existing location of the Red Rock Canyon sign. This view looks west-northwest to take in the alignment of the proposed trail as it curves away from the SR-159 roadway alignment to pass to the right of the small knoll on which the Red Rock Canyon sign is located and then heads northwest across the Red Rock Wash. In the foreground, this view encompasses a large area of slightly rolling desert floor that is covered by a low carpet of vegetation that includes a combination of brown grasses and small, scattered shrubs in various shades of green. On the left, the view is framed by the small knoll on which the Red Rock Canyon sign is located. Because of the bare, exposed soil, the surface of the area around the sign is light gray in color and has a coarse appearance, and as a result it contrasts sharply with the surrounding landscape. In the middleground to background areas, the view is framed by lightly vegetated slopes that transition to colorful jagged rock outcrops that are backdropped in the distance by a continuous ridge of bluish-gray mountains. Although

SR-159 is located to the left of the viewpoint, it is outside of this view; however, the dark gravel of the highway's shoulder can be seen in the near foreground where it creates a contrast with its setting.

5.2.4 KOP 3

KOP 3 (Figure 4.a, Appendix A) is located on SR-159, approximately 200 feet west of the intersection with Calico Basin Road. This view looks north-northwest up the depression in which Calico Basin Road is located to take in the hillsides in the near and more distant foreground over which the proposed trail will pass as well as the site on the west side of Calico Basin Road that is proposed for development of a trail-related parking lot. The left side of the view takes in a moderately sloped area and the right side of the view has the more steeply sloped hillside, north side of Calico Basin Road. Both sloped areas are covered by a carpet of brown grasses and widely spaced shrubs that are olive-green in color. In the foreground in the area along the north side of SR-159, there is a wide, coarsely textured appearing strip of gravel that is a light brownish-gray color. In the near middleground, the view is framed by tall, jagged rock outcrops that are a mix of light brown, slightly reddish brown, light gray, and bluish gray areas. These rock outcrops are backdropped by a more distant ridge of bluish-gray mountains. The smooth gray asphalt of the SR-159 roadway creates a dominant horizontal and linear feature in the foreground that contrasts sharply with its setting. The light color and linear form of Calico Basin Road creates a highly contrasting line through the desert vegetation on the right side of the view.

5.2.5 KOP 4

KOP 4 (Figure 5.a, Appendix A) is located on Calico Basin Road, approximately 0.1 mile south of the point where the proposed trail crosses the road. This view looks northwest up the road to take in the segment of trail that will be located on the terrace area on the left side of the view and also the trail-related parking lot proposed for an area adjacent to the left side of the road, about 180 feet up the road from this viewpoint. This view encompasses the relatively flat terrace area on the left side of the road and the sloped area behind it. The terrace area is covered by a mix of grasses, low, shrubby vegetation, and small trees. Grasses and widely spaced shrubs are visible on the hillside behind it. In the middleground, the view is framed by tall, jagged rock outcrops that mostly have a bright, slightly reddish-brown color. These rock outcrops are backdropped by a more distant ridge of bluish-gray mountains. One of the most visually dominant elements in this view is Calico Basin Road. The smooth, gray pavement of the road and the wide areas of light-colored gravel alongside it create a wide horizontal feature that cuts through and contrasts sharply with the surrounding landscape.

6. Environmental Consequences

The visual effects of the proposed project elements on the views described in Section 5 were evaluated based on a review of the simulations presented on Figures 2 through 5 in Appendix A and a systematic comparison of them with the visual conditions seen in the existing views. The visual changes observed were noted using the BLM Visual Contrast Rating Worksheets (Form 8400-4). Copies of the forms completed for each of the KOPs evaluated are provided in Appendix B. This section provides a brief narrative summary of the results of those evaluations. This summary focuses on the potential impacts of the visual changes that would be brought about in the areas seen in KOPs 1 through 4 by development of the trail, one of the bridges across the Red Rock Wash, and of the two parking lots proposed for sites along Calico Basin Road. This narrative does not include evaluations of the visual effects of the parking lot proposed for non-BLM lands on the south side of SR-159 across from the trail's northern terminus in Summerlin, the proposed trail bridge crossing Red Rock Wash adjacent to SR-159 near the start of the trail at Sky Vista Drive in Summerlin, the proposed parking lot at the site of the relocated Red Rock Canyon sign, or the proposed minor widenings of SR-159 at the eastbound approaches to Calico Basin Road and Red Rock Visitor Center Road to create deceleration lanes. The visual changes brought about by these

components of the proposed project would be less substantial than those of the proposed project components analyzed. The levels of visual impact associated with the bridge over Red Rock Wash that parallels SR-159 and the deceleration lanes will be low, and the proposed project-related visual changes will be consistent with the VRM II classification applicable to the areas in which these proposed project components are located. The visual impacts of the parking lot proposed for the area where the Red Rock Canyon sign is located will be more substantial in that this feature will be developed in an area of undeveloped desert landscape. However, because it will be developed in an area that is set back from SR-159, views of the area for travelers on SR-159 will be screened by intervening desert vegetation that will be left in place, lessening its degree of visual contrast. Application of the mitigation measures proposed for the parking lots evaluated in the views from KOPs 3 and 4 will further attenuate its impacts, reducing is potential conflicts with VRM II objectives.

6.1 Key Observation Point 1 - View from SR-159 0.12 Mile West of Sky Vista Drive (Figure 2.b, Appendix A)

The development of proposed trail Alternative 1.b. would introduce a strong new linear element into the view near the existing road corridor. A long, low horizontal bridge will be visible in the far middleground. The trail will introduce an additional line through the landscape that will mirror the line created by SR-159 and the graveled shoulder that borders it. The linearity of the trail will be reinforced by its edges and the yellow stripe running down its center. The bridge in the middleground will introduce a short solid line across the landscape. The gray color of the trail, its tan edges, the yellow stripe running down the trail's center, and the trail's smooth texture will contrast with the colors and textures of the surrounding natural landscape. The dark brown color of the bridge in the middleground will contrast with the light browns in its background and the green of the vegetation in front of it.

These visual changes will produce moderate contrasts in terms of form, line, color, and texture in the view from SR-159 where the largest numbers of potentially sensitive viewers are concentrated. The orientation of theses viewers would be toward the trail in the foreground of the view as they look toward the landmark features in the distance and the trail will be in the foreground of their view for a minute or two as they drive from Summerlin to the point where the trail turns and moves away from the road. The views toward the landmark features would not be obstructed by the trail, but the presence of the trail would detract from the currently intact, undeveloped character of the desert landscape in the view's foreground. The bridge visible in the middleground of the view would create a weak contrast with the landscape within which it is seen in this view. The moderate levels of visual contrast are inconsistent with the visual resource management objectives of this area's VRM Class II designation.

The impacts the trail would create in this view could be avoided by selection of trail Alternative 1.a., which is located on the other side of Red Rock Wash, 0.25 mile distant from SR-159 in most areas. Because of the distance of the Alternative 1.a. trail alignment from the highway and the screening provided by the intervening desert vegetation, the trail developed under this alternative would have a low level of visibility and contrast in the views seen by the large numbers of travelers on the highway. In addition, Alternative 1.a. would eliminate the bridge seen crossing Red Rock Wash in the far middleground of this view. Development of the trail along the Alternative 1.a. alignment would be consistent with the VRM Class II designation.

If the decision is made to develop the trail using the Alternative 1.b. alignment seen in this simulation, implementation of the mitigation measures specified here will reduce the level of visual contrast to bring the project into conformance with the objectives of VRM Class II. To attenuate the views of the trail to the maximum extent feasible, as much as possible of the existing vegetation that lies between SR-159 and the trail should be retained and additional vegetation, including vegetation relocated from areas disturbed by trail development, should be planted in this zone, particularly in areas where the vegetation can benefit

from runoff from the highway and the trail. In addition, where feasible, additional vegetation should be planted in the now bare areas along the far side of the trail in locations where runoff from the trail can help support the plantings. The presence of the additional vegetation between the road and the trail will provide partial screening of the trail in the views seen by occupants of westbound vehicles. In addition, the vegetation planted on both the highway side and far side of the trail will soften the appearance of the paved trail's edges. To further reduce the trail's visual contrast with its setting, at the time the trail is developed, the trail's paving material should be colored to make it consistent with the prevailing color of the surrounding soil and the surface of the paving should be treated in a way that gives it a texture that is not smooth appearing. To reduce the visual contrast of the bridge over Red Rock Wash, use of alternative colors should be explored, ultimately selecting a color (possibly an olive green) that will blend in better with the surrounding landscape. The overall result of the plantings and the potential color treatment of the bridge structure will be to reduce the project's level of contrast with its setting to "Weak", bringing it into compliance with the level of contrast permissible in areas with a VRM II classification.

6.2 Key Observation Point 2 - View from SR-159 East of the Existing Red Rock Canyon Sign (Figure 3.b, Appendix A)

In this view, the Red Rock Canyon sign will be removed and a linear trail will be introduced into the landscape in immediate proximity to the existing road corridor. A portion of the low horizontal bridge structure and the fences leading up to it will be visible on the right side of the view. The trail will introduce an additional line through the immediate foreground of the view that will mirror the line created by the band of dark gray gravel. The linearity of the trail will be reinforced by its edges and the yellow stripe running down its center. Glimpses of the trail seen just beyond the immediate foreground, and the new bridge and new fences leading up to it that are seen at the right edge of the view, will create a line that cuts across the landscape. The gray color of the trail, its tan edges, and the yellow stripe running down the trail's center will contrast with the colors of the surrounding natural landscape. The dark brown color of the bridge at the right edge of the view and of the fence at the approach to it will create a low level of contrast with the browns and dark greens of its background. The surfaces of the trail, the bridge, and fences will appear smooth.

These visual changes will produce moderate contrasts in terms of form, line, color, and texture in the view from SR-159 where the largest numbers of potentially sensitive viewers are concentrated. The orientation of these viewers would be toward the trail in the foreground of the view as they look toward the landmark features in the distance. The views toward the landmark features would not be obstructed by the trail, but the presence of the trail would detract from the currently intact, mostly undeveloped character of the desert landscape in the view's foreground. The removal of the rock with "Red Rock Canyon" written on it will remove a feature that is a landmark but is also an intrusion into the view. The bridge visible on the right side of the view would create a weak contrast with the landscape within which it is seen in this view. The moderate levels of visual contrast are inconsistent with the visual resource management objectives of this area's VRM Class II designation.

The impacts the trail would create in this view could be avoided by selection of trail Alternative 1.a. which would have a very low level of potential visibility in this view and which would not require the bridge crossing Red Rock Wash. Development of the trail along the Alternative 1.a. alignment would be consistent with the VRM Class II designation.

If the decision is made to develop the trail using the Alternative 1.b. alignment seen in this simulation, implementation of the mitigation measures specified here will reduce the level of visual contrast to a level that brings the project into conformance with the objectives of VRM Class II. To the maximum extent feasible, vegetation removed during trail development should be transplanted along the edge of the trail that borders the strip of dark gray gravel in the road shoulder along SR-159, on all of the cut and fill

slopes visible in this view, and in the gravel area on top of the knoll from which the red rock canyon sign has been removed. In addition, shrubs removed from the trail alignment should be transplanted into the area in front of the fence along the trail segment approaching the bridge. These plantings will reduce the visibility and visual contrast of the trail, will substantially reduce the visual contrast created by the project-related cutting and filling, and will help to screen the views toward the fence along the trail segment approaching the bridge. To further reduce the trail's visual contrast with its setting, at the time the trail is developed, the design team should consider the trail's paving material to evaluate if it can be colored to make it consistent with the prevailing color of the surrounding soil and the surface of the paving should be treated in a way that gives it a texture that is not smooth appearing. The design of the fence on the approach to the bridge should be refined to use railings that are thinner and more likely to recede into the view. Alternative colors for the bridge and for the fence along the trail as it approaches the bridge should be explored, selecting a color (possibly an olive green) that will blend in better with the surrounding landscape. The overall result of the plantings and the color treatment of the bridge structure will be to reduce the project's level of contrast with its setting to "Weak", bringing it into compliance with the level of contrast permissible in areas with a VRM II classification.

6.3 Key Observation Point 3 - View from SR-159 West of the Intersection with Calico Basin Road (Figure 4.b, Appendix A)

In this view, the major evidence of the presence of the trail will be the highly contrasting horizontal lines of the cut and fill slopes that development of the trail will create across the hillsides in the near and far foreground of the view. The surface of the parking lot that will be developed in the area just north of SR-159 and west of Calico Basin Road will not be readily visible in this view, but the vehicles parked in the lot will be visible, particularly to occupants of vehicles that are higher off the roadway than conventional passenger cars which will create a contrast with the surrounding desert landscape.

The changes to this view would be seen by drivers and passengers in vehicles traveling along SR-159. However, since the primary orientation of these viewers would be straight ahead, looking down SR-159, the view captured in this photo would be a view toward the side for travelers on the highway and it would be a fleeting view that would last just for the short amount of time it would take for a fast-moving vehicle to traverse this segment of the roadway. Because the contrasts created by the proposed project in this area would be weak, and views of most travelers on SR-159 would be fleeting, in this view, the proposed project would be in conformance with the objectives of VRM Class II. Even though the proposed project would meet the VRM Class II objectives, mitigation is required to attenuate the visual contrasts that the proposed project would create. The primary measure would be to revegetate the cut slopes and to the maximum extent feasible, include the transplantation of plants removed from the area developed for trail to the cut slopes to reduce the degree of visual contrast these slopes have the potential to create.

6.4 Key Observation Point 4 - View from Calico Basin Road 0.1 Mile South of the Proposed Trail Crossing (Figure 5.b, Appendix A)

The primary visual changes in this view will be related to the construction of the trail segment along the edge of the flat terrace area seen on the left side of the road and the construction of the parking lot in an area immediately adjacent to the road's left edge. The trail will create a moderate level of contrast because of the fill slope as its long expanse of exposed soil will create a break in and sharp contrast with the landscape's vegetative pattern. In addition, the railings along the trail's fill slope will constitute a long, linear built element which will contrast with the landscape setting. Although the surface of the parking lot will not be visible, the boulders that will be used to frame its edge along the road will be readily evident and the forms and colors of the cars parked within it will contrast with the surrounding natural landscape.

The changes to this view will be seen by travelers on Calico Basin Road, some of whom are residents of the rural residential area in Calico Basin and many of whom are visitors to the RRCNCA and using the road to access recreational opportunities, which in the future will include those provided by the proposed trail. These viewers are sensitive, and the view of the trail on the edge of the terrace area on the left side of the road would be visible for some of the time viewers are traveling up the road. The levels of contrast created by the trail and the parking lot would be moderate and would not be consistent with the objectives of VRM Class II. To attenuate the impacts of the trail in this area, the fill slopes should be revegetated. To the maximum extent feasible, larger plants removed from the area developed for the trail should be transplanted to the fill slopes to reduce the degree of visual contrast these slopes have the potential to create and in particular, to provide some degree of screening of the fence along the trail with the goal of breaking up its mass and integrating it into the view. The design of the fence along the trail should be refined, using thin railings rather than the wide board-like railings seen in the simulation to help the structure be visually absorbed into its backdrop. In addition, colors for the fence along the trail should be explored to identify a color (possibly an olive green) that will blend in better with the surrounding landscape. To attenuate the visual contrasts created by vehicles parked in the parking lot, the design of the parking lot should be refined to retain islands of larger vegetation within the parking lot to provide partial screening of views into the lot. With implementation of these mitigation measures, the impacts of the project can be reduced to a level that is "Weak" and thus consistent with the objectives of VRM Class II.

7. Conclusions

In three of the views analyzed, the proposed trail, parking lot, and bridges would create moderate levels of contrast with their landscape settings and would thus not be consistent with the VRM Class II designation the RRCNCA RMP assigns to the lands in the NCA. In two of the views (KOPs 1 and 2), the proposed project's inconsistency with the VRM Class II designations can be avoided by building the proposed project on the Alternative 1.a. alignment rather than on the Alternative 1.b. alignment, which places the trail immediately adjacent to SR-159 where there is a high concentration of sensitive viewers and which entails the construction of a relatively sizeable bridge across the Red Rock Wash. Under Alternative 1.a., the proposed project is sited further from the highway in an area where its visibility from the highway will be relatively limited and it does not require the visually prominent bridge that is a part of Alternative 1.b. If the decision is made to develop the trail using the Alternative 1.b. alignment seen in the simulations of the views from KOPs 1 and 2, with implementation of the mitigation measures specified ,the levels of visual contrast can be reduced to a level that is "Weak", bringing the project into conformance with the objectives of VRM Class II. In the view seen from KOP 4, implementation of the mitigation measures specified in the KOP 4 analysis will reduce the levels of contrast to "Weak", bringing the project into consistency with the objectives of VRM Class II. . These mitigation measures touched on here are discussed in the analyses in Section 6 and are listed in Section 8.

As stated in the first paragraph of Section 6, Environmental Consequences, the analysis provided in this document does not include detailed evaluations of the visual effects of the parking lot proposed for non-BLM land on the south side of SR-159 near the trail's northern terminus in Summerlin, the proposed trail bridge crossing Red Rock Wash adjacent to SR-159 near the trail's northern terminus at Sky Vista Drive in Summerlin, the proposed parking lot at the site of the relocated Red Rock Canyon sign, or the proposed minor widenings of SR-159 at the eastbound approaches to Calico Basin Road and Red Rock Visitor Center Road to create deceleration lanes. The visual changes brought about by these components of the proposed project would not be substantial. Because the bridge over Red Rock Wash near the start of the trail in Summerlin would be adjacent and parallel to the SR-159 bridge over Red Rock Wash, the bridge structure would be consistent with the existing bridge and would not stand out as a new element in the landscape. The level of visual contrast with its setting would be low and will be consistent with the VRM II objectives. The levels of visual change associated with the deceleration lanes will be low and the proposed project-related visual changes will be consistent with the VRM II classification applicable to the areas in

which they are located. The visual impacts of the parking lot proposed for the area where the Red Rock Canyon sign will be more substantial in that the lot will be developed in an area of undeveloped desert landscape. However, because it will be developed in an area that is set back from SR-159, views of it for travelers on SR-159 will be screened by intervening desert vegetation that will be left in place, lessening its degree of visual contrast. Application of mitigation measures, particularly retention of islands of larger vegetation within the parking lot to break up the expanse of the lot's surface and provide partial screening of the parked vehicles, will further attenuate its impacts, reducing is potential conflicts with VRM II objectives.

8. Mitigation

In the analyses of the impacts of the proposed project on the views from KOPs 1-4, mitigation measures were identified to attenuate the proposed project's visual effects on those views and to bring the views from KOPs 1, 2, and 4 into compliance with the requirements of VRM Class II.. A summary is provided here of those measures, which should be applied in all areas where the visual changes created by the proposed project have the potential to be seen by sensitive viewers. The list of measures is organized by the proposed project features to which they should be applied.

8.1 Trail

- In all areas where the trail parallels SR-159 and is visible from it, the design team should consider coloring the pavement to reduce its contrast with the color of the nearby desert soil and its surface should be treated in a way that gives it a texture that is not smooth.
- In all areas where the trail parallels SR-159, as much as possible of the existing vegetation that lies between SR-159 and the trail should be retained and additional vegetation should be planted in this zone, particularly in areas where the vegetation can benefit from runoff from the highway and the trail.
- Where feasible, additional vegetation should be planted in bare areas alongside the trail in locations where runoff from the trail can help support the plantings.
- To the extent feasible, vegetation removed from the area developed with the trail should be transplanted to the cut and fill slopes to reduce the degree of visual contrast these slopes have the potential to create.

8.2 Bridges and Railings

- To reduce the visual contrast of the bridge over Red Rock Wash, explore the use of alternative colors, selecting a color (possibly an olive green) that will blend in better with the surrounding landscape.
- The design of the fence on the approach to the bridge and fences used in trail segments along fill slopes like those seen in KOP 4 should be refined to use railings that are thinner and more likely to recede into the view.
- Shrubs removed from the trail alignment should be transplanted in the area in front of the fence along the trail segment approaching the bridge over Red Rock Wash and in front of fences in trail segments along fill slopes to provide partial screening.

8.3 Parking Lots

- To attenuate the visual contrasts created by the parking lots and the vehicles parked in them, the design of the parking lots should be refined to retain islands of larger vegetation within the parking lot to break up the expanse of the parking lot's surface and to provide partial screening of views into the lot.

9. References

Bureau of Land Management (BLM). 1986a. *Handbook H-8410-1, Visual Resource Inventory*.

Bureau of Land Management (BLM). 1986b. *Handbook H-8431-1, Visual Resource Contrast Rating*.

Bureau of Land Management (BLM). 2005. *Red Rock Canyon National Conservation Area Resource Management Plan*.

Bureau of Land Management (BLM). 2009. "Visual Resource Management System." Available at http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/RMS/2.html.

Appendix A
Figures

2.a. Existing view looking west down SR-159.

2.b. Simulation of the view as it would appear with proposed trail Alternative 1.b. and its bridge over Red Rock Wash in place.

Figure 2
KOP 1 - View from SR-159 0.12 Mile West of Sky Vista Drive

3.a. Existing view looking west toward the existing Red Rock sign and the proposed Alternative 1.b trail alignment.

3.b. Simulation of the view as it would appear with removal of the Red Rock sign and with the proposed trail Alternative 1.b. and its bridge over Red Rock Wash in place.

Figure 3
KOP 2 - View from SR-159 East of the Existing Red Rock Canyon Sign

4.a. Existing view from SR-159 looking north-northwest up the depression in which Calico Basin Road is located.

4.b. Simulation of the view as it would appear with development of the trail and of the parking lot in the area north of SR-159 and west of Calico Basin Road.

Figure 4
KOP 3 - View from SR-159 West of the Intersection with Calico Basin Road

5.a. Existing view from Calico Basin Road looking northwest up the road.

5.b. Simulation of the view as it would appear with development of the trail and of the parking lot adjacent to the left side of the road.

Figure 5
KOP 4 - View from Calico Basin Road 0.1 Mile South of the Proposed Trail Crossing

Appendix B
Visual Contrast Rating Worksheets

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: September 2020

District/ Field Office: Red Rock Sloan Field

Resource Area: RRCNCA

Activity (program): Red Rock Trail and Intersections Improvement Project

SECTION A. PROJECT INFORMATION

1. Project Name: **Red Rock Trail and Intersections Improvement Project**	4. Location Township____21S_	5. Location Sketch See Figure 1
2. **Key Observation Point 01 SR-159 Near Summerlin**	Range_____59E_	
3. VRM Class **II**	Section_____3	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Land appears relatively flat in foreground area. Cliff-like forms in the far middleground on the left side of the view. Jagged rock outcrop and mountain forms visible in background.	In the foreground and middleground, a medium fill of Mojave Desert vegetation with a low-lying canopy.	SR-159, with its flat paved surface and slightly sloping edge is the dominant feature in the foreground.
LINE	The edge of the valley floor against the cliff-like forms to the left and the base of the rock outcrops and mountains in the far distance create horizontal, angular lines. The cliff-like forms create a smooth line against the horizon while the jagged rock outcrops and mountains create a jagged line where their tops meet the horizon.	The scattered clumps of low-lying vegetation do not create any discernable lines in the landscape.	SR-159 creates a sharply defined line that cuts through the valley floor.
COLOR	Grayish-tan soils are visible alongside the right side of the SR-159 roadway and between the clumps of vegetation in the immediate foreground. The soils on the bermed area to the left of SR-159 are also grayish tan. The cliff-like features in the far middleground are tones of reddish to chocolate brown. The rock outcrops and mountains in the distance appear reddish brown, tan, and gray.	Greens dominate.	SR-159's asphalt pavement is gray. The graveled area that runs along the road is a light grayish-tan.
TEXTURE	Gravel on the areas of exposed soil in the foreground creates a slightly coarse appearance. The cliff-like feature has a fine-grained texture with striations. The surfaces of the rock outcrops and mountains in the background have textures that are rough, directional, and stippled.	Shrub vegetation appears coarse.	SR-159's paved roadway is smooth. The graveled area that runs along the road is textured.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	The carpet of vegetation clumps that extends from the roadway corridor into the distance would be broken by the insertion of the trail.	A linear trail will be introduced into the landscape near the existing road corridor. A long, low horizontal bridge structure will be visible in the far middleground.
LINE	No change.	The trail will create a line as it passes through the carpet of clumped vegetation in the foreground and middleground.	The trail will introduce an additional line through the landscape that will mirror the line created by SR-159 and the gravel strip that borders it. The linearity of the trail will be reinforced by its edges and the yellow stripe running down its center. The bridge in the middlegound will introduce a short solid line across the landscape.
COLOR	No change.	No change.	The gray color of the trail, its tan edges, and the yellow stripe running down the trail's center will contrast with the colors of the surrounding natural landscape. The dark brown color of the bridge in the middleground will contrast with the light browns in its background and the green of the vegetation in front of it.
TEXTURE	No change.	No change.	The surfaces of the trail and of the bridge visible in the middleground will appear smooth.

SECTION D. CONTRAST RATING SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X			X			X		
	LINE				X			X			X		
	COLOR				X				X		X		
	TEXTURE				X				X		X		

2. Does project design meet visual resource management objectives? Yes X No (Explain on reverse side)

3. Additional mitigating measures recommended X Yes ___No (Explain on reverse side)

Evaluator's Names Date: 9/28/2020
Thomas Priestley, Ph.D. ASLA/AICP

SECTION D. (Continued)

Comments from Item 2

- The major, potentially sensitive viewer groups that would be affected by the action are the drivers and passengers in vehicles traveling along SR-159.
- The orientation of the viewers would be toward the trail in the foreground of the view as they look toward the landmark features in the distance. The views toward the landmark features would not be obstructed by the trail, but the presence of the trail would detract from the currently intact, undeveloped character of the desert landscape in the view's foreground.
- The trail will be in the foreground of the view of travelers for several minutes as they drive from Summerlin to the point where the trail turns and moves away from the road.
- The bridge visible in the middlegound of the view would create a weak contrast with the landscape within which it is seen in this view.

Additional Mitigating Measures (See item 3)

To bring the project into compliance with the standards for VRM Class II:

- To the maximum extent feasible, retain as much as possible of the existing vegetation that lies between SR-159 and the trail and plant additional vegetation in this zone, particularly in areas where the vegetation can benefit from runoff from trail. In addition, where feasible, plant additional vegetation in the now bare areas along the far side of the trail in locations where runoff from the trail can help support the plantings.
- Color the trail's paving material to make it consistent with the prevailing color of the surrounding soil and treat the surface of the paving in a way that gives it a texture that is not smooth appearing.
- Explore alternative colors for the bridge over the wash, selecting a color (possibly an olive green) that will blend in better with the surrounding landscape.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: September 2020

District/ Field Office: Red Rock Sloan Field

Resource Area: RRCNCA

Activity (program): Red Rock Trail and Intersections Improvement Project

SECTION A. PROJECT INFORMATION

1. Project Name: **Red Rock Trail and Intersections Improvement Project**	4. Location Township____21S_	5. Location Sketch See Figure 1
2. **Key Observation Point 2 SR-159 Near the Existing Location of the Red Rock Canyon Sign**	Range_____59E_	
3. VRM Class **II**	Section_____4	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Land appears slightly rolling in foreground area. Jagged rock outcrops in the middleground. Mountain forms visible in background.	In the foreground a mix of low grasses and widely scattered small shrubs. In the far foreground, widely spaced small shrubs on a rocky slope.	Red Rock Canyon sign is carved onto a large rock that is cut with straight sides and a top that comes to a point.
LINE	In the immediate foreground, the area of dark gravel adjacent to SR-159 creates a horizontal line. The rock outcrops in the middleground create jagged lines and the mountain forms along the horizon create lines that are relatively smooth in some places and jagged in others.	The only line created by vegetation in this view appears at the base of the slope in the far foreground where there is a sharp break between the green vegetation on the flatter area and the widely dispersed vegetation on what appears to be a rocky slope.	The sides of the large rock on which the words "Red Rock Canyon" are carved create vertical lines and the cuts on the top create angled lines. The fence posts visible in the near foreground create a series of vertical lines.
COLOR	The gravel that lies along the edge of SR-159 in the foreground of the view is dark gray in color. The soil in the disturbed area around the Red Rock sign is a light gray. The soils in the vegetated area in the near foreground are a light brown. The hillside in the far foreground is a medium brown, the jagged rock outcrops are a mix of areas that are light brown, dark brown, and gray. The mountain forms in the background are a bluish gray.	The clumps of vegetation in the immediate foreground area have a mix of light greens and yellows. The grass visible further in the distance is light brown and the shrubs have an olive-green appearance.	The rock on which the words "Red Rock Canyon" are carved is tan in color. The vertical fence posts are a very dark brown.
TEXTURE	Gravel on the areas of exposed soil in the area along SR-49, in the area around the Red Rock sign, and in the area under the vegetation seen in the foreground creates a coarse appearance. The hillside in the far foreground has a coarse, stippled appearance. The surfaces of the large rock outcrops in the middleground appear coarse. The mountain-like forms in the background have surfaces that appear to have a very fine-grained texture.	Shrub vegetation visible in the foreground and middleground of this view appears coarse.	The rock on which the words "Red Rock Canyon" are carved has a moderately smooth texture. From the distance at which they are seen in this view, the fence posts appear to have a smooth texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Construction of the trail will create a graded slope on the right side of the small hill on which the Red Rock Canyon sign had been located. A small graded slope will be visible along the trail to the right of that hill, a fill slope will be visible just before the crossing of the wash, and small graded areas will be visible along the trail in the far foreground.	The carpet of dispersed vegetation clumps in the immediate foreground of the view will be broken by the insertion of the trail. To the right of the small hill on which the Red Rock Canyon sign is now located, the carpet of low vegetation will be broken by an area of cut slope along the trail and fill slope on the approaches to the bridge over the wash.	The Red Rock Canyon sign will be removed. A linear trail will be introduced into the landscape in immediate proximity to the existing road corridor. A portion of the low horizontal bridge structure and the fences leading up to it will be visible on the right side of the view.

LINE	The combination of the new cut slopes along the trail and the fill slope at the approach to the bridge over the wash will create a horizontal line that will cut across the foreground of the landscape.	The trail will create a line as it passes through the carpet of clumped vegetation in the foreground and middleground.	The trail will introduce an additional line through the immediate foreground of the view that will mirror the line created by the band of dark gray gravel. The linearity of the trail will be reinforced by its edges and the yellow stripe running down its center. Glimpses of the trail seen just beyond the immediate foreground and the new bridge and the new fences leading up to it that seen at the right edge of the view will create a line that cuts across the landscape.
COLOR	The cut slopes and fill slopes associated with the trail will create small areas of light tan soils that contrast with the surrounding landscape	No change.	The gray color of the trail, its tan edges, and the yellow stripe running down the trail's center will contrast with the colors of the surrounding natural landscape. The dark brown color of the bridge at the right edge of the view and of the fence at the approach to it will create a low level of contrast with the browns and dark greens of its background.
TEXTURE	The cut slope and fill areas created by the construction of the trail will create areas of slightly rough texture.	No change.	The surfaces of the trail and of the bridge and fence will appear smooth.

SECTION D. CONTRAST RATING SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM		X					X			X		
	LINE		X					X			X		
	COLOR		X						X		X		
	TEXTURE			X					X		X		

2. Does project design meet visual resource management objectives? Yes X No (Explain on reverse side)

3. Additional mitigating measures recommended X Yes ___No (Explain on reverse side)

Evaluator's Names Date: 9/28/2020
Thomas Priestley, Ph.D. ASLA/AICP

SECTION D. (Continued)

Comments from Item 2

- The major, potentially sensitive viewer groups that would be affected by the action are the drivers and passengers in vehicles traveling along SR-159.
- The orientation of the viewers would be toward the trail in the foreground of the view as they look toward the landmark features in the distance. The views toward the landmark features would not be obstructed by the trail, but the presence of the trail would detract from the currently intact, undeveloped character of the desert landscape in the view's foreground.
- The removal of the rock with "Red Rock Canyon" written on it will remove a feature that is a landmark but which is also an intrusion into the view.
- The bridge visible on the right side of the view would create a weak contrast with the landscape within which it is seen in this view.

Additional Mitigating Measures (See item 3)

To bring the project into compliance with the standards for VRM Class II:

- To the maximum extent feasible, establish new vegetation along the edge of the trail that borders the strip of dark gray gravel along SR-59. In addition, to the extent feasible, transplant plants removed from the area developed for the trail to the cut and fill slopes to reduce the degree of visual contrast these slopes have the potential to create. In addition, use plants removed from the are developed by the trail to revegetate the top of the knoll from which the Red Rock Canyon will be removed. Plant transplanted shrubs in front of the fence along the trail segment approaching the bridge to partially screen views of the fence.
- Color the trail's paving material to make it consistent with the prevailing color of the surrounding soil and treat the surface of the paving in a way that gives it a texture that is not smooth appearing.
- Explore alternative colors for the bridge and for the fence along the trail as it approaches the bridge, selecting a color (possibly an olive green) that will blend in better with the surrounding landscape.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: September 2020

District/ Field Office: Red Rock Sloan Field Office

Resource Area: RRCNCA

Activity (program): Red Rock Trail and Intersections Improvement Project

SECTION A. PROJECT INFORMATION

1. Project Name: **Red Rock Trail and Intersections Improvement Project**	4. Location Township____21S__	5. Location Sketch See Figure 1
2. **Key Observation Point 3 SR-159 Near the Intersection with Calico Canyon Road**	Range_____ 59E__	
3. VRM Class **II**	Section_____ 8	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Land appears gently sloped in the foreground area to the left and more and more steeply sloped in the more distant foreground visible on the right. Jagged rock outcrops in the middleground. Mountain forms visible in background.	On the gently sloped area in the near foreground, a mix of low grasses and scattered shrubs of moderate height. On the slope in the more distant foreground, grasses and widely spaced shrubs on a rocky slope.	SR-159, with its flat paved surface is the dominant feature in the immediate foreground. The flat surface of Calico Basin Road can be seen angling through the foreground landscape on the right side of the view.
LINE	Where the edge of the slightly rolling area in the foreground butts up against the jagged rock outcrops, a straight line is created. Where the sloped area in the far foreground meets the rock outcrops a set of angled lines is created. The tops of the rock outcrops in the middleground create jagged lines and the mountain forms along the horizon create lines that are relatively smooth in some places and jagged in others.	On the right side of Calico Basin Road, there is a line of large, dark green shrubs that create a line that angles through the landscape.	The edge of the SR-159's pavement edge and the stripes painted on SR-159 create sharply defined straight lines. The pavement of Calico Basin Road creates a straight line that angles through the landscape. The fence posts visible in the area along SR-159 foreground create a series of vertical lines.
COLOR	The exposed soil visible in the area adjacent to SR-159 has a very light brownish gray color. The surfaces of the jagged rock outcrops are a mix of areas that are light brown, slightly reddish brown, light gray, and bluish gray. The mountain forms in the background are a bluish gray with light gray stripes	The clumps of vegetation visible in this view have an olive-green appearance. The grasses are tan in color.	The surface of SR-159 is several tones of gray. In this view, the surface of Calico Basin Road appears to be light brown. The vertical fence posts are a very dark brown.
TEXTURE	Gravel on the areas of exposed soil in the area along SR-159 foreground creates a coarse appearance. The surfaces of the large rock outcrops in the middleground appear coarse while the mountain-like form in the background appear to have a fine-grained texture.	Shrub vegetation visible in the foreground and middleground creates a stippled texture	The surfaces of the roadways seen in this view appear to have a texture that is generally smooth. From the distance at which they are seen in this view, the fence posts appear to have a smooth texture.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Construction of trail will create graded slopes that will be visible on the steeply sloped area on the right side of the view and the more gently sloped area on the view's left side.	The carpet of dispersed vegetation clumps in the immediate and more distant foreground of the view will be broken by the insertion of the trail.	The surfaces of the trail will not be visible in this view. Because the parking lot that will be developed on the west side of the Calico Basin Road will be screened by the intervening vegetation, the surface of the lot will not be visible in this view. However, the vehicles in the lot will be partially visible to occupants of vehicles on SR-159 that are low to the road and will be more readily visible to occupants of taller vehicles.
LINE	The new cut slopes that will be required for development of the trail create horizontal lines that will cut across the steeply sloped area to the right and the more gently sloped area to the left.	The trail will create a line as it passes through the carpet of grasses and dispersed shrubs vegetation on the slopes visible in this view.	Because the surface of the trail will not be visible in this view, the trail itself will not create any lines in this view. However, the grading that development of the trail will require will create lines of contrasting soil color on the sloped areas in the view's foreground. The parking area will be screened by the intervening vegetation and will create no lines.

COLOR	The cut slopes associated with the trail will create linear areas of light tan soils that contrast with the surrounding landscape	No change.	Because the surfaces of the trail and parking lot will not be visible in this view, they will have no direct effect on the colors seen in the view. Indirectly, the cut slopes associated with the trail will create linear areas of light tan soils that contrast with the surrounding landscape. The vehicles visible in the parking lot just north of SR-159 will add small areas of contrasting color.
TEXTURE	The cut slope areas created by the construction of the trail will create areas that will appear smooth at the distances at which they will be seen in this view.	No change.	No change

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES												2. Does project design meet visual resource management objectives? _X_ Yes __No (Explain on reverse side) 3. Additional mitigating measures recommended X Yes ___ No (Explain on reverse side) Evaluator's Names Date: 9/28/2020 Thomas Priestley, Ph.D. ASLA/AICP
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	
ELEMENTS	FORM		X					X				X		
	LINE		X					X				X		
	COLOR		X						X			X		
	TEXTURE			X					X			X		

SECTION D. (Continued)

Comments from Item 2

- The major, potentially sensitive viewer groups that would be affected by the action are the drivers and passengers in vehicles traveling along SR-159.
- The primary orientation of the viewers would be straight ahead, looking down SR-159. Because the view captured in this photo would be a view toward the side for travelers on the highway, it would be a fleeting view that would last just for the short amount of time it would take for a fast-moving vehicle to traverse this segment of the roadway.

Additional Mitigating Measures (See item 3)

- Revegetate the cut slopes, and to the maximum extent feasible, transplant plants removed from the area developed for trail to the cut slopes to reduce the degree of visual contrast these slopes have the potential to create.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: September 2020

District/ Field Office: Red Rock Sloan Field Office

Resource Area: RRCNCA

Activity (program): Red Rock Trail and Intersections Improvement Project

SECTION A. PROJECT INFORMATION

1. Project Name: **Red Rock Trail and Intersections Improvement Project**	4. Location Township____21S__	5. Location Sketch See Figure 1
2. **Key Observation Point 4 Calico Canyon Road South of the Proposed North Parking Lot**	Range_____ 59E__	
3. VRM Class **II**	Section_____ 5	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Vertical road cuts seen in the immediate foreground, as well as a wide flat surface that parallels the road's right side. There is a relatively flat terrace area above the cut that transitions to a sloped area that leads up to the base of jagged rock outcrops. In the background, mountain forms are visible.	In the area along the road, several widely spaced, small trees with spreading canopies are visible. On the terrace area, there a carpet of grasses, shrubs and small trees. Grasses and widely spaced shrubs are visible on the slope that extends up to the rock outcrops. In the Calico Basin rural residential area visible in the middleground, a small, dense plantation of vertical evergreen trees is visible.	Calico Basin Road, with its flat paved surface is the dominant feature in the immediate foreground. In the middleground, structures and utility poles in the Calico Basin rural residential area are visible.
LINE	The tops and bases of the road cuts along Calico Basin road create lines through the foreground of the view. Where the slopes above the terrace area meet the rock outcrops angled lines are created. The tops of the rock outcrops create jagged lines and the distant mountain forms along the horizon create lines that are relatively smooth.	The vegetation visible in the areas along the immediate west side of Calico Basin Road create a weak horizontal line.	The edges of Calico Basin Road's pavement and the stripes painted on the road create sharply defined undulating lines.
COLOR	The exposed soils visible in the area adjacent to Calico Basin Road have a very light brownish gray color. The rocks and soils in the road cut visible to the left of the road have a slightly reddish-brown color. The surfaces of the jagged rock outcrops are a mix of areas that are light brown and slightly reddish- brown. The mountain forms in the background are a bluish gray with light gray stripes	The clumps of vegetation visible in this view have an olive-green appearance. The grasses are tan in color.	The surface of Calico Basin Road has several tones of gray and has white stripes on its edges and a faint yellow stripe down its center.
TEXTURE	The areas of gravel and exposed soil along the edges of Calico Basin Road have a low level of coarseness. The road cut along the road has a coarse appearance. The surfaces of the large rock outcrops appear coarse while the mountain-like forms in the background appear to have a fine-grained texture.	The mosaic of vegetation visible in the foreground and middleground has a stippled texture.	The surface of Calico Basin Road seen in this view has a texture that appears smooth.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Construction of the trail will create fill slopes that will be visible relatively close to the left side of Calico Basin Road. The rounded forms of the boulders that will be placed around the proposed parking lot will be visible along the edge of the roadway in the far foreground of the view.	The carpet of vegetation that now extends from the roadway, across the terrace area and up the slope beyond it will be broken by the insertion of the trail.	The surfaces of the trail will not be visible in this view, but the horizontal and vertical forms of the wooden fencing along it will be. The surface of the parking lot that will be developed the west side of the Calico Basin Road will not be visible, but the low rounded boulders that will be placed along the edge of the road will be readily evident. When present, the rectangular forms of the vehicles that will be parked in the parking lot will also be visible.

LINE	The fill slopes that will be required for development of the trail will create a horizontal line through the terrace area in the foreground of the view.	The trail will create a line as it passes through the carpet of grasses and dispersed shrubs and small trees in the terrace area in the view's foreground.	Because the surface of the trail will not be visible in this view, the trail itself will not create any lines in this view. However, the fill slope that will be required to accommodate the trail will create lines of contrasting soil color on the sloped areas in the view's foreground. In addition, the fence that will be built along the trail will create a strongly contrasting line through the landscape. The boulders placed along the roadway edge of the parking area will create a short, weakly defined line along Calico Basin Road.
COLOR	The fill slope constructed to accommodate the trail will create a linear area of brown, slightly reddish soil.	No change.	Because the surfaces of the trail and parking lot will not be visible in this view, they will have no direct effect on the colors seen in the view. Indirectly, the cut slopes associated with the trail will create a linear area of brown, slightly reddish soil. The dark brown color of the wooden fence along the trail will contrast with its backdrop. The boulders that will be placed along the roadway edge of the new parking area will have a light brown color that is similar to the color of the soils and gravel along the roadway's edge. At times when vehicles are present in the parking lot, they will add small areas of color to the view.
TEXTURE	The fill slope area created by the construction of the trail will create an area with a rough texture.	No change.	The surfaces of the fence that will extend along the trail will be smooth, but the overall effect of the fence will be to create a linear textured pattern.

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM		X				X				X		
	LINE		X				X				X		
	COLOR		X						X		X		
	TEXTURE			X					X			X	

2. Does project design meet visual resource management objectives? __Yes X No (Explain on reverse side)

3. Additional mitigating measures recommended X Yes ___ No (Explain on reverse side)

Evaluator's Names Date: 9/28/2020
Thomas Priestley, Ph.D. ASLA/AICP

SECTION D. (Continued)

Comments from Item 2

- The major, potentially sensitive viewer groups that would be affected by the action are the drivers and passengers in vehicles traveling along Calico Basin Road.
- The primary orientation of the viewers would be straight ahead, looking up Calico Basin Road, and would be a view of moderate duration.

Additional Mitigating Measures (See item 3)

- Refine the design of the fence along the trail, using thin railings rather than the wide board-like railings seen in the simulation.
- Explore alternative colors for the fence along the trail, selecting a color (possibly an olive green) that will blend in better with the surrounding landscape.
- Revegetate the fill slopes, and to the maximum extent feasible, transplant plants removed from the area developed for the trail to the fill slopes to reduce the degree of visual contrast these slopes have the potential to create and, in particular, to provide some degree of screening of the fence along the trail with the goal of breaking up its mass and integrating it into the view.
- Refine the design of the parking lot to retain islands of vegetation within the lot and to retain vegetation and establish new vegetation in the portion of the lot close to the road to screen the views from the road toward the parked vehicles.