UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
St. George Field Office
4001 East Aviator Drive
St. George, UT 84790

DECISION RECORD
for the Northern Corridor Highway Right-of-Way Project
DOI-BLM-UT-C030-2025-0041-EA

I. DECISION

The Bureau of Land Management (BLM) has prepared an environmental assessment (DOI-BLM-UT-C030-2025-0041-EA) (EA) to reassess an application from the Utah Department of Transportation (UDOT) requesting a right-of-way (ROW) for the Northern Corridor, a proposed highway in Washington County, Utah. The environmental impacts of the ROW application were previously analyzed in the 2024 *Final Supplemental Environmental Impact Statement To Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, UT* (DOI-BLM-UT-C030-2023-0038-EIS) (2024 Final SEIS) and the 2020 *Final Environmental Impact Statement to Consider a Highway Right-of-Way, Amended Habitat Conservation Plan and Issuance of an Incidental Take Permit for the Mojave Desert Tortoise, and Proposed Resource Management Plan Amendments, Washington County, UT* (DOI-BLM-UT-C000-2020-0001-RMP-EIS) (2020 Final EIS). Following the 2024 Final SEIS, the Department of the Interior (Department) issued a Record of Decision (2024 ROD) terminating the existing ROW and endorsing the Red Hills Parkway Expressway alternative. The BLM prepared the EA in response to additional information provided by UDOT demonstrating the technical and economic infeasibility of the Red Hills Parkway Expressway alternative. Upon reassessment, the BLM now issues this Decision, which supersedes the 2024 ROD.

Based on the analyses in the EA, which includes and incorporates the 2024 Final SEIS and 2020 Final EIS by reference, consideration of public comments, consultations with Tribes and other Federal, state, and local agencies, and a review of applicable Federal laws, regulations, and agency policies, it is the Department's decision to grant a ROW under Title V of the Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1761-1771) to UDOT (UTUT106052586), described as the UDOT ROW Alignment in Section 2.2 of the EA and further described in Sections 2.2 and 2.2.3 of the 2020 Final EIS, Section 2.3.1 of the 2024 Final SEIS, and the Plan of Development included as Attachment C to this Decision.

After a thorough review of the analysis, this Decision affirms that all practicable means to avoid, minimize, and otherwise mitigate for impacts of the selected route have been considered and adopted as part of this Decision. Specifically, and limited to Federal lands administered by the BLM, this Decision approves the issuance of a grant authorizing the construction, operation, maintenance, and potential decommissioning of a transportation ROW, which will be eligible for renewal. The ROW will be up to 500 feet in width, approximately 1.9 miles long, and will encumber approximately 126 total acres of BLM-administered land, as shown in Map 2 in

Attachment A of this Decision. The term of the ROW will be 30 years with the right of renewal, consistent with Section 504(b) of FLPMA (43 United States Code [U.S.C.] 1764(b)). The ROW would include all mitigation measures, terms and conditions, and stipulations listed in Section I.A and Attachment D of this Decision.

As explained in Sections II.B, II.C, and IV, this Decision complies with both the Omnibus Public Land Management Act of 2009 (OPLMA) and the Land and Water Conservation Fund (LWCF) Act.

A. Mitigation Measures

An application, prior to any approval, must include any elements (including stipulations, conditions, or best management practices) designed to reduce or preclude adverse environmental effects that are required to make the application conform to applicable legal requirements, as well as any such design elements the applicant may volunteer to include. While NEPA requires the Department's bureaus to consider reasonable mitigation measures, it does not require them to evaluate or select any specific form of mitigation. As part of its consideration of the ROW grant, the BLM evaluated the project's application of avoidance, minimization, and other mitigation measures to reduce the environmental impacts of the project and meet resource management goals and objectives outlined in OPLMA and the Red Cliffs National Conservation Area (NCA) Resource Management Plan (RMP). Multiple types of measures have been applied, including design features, terms and conditions, Notice to Proceed (NTP) requirements, and mitigation measures. Design features include measures that UDOT will implement as standard practice of construction, operation, or maintenance, as well as applicant-committed measures to address potential impacts of the project. These design features include measures in UDOT's Plan of Development and best management practices outlined in the Red Cliffs NCA RMP. Terms and conditions, NTP requirements, and mitigation measures are those measures that could reduce or avoid adverse impacts and have not been incorporated into the proposed action or an action alternative; instead, they are applied as part of the Decision.

1. Design Features of the Proposed Action

The Plan of Development in Attachment C of this Decision contains a list of the design features of the proposed action for environmental protection. Applicable best management practices identified in the Red Cliffs NCA RMP have also been included in Attachment D as terms and conditions of the ROW grant.

2. Terms and Conditions

Terms and conditions and NTP requirements were developed to address standard BLM practice for ROWs and would be in addition to the applicant-committed design features.

- Completion of Final Plan of Development: Prior to any ground disturbing activity, a NTP shall be required. To obtain a NTP to allow the initiation of construction of the roadway, UDOT is required to submit a Final Plan of Development (POD) to the BLM. The Final POD will identify the site-specific ROW needs and disturbance areas, include maps of all proposed facilities, site-specific construction actions, temporary work areas, and any other

facilities required for the project. The Final POD will also identify the site-specific application of design features and mitigation measures as required in the Decision issued by the BLM. The BLM may issue interim NTPs for specific actions such as data collection, implementation of required mitigation, and other actions that may occur in advance of commencing construction of the roadway.

- ROW Stipulations and Red Cliffs NCA RMP Best Management Practices: Attachment D of the Decision includes a list of conditions and stipulations that represent standard requirements and management objectives for ROWs developed within the Red Cliffs NCA.

3. Mitigation Measures

The analysis contained in the EA, including the 2024 Final SEIS and 2020 Final EIS, was used to evaluate the potential need for the following mitigation measures.

- Lands acquired with Endangered Species Act of 1973 (ESA) Section 6 funding: Prior to construction, the United States Fish and Wildlife Service (FWS) will make a determination of the value of all lands that were acquired with ESA Section 6 funding and will no longer serve their intended purpose due to the encumbrance of the approved ROW. The State of Utah shall compensate the FWS in the form of the transfer of an undivided pro-rate share of real property, replacement with real property of equal value that meets the intended long-term conservation goals, and/or repayment of the grant funds at fair market value. Compensation would be completed using non-federal dollars, and the conditions of compensation are subject to negotiation between the FWS and the State of Utah.
- Off-site Habitat Restoration: The BLM, FWS, the State of Utah's Watershed Restoration Initiative (WRI), and other stakeholders (referred to in this paragraph as "the partners") will continue their collaborative efforts to enhance the condition and resilience of the Zone 3 sub-population of the Mojave desert tortoise by improving habitat conditions and/or protecting habitat from future wildfires in areas away from the proposed Northern Corridor. Building upon their well-established cooperative relationship, the partners will secure funding, collaboratively design and prioritize projects, and share resources to implement habitat restoration at a level beyond what would have been achieved without the Northern Corridor, ultimately benefitting the Mojave Desert tortoise within the NCA. Acres and locations of treatments may vary from year to year based on availability of funding, new survey data, changes in conditions (e.g., wildfires), and other factors that will guide the partners to apply resources where they will achieve the most substantial benefits for the species. The partners will work toward restoring habitat every year, regardless of larger restoration projects that occur as a response to wildfires. When the ROW was initially granted in 2021, a total acreage of approximately 2,600 acres (10.5 square kilometers) of successfully restored habitat was identified as the goal to be achieved over the 25-year term of the *Habitat Conservation Plan for Washington County, Utah, Restated and Amended* (Amended HCP). This goal was exceeded in 2025 with 2,812 acres completed through a mix of herbicide, seeding, chaining, and other treatment methods performed over multiple years. The partners will continue to build on this achievement by identifying future funding opportunities and designing treatments that will maximize the benefit to the habitat within Zone 3.

A complete list of the measures that will be required as part of the ROW grant, including all standard stipulations, terms and conditions, and mitigation measures, has been included in Attachment D of this Decision. Additional measures that were proposed as design features in UDOT's Plan of Development are included in Attachment C.

II. COMPLIANCE AND CONFORMANCE WITH LAW

The statutory authority designating the Red Cliffs NCA is Section 1974 of OPLMA (Public Law 111-11, Title I, Subtitle O, Section 1974), which is codified at 16 U.S.C. 460www. The Congressionally defined purpose of the 45,000-acre NCA is to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the Red Cliffs NCA and to protect each species that is located in the NCA and listed as a threatened or endangered species under the ESA. Section 1974 of OPLMA also states that the NCA shall be managed by the Secretary of the Interior through the BLM and that the Secretary shall only allow uses of the NCA that the Secretary determines would further a purpose for which the NCA was designated.

Section 1977 of OPLMA further instructs the Secretary to develop a comprehensive travel management plan for the land managed by the BLM in Washington County in accordance with FLPMA (43 U.S.C. 1701 et seq.), and provides the following direction: "in developing the travel management plan, the Secretary shall— (A) in consultation with appropriate Federal agencies, State, tribal, and local governmental entities (including Washington County and St. George City, Utah), and the public, identify one or more alternatives for a northern transportation route in the County..."

The NCA boundary generally follows the boundary of the Red Cliffs Desert Reserve (Reserve), a multi-jurisdictional land base that has been collaboratively managed by the BLM, the State of Utah, Washington County, and local municipalities since 1996 to protect Mojave Desert tortoise. Prior to the designation of the NCA, these public lands were managed to support the Reserve, which was established by the 1995 *Habitat Conservation Plan, Washington County, Utah* (1995 HCP) to offset the development of private lands and the incidental take of Mojave Desert tortoise elsewhere in Washington County. The NCA represents 74% of the lands within the larger Reserve. As a signatory to the 1995 HCP Implementation Agreement, the BLM committed to acquiring private lands within the Reserve for two primary purposes: (1) the consolidation of land tenure; and (2) the acquisition of wildlife or threatened and endangered species habitat. The BLM has continued to pursue these twin purposes since the NCA was established, and many of the acquisitions made within the now-NCA were paid for with funding from the Land and Water Conservation Fund.

As detailed below and in Section IV, the BLM has determined this Decision is compatible with applicable law, regulation, and policy, including that specific to management of the Red Cliffs NCA.

A. Federal Land Policy and Management Act

Section 302(a) of FLPMA (43 U.S.C. 1732[a]) states that public lands are to be managed "under principles of multiple use and sustained yield . . . except that where a tract of such public land has been dedicated to specific uses according to any other provision of law it shall be managed in

accordance with such law." As discussed further in Section II.B of this Decision, Congress designated the Red Cliffs NCA as part of OPLMA and dedicated the lands within the NCA to specific purposes. Through the analyses in the EA, 2020 Final EIS, and 2024 Final SEIS, the BLM evaluated whether UDOT's ROW application was consistent with the statutory purposes and management prescriptions of the NCA and found it to be so.

B. Omnibus Public Lands Management Act

This Decision complies with both Sections 1974 and 1977 of OPLMA (16 U.S.C. 460www; 123 Stat. 1088-91) because it gives meaning to both sections, furthers certain purposes of the Red Cliffs NCA, and allows the BLM to identify and fully consider a transportation route in northern Washington County.

Section 1974(b)(2) states that the Secretary, through the BLM, "shall only allow uses of the [NCA] that the Secretary determines would further *a* purpose described in subsection (a)." 16 U.S.C 460www(b)(2) (emphasis added). The list of purposes in subsection (a) include recreation, scenic, and educational resources of the NCA. As explained in Section IV of this Decision, the ROW will enhance these purposes by providing a new paved hike and bike path for recreation and scenic views that will benefit certain members of the public. This path will also further the educational purpose of the NCA by including additional interpretive displays that inform the public about the history and other purposes of the NCA. Therefore, this Decision satisfies the management requirement Congress gave the BLM and ensures that the agency fulfills the instructions provided in Section 1974.

The BLM's authority to issue a road ROW through the NCA is confirmed by reading Section 1974 in harmony with Section 1977 of the same law, which requires the BLM to "identify 1 or more alternatives for a *northern* transportation route in [Washington] County." 123 Stat. 1088-89 (2009); Public Law 111-11, Title I, Subtitle O, Section 1977; (emphasis added). At the time Congress enacted OPLMA, the only BLM-managed lands located north of the city of St. George in Washington County were those lands in the Reserve/Red Cliffs NCA. The BLM must assume that Congress was aware of this fact. Therefore, the BLM understands Section 1977 to instruct the agency to identify and consider a ROW in the NCA and to permit it to authorize such a route through the NCA—even if it may impact some purposes for which the NCA was designated—because there is no other viable BLM-administered land that can reasonably support a ROW of this size or meet the Applicant's needs in northern Washington County.

As discussed in this Decision and further analyzed in the EA, 2024 Final SEIS, and 2020 Final EIS, the BLM has determined that granting a ROW for the UDOT ROW Alignment appropriately gives meaning to the legislative instructions in both Sections 1974 and 1977. Contrary to certain public comments, the BLM cannot elevate Section 1974 above Section 1977 because that would violate a basic tenet of statutory construction, which requires the agency to give effect to all provisions in a statute so that no individual section is rendered superfluous. Here, the Decision to issue the ROW furthers the recreational, scenic, and educational purposes of the NCA, which is consistent with the explicit instruction in Section 1974(b)(2). Further, the Decision also allows the BLM to identify one or more alternatives for a northern transportation route in a future comprehensive travel and transportation management plan, which is consistent with the explicit instruction in Section 1977.

C. Land and Water Conservation Fund Act

The Land and Water Conservation Fund (LWCF) Act of 1965 (54 U.S.C. 200301 et seq.) (LWCF Act) established a funding source to assist the Federal agencies and States in acquiring certain lands for certain recreation and other conservation purposes. The LWCF has a Federal agency component (54 U.S.C. 200306) and a State and local government component (54 U.S.C. 200305), which have different uses and requirements. For Federal land management agencies such as the BLM, the LWCF may be used to purchase private in-holdings to meet certain resource management objectives. For State and local governments, funds from the LWCF are allocated to a State for the planning, acquisition, and development of needed land and water public outdoor recreation projects. Section 6(f)(3) of the LWCF Act, as described in 36 Code of Federal Regulations (CFR) § 59.3(a), is the cornerstone of Federal efforts that ensure Federal investments in State LWCF assistance are being maintained for public outdoor recreation use. Once land has been purchased or developed (partially or entirely) with LWCF assistance from the State side of the LWCF program, it cannot be wholly or partially converted to a use other than public outdoor recreation use(s) without the approval of the National Park Service. The LWCF Act, as amended, does not include these provisions for funds allocated for Federal purposes. Lands acquired for Federal purposes are administered by the respective Federal land management agency and subject to other laws.

Since the establishment of the Reserve, and in accordance with the 1995 HCP Implementation Agreement, the BLM has acquired private property parcels for the purposes of land tenure consolidation and wildlife habitat acquisition. The majority of these acquisitions were made with LWCF funds and consistent with the agency's acquisition authority under Section 205 of FLPMA (43 U.S.C. 1715), which post-dates the LWCF Act and is part of the larger comprehensive statutory scheme for public lands management. All Federal fee-lands acquired with LWCF funds that would be impacted by the UDOT ROW Alignment are managed by the BLM (2020 Final EIS Map 3.16-1). In addition to these fee-lands, the BLM also acquired a conservation easement over certain lands owned by the City of St. George within the UDOT ROW Alignment, but the BLM cannot issue a ROW over lands it does not own in fee. 43 CFR § 2802.10.

Consistent with the 1995 HCP Implementation Agreement, the wildlife habitat acquired was for the endangered Mojave Desert tortoise. The BLM is unaware of any express statutory or regulatory provision prohibiting the issuance of a ROW over portions of these NCA lands. The BLM's review of the warranty deeds did not reveal any reference to LWCF, limitations on additional encumbrances, or other restrictions on the parcels within the UDOT ROW Alignment. Lands that are acquired pursuant to 43 U.S.C. 1715 are subsequently managed in accordance with the governing land use plan; here, the Red Cliffs NCA RMP. The Red Cliffs NCA RMP contemplates issuing ROWs over acquired NCA lands (LAR-12). Regardless, UDOT has included a measure in the Plan of Development (Attachment C) to make reasonable efforts to comply with any specific requirements applicable to impacted LWCF parcels.

The BLM has also reviewed the prior Appropriations Acts that authorized the acquisitions of LWCF parcels within the Reserve and/or NCA that were potentially impacted by the UDOT ROW Alignment. Based on this review, both the purchases and planned management are consistent with the Appropriations Acts because so few acres will be impacted and the larger purposes for the acquisitions will continue to be met. Further, the conveyance documents for each of the acquisitions in the UDOT ROW Alignment did not include any express prohibitions against encumbrances or reference any Appropriations Acts.

Therefore, due to the small amount of acreage potentially encumbered within the ROW corridor under the UDOT ROW Alignment, the encumbered lands will continue to fulfill wildlife habitat purposes in the NCA and the ROW is not inconsistent with the LWCF Act.

D. National Historic Preservation Act

Granting a ROW for the Northern Corridor is a Federal undertaking that requires the BLM to comply with the provisions of Section 106 of the National Historic Preservation Act (54 U.S.C. 306108) (NHPA). Section 106, through its implementing regulations at 36 CFR Part 800, directs Federal agencies to consider the effects of their undertakings on historic properties (defined as resources listed to or eligible for listing to the National Register of Historic Places) and provide the State Historic Preservation Officer (SHPO), culturally affiliated Tribes, and other consulting parties with an opportunity to comment on those undertakings.

When there will be adverse effects to historic properties, the agency must make binding commitments to avoid, minimize, or mitigate those effects in the decision.

Following the approval of the two RODs associated with the 2020 Final EIS (2021 RODs), seven conservation organizations (collectively, Plaintiffs) filed an initial complaint in the United States District Court for the District of Columbia, Case No. 1:21-cv-01506. Among other claims, plaintiffs alleged the BLM's ROW decision violated both NEPA and the NHPA. On August 30, 2023, a Settlement Agreement (No. 1:21-CU-01506-ABJ) was reached between the BLM and Plaintiffs. On November 16, 2023, the United States District Court for the District of Columbia granted the United States' request for voluntary remand of the 2021 RODs to the FWS and BLM for reconsideration.

In the 2023 Settlement Agreement, the BLM agreed to complete its Section 106 consultation for the Northern Corridor undertaking. To satisfy this commitment, and recognizing that this project is a complex undertaking, the BLM developed and executed a Programmatic Agreement with the Utah SHPO, Invited Signatories, and Concurring Parties, in accordance with 36 CFR § 800.14(b)(3), following consultations with 14 Consulting Parties (see section 4.2.2 of the 2024 Final SEIS for details). A Programmatic Agreement records the terms and conditions agreed upon to resolve the potential adverse effects of a complex undertaking or one in which the agency cannot fully determine how the particular undertaking may affect historic properties, or the location of historic properties and their significance and character, prior to approving the undertaking. The Programmatic Agreement was executed by the BLM and the SHPO and became effective on November 1, 2024.

As part of the BLM's reassessment of the original ROW application, the agency removed the Red Hills Parkway Expressway alternative from consideration. Additionally, since the Department terminated the ROW grant in December 2024, the descriptions of the alternatives in the Programmatic Agreement no longer reflected current conditions. Through the amendment process outlined in Stipulation X of the Programmatic Agreement, the BLM and the SHPO agreed to update the language to reflect the current status of the alternatives being considered in the reassessment of the ROW application. The amended Programmatic Agreement was circulated to Invited Signatories for review and signature before approval by the BLM and SHPO as Signatories. The amended Programmatic Agreement was executed and became effective on January 5, 2026.

E. Endangered Species Act

Section 7(a)(2) of the ESA (16 U.S.C. 1536(a)(2)) requires that each Federal agency ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. If an agency determines a proposed action may affect listed species or designated critical habitat, consultation between that agency and the FWS is required under Section 7 of the ESA. The ROW application occurs within habitat for the Mojave Desert tortoise, which is a listed species. Section 3.5 of the 2020 Final EIS, Section 3.5 of the 2024 Final SEIS, and the BLM's Biological Assessment associated with the EA—which the agency submitted to the FWS on October 2, 2025—document the expected impacts to the species and habitat, including designated critical habitat.

The BLM has completed the formal consultation with the FWS under Section 7 of the ESA regarding the potential impacts of the ROW. The FWS issued a Biological Opinion on November 25, 2025.

F. Red Cliffs National Conservation Area Resource Management Plan

Since 2009, the BLM has endeavored to balance the competing instructions in Sections 1974 and 1977. In 2016, when the BLM completed the Red Cliffs NCA RMP, it considered a conceptual northern corridor as one alternative in response to a request from Washington County. However, the agency ultimately selected a different alternative that established a ROW avoidance area, which could potentially accommodate a future northern corridor route. Under the 2016 Red Cliffs NCA RMP, an avoidance area is an area identified through resource management planning to be avoided, but that may be available for ROW location with special stipulations. At that time, the BLM explained to Congress that a "plain reading of the statute (OPLMA section 1977[b][2]) does not direct the BLM to [approve or otherwise establish a transportation route through the Red Cliffs NCA]. Instead, the Act prohibits such a route through the NCA unless it furthers one of the purposes for which the NCA was established."[1]

When UDOT submitted the ROW application in 2018, the application sought a ROW in the NCA that was larger than the avoidance area could accommodate and, thus, could not be fully considered without also amending the Red Cliffs NCA RMP. As part of the consideration of the ROW application in 2020, the BLM also considered amendments to the Red Cliffs NCA RMP that allowed a one-time exception to LAR-13 Criteria E for the issuance of a FLPMA Title V ROW within the existing ROW Avoidance Area for the Northern Corridor project, amended VRM-07 to manage the Northern Corridor ROW as BLM Visual Resource Management Class IV, and amended REC-05 to manage the 600-foot-wide area around the selected route for the Northern Corridor as part of the Rural Recreation Management Zone.

The Secretary of the Interior approved the amendments to the Red Cliffs NCA RMP and issuance of the ROW grant on January 13, 2021. The decision was challenged and after reaching a settlement with Plaintiffs on August 30, 2023, the BLM prepared a Supplemental EIS to reconsider the ROW. However, the amendments to the Red Cliffs NCA RMP were not reconsidered at that

[1] While this Decision may be construed as being inconsistent with BLM's prior interpretations of and statements regarding Sections 1974 and 1977, it is consistent with a plain reading of the statute and the principles of statutory construction because it gives meaning to both Sections at issue.

time and remain in place as approved in 2021. The issuance of a ROW through the NCA conforms to the current management objectives of the Red Cliffs NCA RMP.

III. PUBLIC INVOLVEMENT

The BLM issued a news release and posted the EA for public comment on the BLM NEPA Register for 30 days from October 3, 2025, to November 3, 2025. The BLM received 6,804 comments.

Substantial opportunities for public involvement have also been conducted for the proposed ROW since 2019 as outlined in Section 5.1 of the 2024 ROD and Sections 5.1 and 5.2 of the BLM's 2021 ROD.

IV. RATIONALE FOR DECISION

The UDOT ROW Alignment has been selected with the aid of the EA, 2024 Final SEIS, 2020 Final EIS, input provided by the public and various stakeholders, applicable statutes, and other important factors. As documented in the Finding of No New Significant Impact, the BLM determined that the alternatives described in Chapter 2 of the EA will not significantly affect the quality of the human environment beyond the impacts already described in the 2020 Final EIS and 2024 Final SEIS. Additionally, the BLM has not identified any additional environmental effects that would exceed those effects described in the 2020 Final EIS and 2024 Final SEIS. Therefore, an EIS to analyze new effects is not required.

As discussed in Section II.B of this Decision, a principal consideration was the need to implement and balance the Congressional directives in OPLMA, which includes two mandates pertaining specifically to the BLM. First, Section 1974 established the Red Cliffs NCA "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and to protect each species that is— (A) located in the National Conservation Area; and (B) listed as a threatened or endangered species on the list of threatened species or the list of endangered species published under section 4(c)(1) of the Endangered Species Act of 1973 (16 U.S.C. 1533(c)(1))." Additionally, OPLMA states that the "Secretary shall only allow uses of the National Conservation Area that the Secretary determines would further a purpose" for which the NCA was designated.

Section 1977 of OPLMA states that "the Secretary shall, in consultation with appropriate Federal agencies, State, tribal, and local governmental entities (including the County and St. George City, Utah), and the public, identify 1 or more alternatives for a northern transportation route in the County." As shown in Map 1 in Attachment A, the only land managed by the BLM north of St. George in Washington County, both currently and at the time OPLMA was passed, is located within the Red Cliffs NCA. There is no other viable BLM-managed land that can reasonably support a northern transportation route in the County. Consequently, the BLM construes Section 1977 as Congressional directive to identify and allow a northern transportation route through the NCA, even if such a route may impact some resources of the NCA. As stated above, this interpretation gives meaning to both Sections 1974 and 1977 of OPLMA and complies with a basic tenet of statutory construction requiring the agency to give effect to all provisions of a statute so that no individual section is rendered superfluous.

The 2024 ROD also sought to read Sections 1974 and 1977 together to give effect to both provisions. The Department stated that "harmonizing the direction in the two sections requires BLM to authorize a route for the ROW that minimizes impacts on the values of the NCA. In other words, if there is more than one viable route alternative (as there is in this case), BLM must select the one that minimizes impacts on the NCA resources to be protected." The Department then endorsed the Red Hills Parkway Expressway alternative.

However, the 2024 ROD was based on a faulty factual premise; namely, that "more than one viable route alternative" existed. As explained in Section I of this Decision, and further detailed in the EA, additional information provided by UDOT after finalization of the 2024 ROD demonstrates that the Red Hills Parkway Expressway alternative is not technically or economically feasible. In other words, this alternative is not a viable alternative for a northern transportation route in the County, as required by Section 1977 of OPLMA. Thus, by endorsing a non-viable route, the Department failed to give any effect to Section 1977.

With the exclusion of the Red Hills Parkway Expressway alternative, Section 1977 of OPLMA remains unfulfilled. Though BLM must comply with Section 1974 and protect NCA resources, it cannot fulfill Section 1977 by relying on a non-viable alternative route. The Applicant's original proposed route remains the best alternative that provides a viable northern transportation route and furthers a purpose of the NCA, as explained below.

Through the process documented in the EA, 2024 Final SEIS, and 2020 Final EIS, the BLM worked closely with the FWS, State of Utah, Washington County, City of St. George, cooperating agencies, and the public to identify multiple alternative northern transportation routes and refine them through additional measures to conserve, protect, and, in some cases, enhance the purposes of the NCA. However, despite Congress' direction in Section 1977 that BLM consult with State and local governmental entities, BLM failed to adequately involve these entities in determining its preference for the Red Hills Parkway Expressway alternative. This alternative was proposed by the public and was not suggested or supported by UDOT, as the applicant, or the City of St. George, as the current holder of the ROW for Red Hills Parkway. BLM's "endorsement" of it as a viable northern transportation route without more meaningful consultation with the entities responsible for its implementation was flawed.

This Decision recognizes that the project area is located within the Reserve, which was established in 1996 through a partnership between Washington County, FWS, BLM, and others in connection with the FWS's approval of the 1995 HCP for the threatened Mojave Desert tortoise. As a joint lead agency for preparation of the 2024 Final SEIS and 2020 Final EIS, the FWS is a key partner in the BLM's consideration of the ROW application approved by this Decision. As a result of selecting an alignment that crosses the existing Reserve, the Northern Corridor changed circumstance, as outlined in Section 9.1.1 of the Amended HCP, will be implemented to expand the Reserve to include a sixth zone (Reserve Zone 6). The Biological Opinion, issued by the FWS on November 25, 2025, acknowledges the benefits of establishing the 6,813-acre Reserve Zone 6, in combination with other measures in the Amended HCP and Plan of Development, as a conservation measure to compensate for the direct loss of up to 275 acres of Mojave desert tortoise Reserve habitat within the UDOT ROW Alignment, and offset take (i.e., disturbance and harassment) of tortoise due to construction and operation of the Northern Corridor highway in Reserve Zone 3.

Reserve Zone 6 represents a large and contiguous block of habitat in Washington County outside the current Reserve and will protect the largest known sub-population of tortoises that would otherwise be subject to take under Washington County's Incidental Take Permit (ITP) where they are located on non-Federal lands within Reserve Zone 6. Section 3.5.2 in the 2024 Final SEIS states that Reserve Zone 6 is estimated to support an abundance of 736 tortoises (95% CI: 517 to 1,043). Table 8 in the 2024 Final SEIS shows estimated densities in Reserve Zone 6 ranging from 24.3 to 31.4 tortoises per square kilometer (tortoises/km^2). This is a much higher amount and density of tortoises that would be protected when compared to impacts in Reserve Zone 3 resulting from the UDOT ROW Alignment. Table 9 in the 2024 Final SEIS states that the ROW is estimated to directly impact 31 adult tortoises located within the ROW and indirectly impact 275 adult tortoises due to noise, vibration, fragmentation of habitat, and other factors. Table 7 in the 2024 Final SEIS shows an estimated density of 17.5 tortoises/km^2.

The designation of Reserve Zone 6 will provide conservation benefits to the Mojave Desert tortoise. These benefits are the result of the commitments outlined in the Amended HCP, including additional funding to support personnel, law enforcement, community education and outreach, boundary fencing, development protocols, and monitoring and adaptive management planning. The most benefit to the tortoise would occur on 3,341 acres of land owned by the Utah Trust Lands Administration (TLA) and other non-Federal lands that would be acquired by the BLM or another conservation organization where currently there are few protections in place. Section 3.5.2 of the 2024 Final SEIS states that "the tortoises in Zone 6 may serve as a population less prone to the threats of weeds, fire, and disease found in Zones 1 through 5 of the Reserve and may therefore preserve genetic and behavioral representation. The protection of this additional habitat may increase the viability of desert tortoises by increasing the number of tortoises living within protected habitat and providing increased resiliency and redundancy against the cumulative threats they face in the [Upper Virgin River Recovery Unit (UVRRU)]."

As stated in Section 5.2.4 of the Biological Opinion issued by the FWS for the ROW, the creation of Reserve Zone 6 will result in the permanent protection of 6,813 acres, including the BLM's commitment to acquire and manage TLA and private lands in Reserve Zone 6. The protection of existing BLM-administered lands in the Reserve and the anticipated acquisition and protection of TLA and private lands will promote population persistence within Reserve Zone 6 and with other areas of contiguous habitat, particularly if corridors for movement and connectivity on these lands can be maintained. This overall intactness should support the potential for recovery of the desert tortoise in the UVRRU and range-wide. Protecting additional habitat outside the existing Reserve would benefit the UVRRU by creating a natural refugia from disease and wildfire and preserving genetic and behavioral representation through habitat corridors connecting analytical units and recovery units.

Additionally, Reserve Zone 6 represents a nearly 11% increase in the area covered by the current 62,000-acre Reserve, with a 14 percent increase in tortoise habitat (from 41,300 acres to 48,060 acres), to offset the less than 2.6% of the Reserve that would be encumbered or fragmented by the UDOT ROW Alignment. The adverse effects associated with the fragmented area south of the ROW will be further reduced by the under-road passages that UDOT is required to incorporate into the final design of the roadway to enhance the permeability of the corridor for Mojave Desert tortoise and other wildlife species. Additionally, as part of the Northern Corridor changed circumstance outlined in Section 9.1.1 of the Amended HCP, Washington County commits to "provide funding to support the construction, maintenance, and/or monitoring of tortoise passages

across Cottonwood Road to restore connectivity between the east and west portions of Reserve Zone 3." Removal of this existing internal barrier will further improve opportunities for tortoise movement beyond current conditions.

The designation of Reserve Zone 6 will also support the long-term protection of popular recreation destinations for rock climbers, hikers, mountain bikers, and others, including the climbing areas currently located in Moe's Valley and miles of non-motorized trails, that would be under threat of potential development if the Northern Corridor changed circumstance is not triggered. Although the user experience will be altered with the addition of noise and human activity associated with construction and ongoing vehicular traffic, the connectivity of existing unpaved trails within the Red Cliffs NCA near the highway ROW will be maintained with under-road passages. The paved hike and bike path that will parallel the highway will offer an additional amenity that does not currently exist.

This Decision also addresses the directive in OPLMA to limit uses in the NCA to only those that further a purpose for which the NCA was designated. The BLM carefully considered the purposes of the NCA through documentation in the EA, 2024 Final SEIS, and 2020 Final EIS, which acknowledged potential adverse impacts to some of them. However, the location of the new roadway will further other purposes for which the NCA was established and the BLM is tasked with protecting, conserving, and enhancing. The new roadway will allow the public to experience views of the NCA beyond what is currently available in limited areas such as along Cottonwood Springs Road and a handful of existing unpaved trails. The construction of a new 4.5-mile paved hike and bike path along the full length of the ROW will provide recreational access opportunities in an area of the NCA where they do not currently exist. Accessibility for users who are physically unable to use unpaved trails will be enhanced through the availability of the paved hike and bike path and new scenic driving opportunities. Both the recreational and scenic purposes of the NCA will be furthered through these aspects of the project. Additionally, the educational purpose of the NCA will be furthered through the installation of at least eight waypoints along the new hike and bike path with interpretive displays promoting public education and understanding of the purposes for which the Red Cliffs NCA was designated.

This Decision acknowledges the concerns regarding potential impacts to lands acquired under the LWCF Act. As documented in the 2020 Final EIS and 2024 Final SEIS, all of the action alternatives involving BLM-managed lands would encumber LWCF-acquired fee parcels in addition to the existing encumbrance of the current footprint of Red Hills Parkway. The UDOT ROW Alignment minimizes the encumbrances to LWCF-acquired parcels by avoiding the majority of parcels that were acquired within the Red Cliffs NCA. The UDOT ROW Alignment will encumber less than four acres, and UDOT included a commitment in the Plan of Development to make reasonable efforts to comply with any specific requirements applicable to impacted LWCF-acquired parcels.

In implementing the UDOT ROW Alignment, the BLM will comply with applicable federal, state, and local laws, regulations, and executive orders (see Appendix C of the 2020 Final EIS for a summary). The BLM will continue to consult with regulatory agencies and tribal governments, as appropriate, to ensure that all legal requirements are met.

V. RIGHT OF PROTEST AND/OR APPEAL:

Approval of this Decision constitutes a final decision of the Department of the Interior and, in accordance with the regulations at 43 CFR § 4.402(b)(2), is not subject to appeal under Department regulations at 43 CFR Part 4. Any challenge to this Decision must be brought in Federal District Court.

VI. APPROVAL

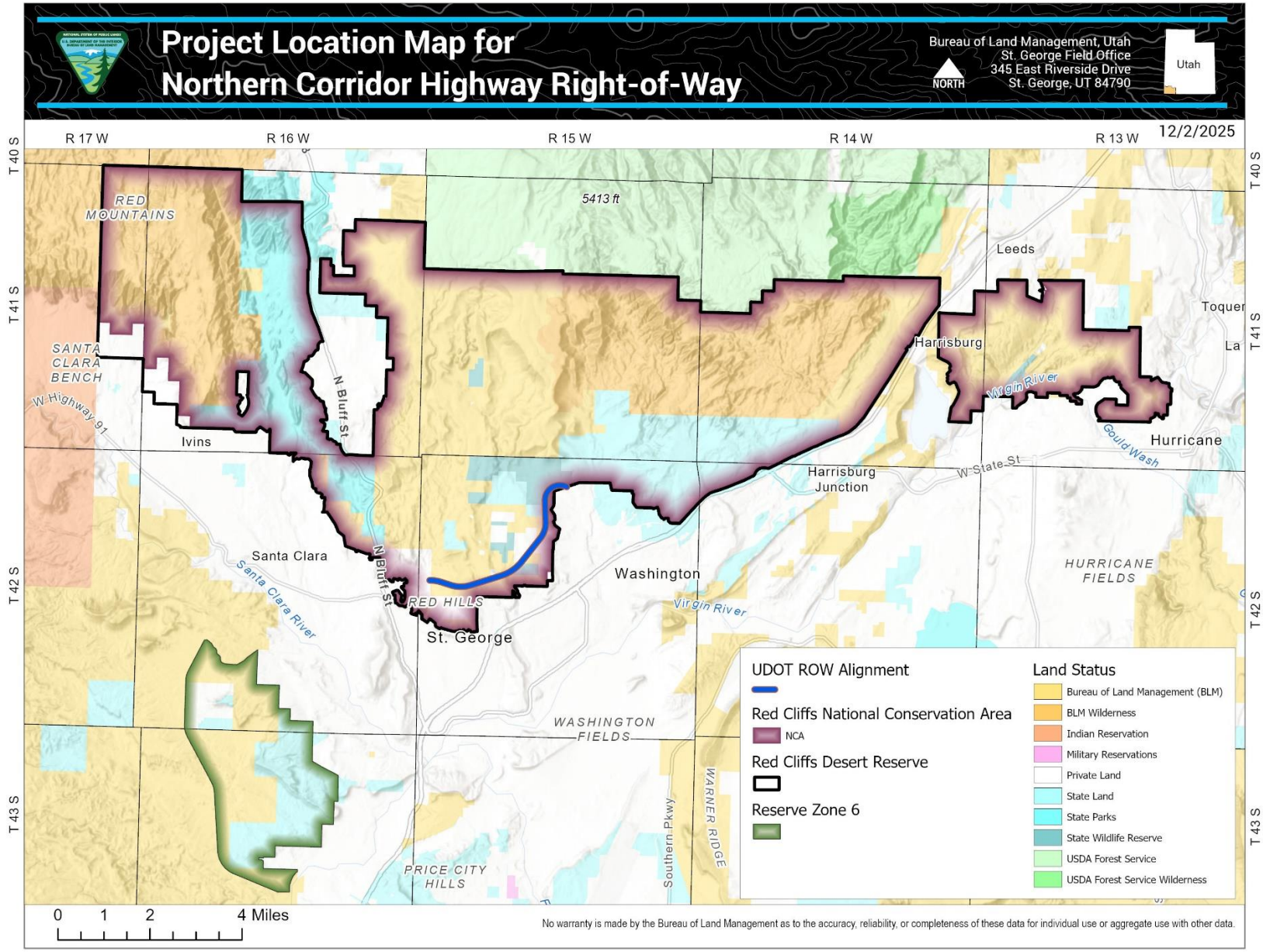
LANNY ERDOS Digitally signed by LANNY ERDOS
Date: 2026.01.21 14:16:09 -05'00'

Lanny E. Erdos
Director, Office of Surface Mining, Reclamation, and Enforcement
Exercising Authority of the Assistant Secretary -- Land and Minerals Management

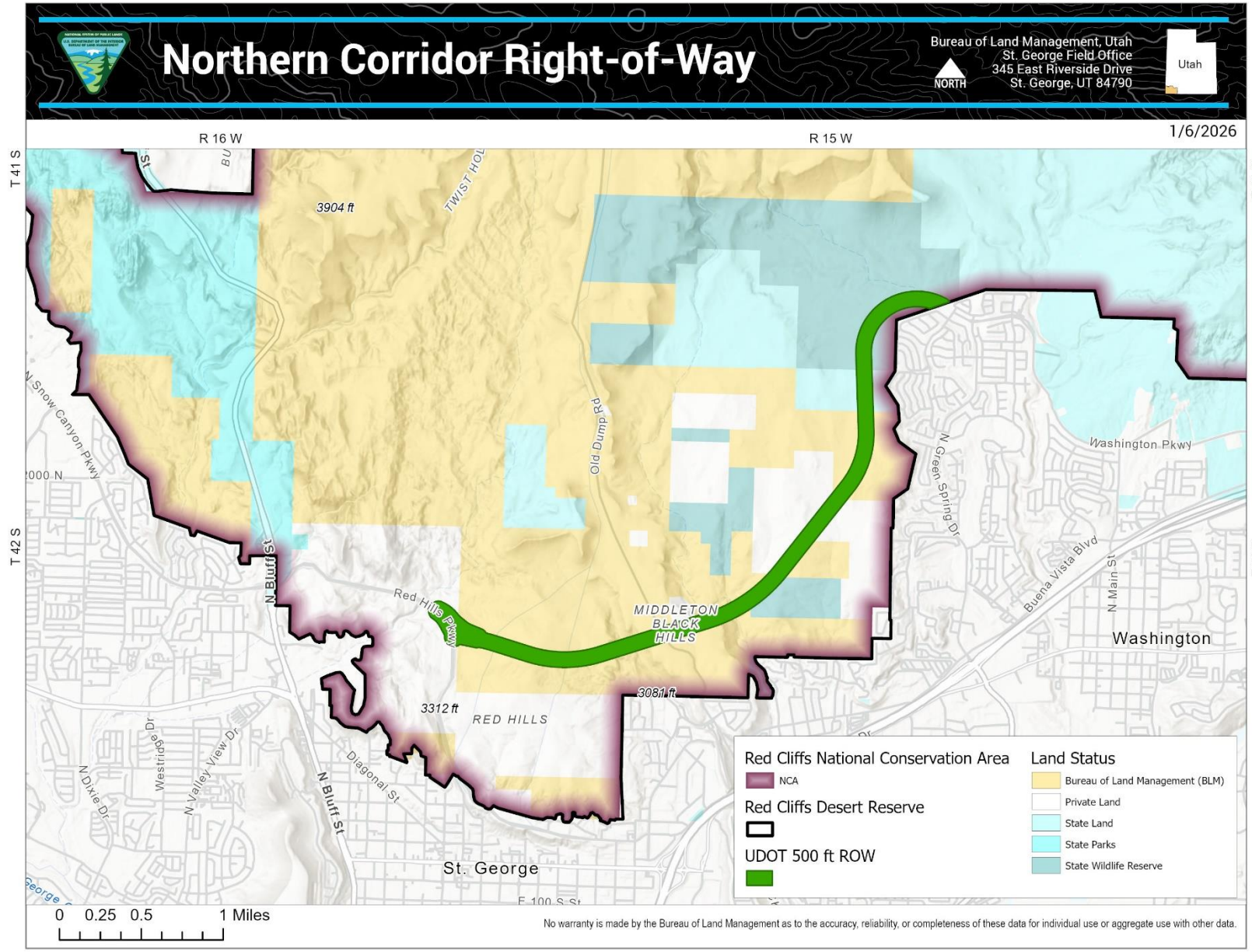
ATTACHMENTS:

Attachment A: Maps
Attachment B: Legal Descriptions
Attachment C: Plan of Development
Attachment D: ROW Grant BLM Conditions and Stipulations

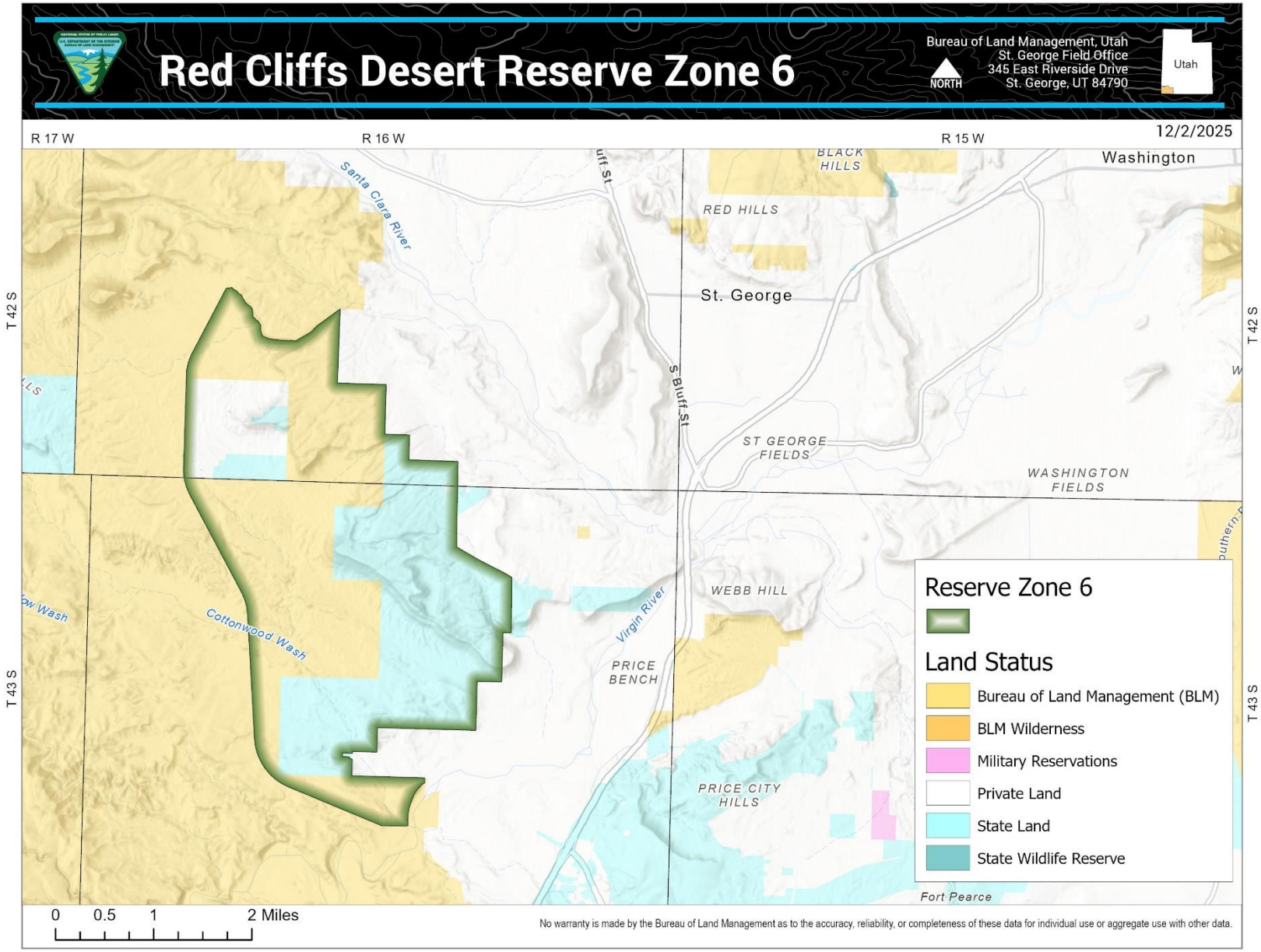
Attachment A:
Maps



Map 1. Project Location



Map 2. Northern Corridor ROW



Map 3. Red Cliffs Desert Reserve Zone 6

Attachment B:
Legal Descriptions

Legal Description for Northern Corridor ROW:

Salt Lake Meridian, Utah

T. 42 S., R. 15 W.,

sec. 9, SE1/4NW1/4NE1/4, E1/2SW1/4NE1/4, NW1/4SE1/4, W1/2SW1/4SE1/4;

sec. 16, Lots 1, 2, 3;

sec. 17, Lots 7, 8, 9, 10, 11, 12, 13, 14;

sec. 18, Lots 7, 8, 13, 14, N1/2SW1/4SE1/4, N1/2SE1/4SW1/4.

Legal Description for Red Cliffs Desert Reserve Zone 6:

Salt Lake Meridian

T. 42 S., R. 16 W.,

sec. 28, lots 4, 6, 7, NE¼SW¼, S½SW¼,

sec. 29, lots 2, 3, 6, 7, E½NW¼, E½SW¼NW¼, SW¼, S½SE¼,

sec. 33, All

T. 43 S., R. 16 W.,

sec. 4, lots 1, 2, 3, 4, S½NW¼, SW¼,

sec. 5, lots 1, 2, 3, 4, S½N½, N½SW¼, SE¼SW¼, SE¼,

sec. 8, N½NE¼, E½SW¼NE¼, SE¼NE¼, E½NW¼SE¼, E½SW¼SE¼, E½SE¼,

sec. 9, All,

sec. 17, E½W½NE¼, E½NE¼, E½SE¼, NE½NW¼SE¼,

sec. 20, NE¼NE¼,

sec. 21, N½N½, SE¼NW¼, S½NE¼,

Sec. 22, Lots 13, 14, 15, 18, 19, W½NW¼

Attachment C:
Draft Plan of Development

Northern Corridor Plan of Development

DRAFT

MARCH 2023

SUBMITTED TO

U.S. Department of the Interior
Bureau of Land Management
345 East Riverside Drive
St. George, Utah 84790

SUBMITTED BY

Utah Department of Transportation
Region 4
210 West 800 South
Richfield, Utah 84701

Serial Number: UTU-93620

NORTHERN CORRIDOR
PLAN OF DEVELOPMENT

Submitted to

U.S. Department of the Interior
Bureau of Land Management
345 East Riverside Drive
St. George, Utah 84790

Submitted by

Utah Department of Transportation
Region 4
210 West 800 South
Richfield, Utah 84701

March 2023

CONTENTS

Appendices

Figures

Tables

ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
Applicant	Utah Department of Transportation
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
DAQ	[Utah] Division of Air Quality
dba	A-weighted decibel
DEQ	[Utah] Department of Environmental Quality
DF	design feature
DMPO	Dixie Metropolitan Planning Organization
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
FCR	field contact representatives
FR	*Federal Register*
GHG	greenhouse gas
HECP	hydraulic erosion control products
lbs	pounds
LWCF	Land and Water Conservation Fund
MM	mitigation measure
mph	mile(s) per hour
MS4	municipal separate storm sewer systems
MUTCD	Manual on Uniform Traffic Control Devices
NCA	National Conservation Area
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association

NPDES	National Pollutant Discharge Elimination System
NTP	notice to proceed
OSHA	Occupational Safety and Health Administration
PIH	Plan-In-Hand
P.L.	Public Law
POD	plan of development
Project	Northern Corridor
PS&E	Plans, Specifications, and Estimates
RECP	rolled erosion control products
RMP	resource management plan
ROD	record of decision
ROW	right-of-way
SHPO	State Historic Preservation Office
SITLA	Utah School and Institutional Trust Lands Administration
SR 18	State Route 18
Standard Specifications	Utah Department of Transportation Standard Specifications for Road and Bridge Construction
SWPPP	stormwater pollution prevention plan
UAC	Utah Administrative Code
UCGP	Utah Construction General Permit
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
UPDES	Utah Pollutant Discharge Elimination System
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WCHCP	Washington County Habitat Conservation Plan
yd^2	square yard
yd^3	cubic yard

1 OVERVIEW

The Utah Department of Transportation (UDOT, or Applicant) applied to the Bureau of Land Management (BLM) St. George Field Office and Red Cliffs National Conservation Area (NCA) for a right-of-way (ROW) across the BLM-administered Red Cliffs NCA to construct the Northern Corridor Project (Project) in Washington County, Utah (Figure 1). The Project will cross lands managed by the BLM, Utah School and Institutional Trust Lands Administration (SITLA), Washington County, and the State of Utah as well as private lands and will be approximately 4.4 miles in length, connecting the existing Red Hills Parkway and Green Spring Drive.

UDOT filed an Application for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299) with the BLM on September 18, 2018. The BLM processed the application pursuant to the regulations for issuing a ROW under Title V of the Federal Land Policy and Management Act at 43 Code of Federal Regulations (CFR) 2800. As a part of the BLM's review of the ROW application, the BLM completed an environmental impact statement (EIS) pursuant to the National Environmental Policy Act (NEPA) and implementing regulations at 40 CFR 1500. The Draft EIS was published on June 12, 2020 (85 *Federal Register* [FR] 35950), the Final EIS was published on November 13, 2020 (85 FR 72683), and a record of decision (ROD) was signed and ROW grant issued to UDOT on January 13, 2021 (86 FR 4115).

The ROW grant issued to UDOT by the BLM requires that UDOT submit to the BLM a Final Plan of Development (POD) and obtain a notice to proceed (NTP) from the BLM prior to any ground-disturbing activity. As outlined in the ROW grant, the Final POD may be informed by pedestrian resource surveys and will identify the site-specific ROW needs and disturbance areas and include maps of all proposed facilities, site-specific construction actions, temporary work areas, and any other facilities required for the Project. The Final POD will also identify the site-specific application of design features and mitigation measures as required in the ROD issued by the BLM. UDOT may not begin construction until the Final POD is approved by the BLM.

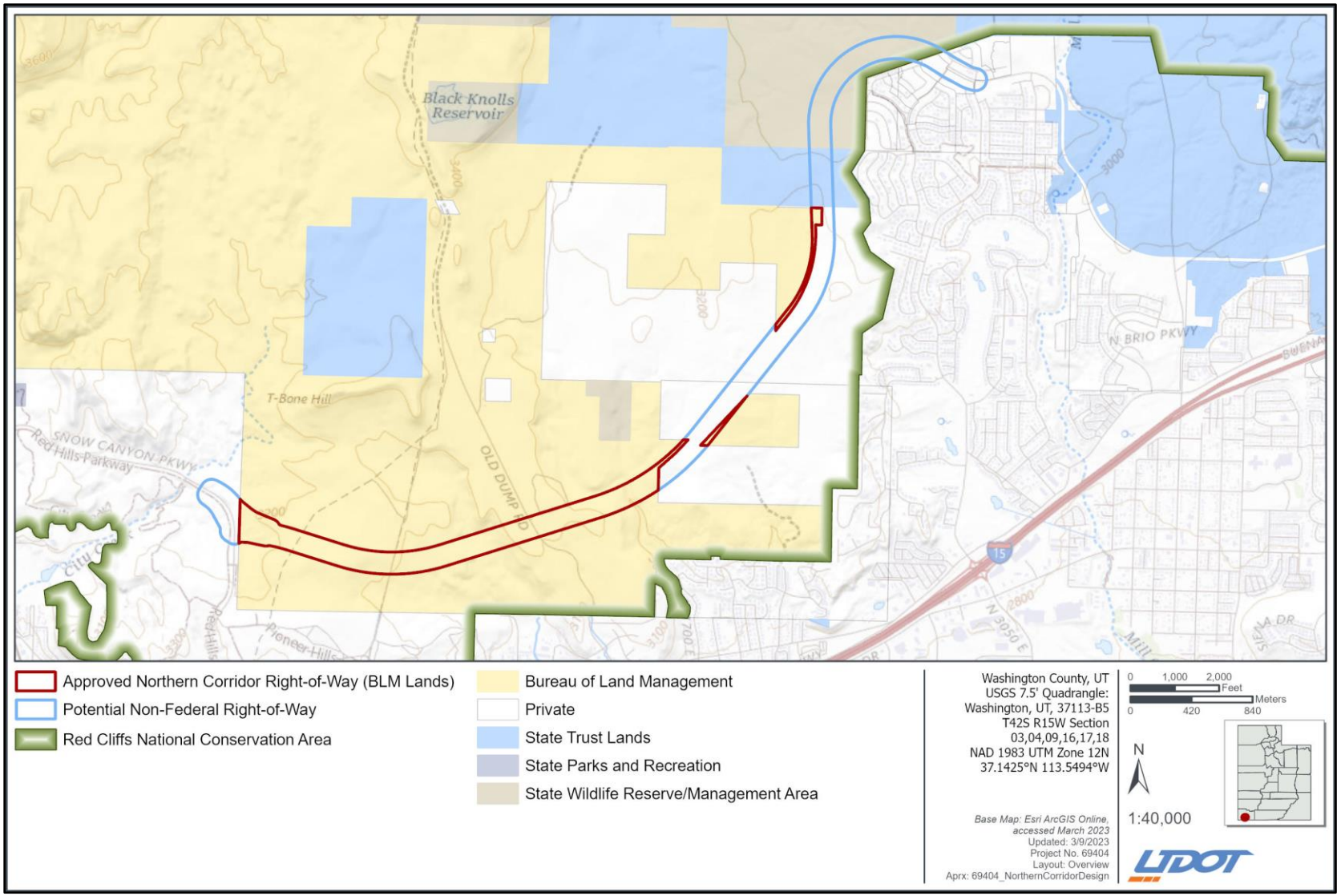


Figure 1. Northern Corridor approved right-of-way on Bureau of Land Management–administered lands.

1.1 Process for Developing the Plan of Development

The Project development process and the POD development process are discussed under four broad phases throughout this POD: Pre-NEPA, NEPA, Final Design, and Construction. Interactions between the BLM's ROW application and review process, the development of the POD, the NEPA process, and the Applicant's Project development process are described in the context of these phases.

The project development phases are as follows:

- **Pre-NEPA phase:** Corresponds with all activities that occur before the initiation of public scoping for the NEPA document.
- **NEPA phase:** Corresponds with all activities that occur between the initiation of public scoping for the NEPA document and the signing of a decision document by the appropriate agencies.
- **Final Design phase:** Corresponds with completion of final design activities for the roadway alternative selected during the BLM NEPA process and associated preparation for advertising the Project for construction.
- **Construction phase:** Corresponds to all activities that occur after the Project has been advertised for construction.

The POD for the Project has been developed in a phased manner to meet the BLM's information needs for the completion of the BLM NEPA analysis and decision document, the issuance of a ROW grant, and the issuance of an NTP for construction. This phased development of the POD is anticipated to result in the submittal of several versions of the POD to the BLM to support various components of the ROW application review and processing. The documents that will be submitted to the BLM are referenced in this document as the Preliminary POD, the Draft POD, and the Final POD. Although these terms are not defined in the BLM's regulations at 43 CFR 2800, they are being used to define the levels of content expected at each phase of the POD development. Multiple agency reviews may be associated with each POD development phase as information is developed and incorporated into the document. Figure 2 depicts the various milestones in the development of the POD, the Project development process, and BLM's ROW processing and associated NEPA process and how they are anticipated to align with the Pre-NEPA, NEPA, Final Design, and Construction phases of the Project.

1.1.1 Preliminary Plan of Development

The Preliminary POD was developed to support the initial ROW application with the information available at that time and industry-standard design requirements and construction standards. The Preliminary POD also outlined the expected process and timeline for incorporating additional information into future versions of the POD.

1.1.2 Draft Plan of Development

The Draft POD was further developed by incorporating additional information about the Project developed during the NEPA phase of the Project (described in Section 3.2). The Draft POD was submitted to the BLM with the intent of providing the level of information required by the BLM to complete the NEPA process. The information contained in the Draft POD informed the BLM's analysis in the NEPA document.

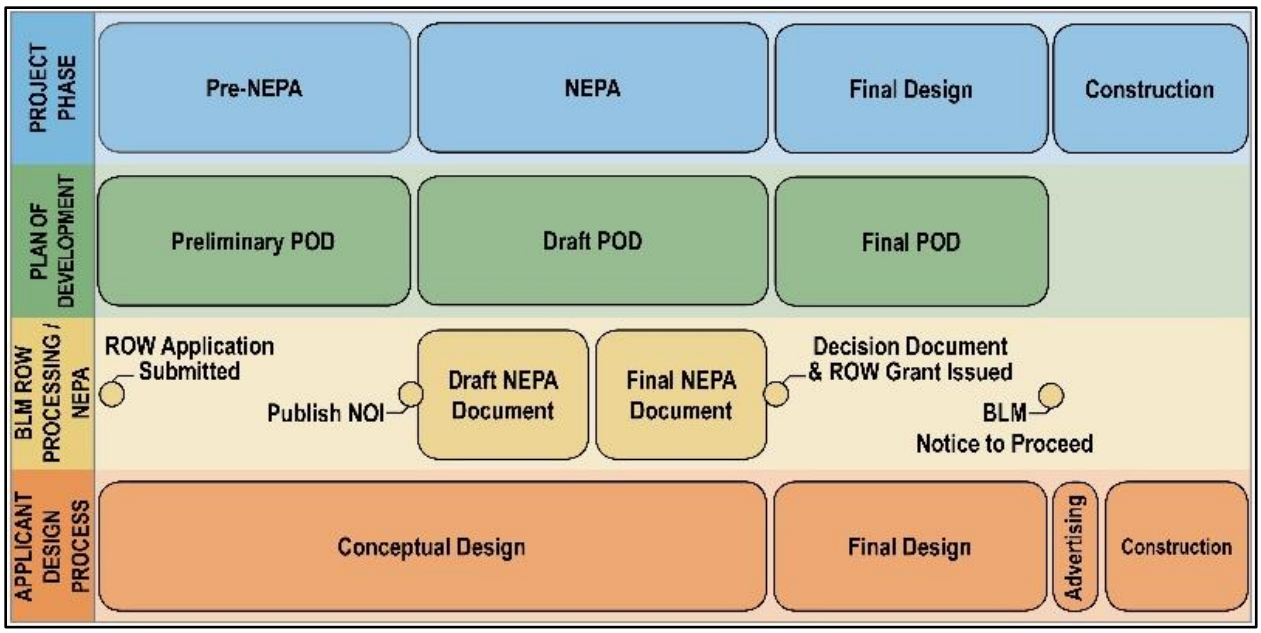


Figure 2. Anticipated milestones and phases in the Bureau of Land Management right-of-way application, National Environmental Policy Act, and design processes.

1.1.3 Preliminary Plan of Development

The Preliminary POD was developed to support the initial ROW application with the information available at that time and industry-standard design requirements and construction standards. The Preliminary POD also outlined the expected process and timeline for incorporating additional information into future versions of the POD.

1.1.4 Draft Plan of Development

The Draft POD was further developed by incorporating additional information about the Project developed during the NEPA phase of the Project (described in Section 3.2). The Draft POD was submitted to the BLM with the intent of providing the level of information required by the BLM to complete the NEPA process. The information contained in the Draft POD informed the BLM's analysis in the NEPA document.

1.1.5 Final Plan of Development

The Final POD is being developed in collaboration with the BLM prior to the initiation of construction. The Final POD will need to be approved by the BLM before the BLM issues an NTP for construction. The contents of the Final POD are dictated by the requirements outlined in the BLM's ROD and ROW grant.

This POD (March 2023), developed by UDOT, is a draft of the Final POD. This draft of the Final POD has been developed based on the Plan-In-Hand (PIH) Design process completed for the Project. Additional information will need to be included in the POD to develop a Final POD that meets all of the BLM's requirements as identified in the ROD and ROW grant, and to ensure that the Final POD is consistent with the final design of the Project.

The Final POD will include several appendices with additional information, maps, and resource-specific plans to mitigate the environmental impacts of the Project. Appendix A provides legal information; Appendix B contains Project design and environmental map books; Appendix C provides a Blasting Plan; Appendix D provides a Memorandum of Agreement and Programmatic Agreement for cultural resources; Appendix E contains information on recreational trail crossings and interpretive signs; Appendix F presents the Fugitive Dust Control Plan; Appendix G presents the Hazard Materials, Hazardous Waste, and Spill Prevention Plan; Appendix H provides the Litter Management Plan; Appendix I contains the Mojave Desert Tortoise (*Gopherus agassizii*) Plan; Appendix J contains the Noxious Weed Management Plan; Appendix K provides the Paleontological Resources Protection Plan; Appendix L contains the Reclamation Plan; Appendix M provides the Stormwater Pollution Prevention Plan; and Appendix N provides the Traffic Control Plan.

2 APPLICANT'S OBJECTIVES

UDOT submitted a ROW application for construction, operation, and maintenance of a new highway with the objective of reducing congestion, increasing capacity, and improving east-west mobility on arterial and interstate roadways between State Route 18 (SR 18) and Interstate 15 at milepost 13. This objective is driven by the current and forecasted population growth within Washington County, which will continue to increase demand on the transportation network. Currently, the existing transportation network between SR 18 and Interstate 15 is not adequate to meet future (2050) travel demand in the northeastern and northwestern areas of St. George based on traffic projections from the Dixie Metropolitan Planning Organization's (DMPO's) regional travel demand model (DMPO 2019).

3 NORTHERN CORRIDOR PROJECT DEVELOPMENT PROCESS

3.1 Pre-National Environmental Policy Act Phase

During the Pre-NEPA phase, conceptual design tasks were initiated and carried forward to progress the BLM ROW application and POD process while relevant environmental resource data were compiled to prepare for the NEPA phase. The Pre-NEPA phase included the following elements:

1. Applicant and BLM coordination
2. POD development (Preliminary POD and Draft POD)
3. Preliminary Applicant and BLM purpose and need development
4. Environmental resources identification
5. Conceptual design and roadway alternative development
6. Initial (Pre-NEPA) scoping
7. Agency and stakeholder coordination

During the Pre-NEPA phase, the Applicant coordinated regularly with the BLM. This coordination occurred through regular meetings with the Project team and agency representatives and monthly meetings between BLM and the Project team. Additional meetings specific to the review and development of the POD, development of Project alternatives, and ongoing coordination and additional topic-specific meetings were scheduled as needed.

The Applicant's objectives and supporting documentation were developed with input from the BLM and other agencies. The Applicant's objectives considered and incorporated traffic counts and projections for existing and future conditions to determine needed capacity improvements.

The ongoing task of identifying environmental resources that may be affected by the Project spanned the Pre-NEPA and NEPA phases. The Pre-NEPA phase included data gathering, surveys and fieldwork, and documentation for resources, including biological, cultural, visual, and recreation resources, to prepare for impact analysis in the NEPA phase. Coordination with the BLM during this task identified existing environmental resources data and sources and confirmed additional data needs to support the NEPA process and survey and documentation methods.

The conceptual design and roadway alternatives development processes occurred concurrently and extended into the NEPA phase. The roadway conceptual design completed in the Pre-NEPA phase was based on future traffic projections, regional transportation planning by the DMPO, stakeholder input, and highway design best practices as defined by the American Association of State Highway and Transportation Officials' (AASHTO's) *A Policy on Geometric Design of Highways and Streets* (AASHTO Green Book) (AASHTO 2018).

Project-specific roadway design standards that describe the size, type, and configuration of the road facility were developed in draft form to establish standards to which the Project will be designed and constructed. Project-specific roadway design elements account for design standards from the AASHTO Green Book and the Utah Manual on Uniform Traffic Control Devices (MUTCD), which include Average Daily Traffic, design vehicle, design speed, geometric controls, number of lanes, lane widths, and shoulder widths. These Project-specific roadway design standards were reviewed with the BLM prior to developing roadway alternatives in the Pre-NEPA process.

Throughout the Pre-NEPA phase, conceptual design was advanced as needed based on the Project-specific roadway design standards. Conceptual design components addressed in the Pre-NEPA phase included preliminary horizontal and vertical alignment, potential active transportation features (trails, bike paths, etc.), estimated ROW required to accommodate features, access management needs (e.g., pullouts, etc.), and maintenance and aesthetic requirements.

Conceptual design during the Pre-NEPA phase was an iterative process involving both the Applicant and the BLM.

3.2 National Environmental Policy Act Phase

The NEPA process followed standard BLM environmental processes and requirements as described in the BLM NEPA Handbook (BLM 2008).

The conceptual design, alternatives development, and environmental resources data compiled during the Pre-NEPA phase carried into the NEPA phase. The NEPA process included scoping; finalization of the BLM's purpose and need statement; identification of environmental resources; alternatives development and screening; environmental impact assessment and development of appropriate mitigation; and public outreach and involvement, including a public meeting on the draft NEPA document and ongoing agency and stakeholder coordination.

Section 3.2.1 describes how the Project design was developed during the NEPA process, and Section 3.2.2 describes how mitigation actions were developed to reduce the impacts on affected environmental resources through the NEPA process.

3.2.1 Conceptual Design and Alternative Development and Screening

Design was completed to an appropriate level to screen and analyze alternatives based on their ability to meet the purpose and need, engineering or physical constraints, and based upon their environmental impacts.

Concurrent with the NEPA document preparation, the design progressed to a level with enough confidence to identify a Project footprint and complete the NEPA process. During conceptual design, the roadway was modeled using horizontal and vertical alignments for the roadway, ultimately leading to estimation of cut and fill limits and an approximate footprint of the roadway. After the Project moves into the Final Design phase, the conceptual design will be confirmed and further refined.

3.2.2 Environmental Impacts and Mitigation

Environmental commitments and mitigation were developed to address specific environmental impacts identified during the NEPA process and were discussed and reviewed with the BLM. Specific environmental commitments and mitigation were documented in the Final EIS, ROD, and Draft POD and have been carried forward into the Final Design phase.

3.3 Final Design Phase

Activities in the Final Design phase occur after completion of the NEPA process and signing of a BLM ROD. All design completed during the Final Design phase will be required to conform with the decisions made during the NEPA process as documented in the BLM ROD and ROW grant. The Final Design phase will respect all environmental commitments for avoidance and protection of sensitive areas and resources. All deliverables completed during the Final Design phase will be provided to the BLM for review and comment. It is anticipated that the BLM will not issue an NTP for construction activities until the BLM is satisfied that all design represented in the Final POD is consistent with the decision document.

The Final Design phase will follow a design progression process in stages with milestone submittals at the conclusion of each stage, allowing review to verify design progression and that design criteria and environmental commitments are being met. Typical stages of the Final Design phase are listed and described below:

1. PIH
2. Plans, Specifications, and Estimates (PS&E)
3. Construction Advertising

The conceptual design and environmental commitments identified in the Pre-NEPA and NEPA phases will be carried forward as the starting point for the Final Design phase. The Final Design phase will begin with a review of the design efforts completed during the Pre-NEPA and NEPA phases and then progress from that point, with PIH as the first design milestone submittal.

At the conclusion of each stage of the Final Design phase, there will be a review meeting. Prior to the review meeting, the submittal for each stage will be distributed to the Project review team for solicitation of comments on the design and deliverable. The review team typically consists of the design team and discipline reviewers from the Applicant as well as relevant third parties to the Project who have an interest in the Final Design phase, such as utility owners and local government representatives. Any

comments on the submittal are compiled in a matrix and discussed at the review meeting or independently between reviewers and designers. Comments are resolved prior to the subsequent stage in order to move forward with design. Comments in the Final Design phase will focus on implementation and development of plans and specifications and implementation of commitments made in the previous phases of the Project.

3.3.1 Plan-In-Hand Design

The PIH Design phase focuses on design progression and development of the initial set of Project plans. The roadway model will be finalized, and plan sheets will be generated for each discipline. Generally, a preliminary plan sheet set is included for roadway, drainage, utilities, grading, maintenance of traffic, signals and lighting, and structures.

This stage also generally coincides with or provides the information necessary for final identification of needs for ROW acquisition from private and state entities and the acquisition of these parcels. It is anticipated that ROW needs will be identified earlier during the conceptual design in the NEPA process, but final acquisition can occur later with more detail and certainty. All ROW acquisition must be complete in order to advertise the Project for construction without limitations on the contractor.

At completion of PIH Design phase, a consultant may be hired for construction engineering management. The construction engineer begins attending review meetings for the Project to provide input on constructability and potential contract issues during construction.

3.3.2 Plans, Specifications, and Estimates

The PS&E Design phase finalizes all designs based on comments received at the PIH Design phase, and advances plan set development to include additional sheets and details as necessary to fully construct the Project. Additional Project documents, including reports, special provisions, cost estimates, and summary sheets are created. This submittal should reflect a complete biddable package for construction advertisement; it is considered complete pending final comment resolution.

The design team reviews all commitments made during the NEPA process to ensure they are covered in specification language to meet all commitments made. Any additional specifications that are necessary on the Project are created as Project-specific specifications. These are unique specifications generated for the Project to dictate special requirements or commitments made in the NEPA document. Any special commitments made during the NEPA process are drafted into Project-specific specifications to ensure that construction matches the commitments made.

Standard drawings are plans used for construction of common design elements. These drawings are split into discipline-specific categories such as roadway work, drainage, striping, and environmental controls.

Items typically determined in the PS&E Design phase include the following:

- PIH Design phase comments are resolved
- ROW acquisition from private and state entities is complete
- Structural design details are complete
- Discipline designs are complete, and all necessary details are generated
- Erosion and sediment control plan is generated
- Quantities are generated

- Utility design is finalized, and agreements are completed
- Project specification book is compiled, and all necessary Project-specific specifications are created
- Engineer's estimate is created

Following the PS&E Design phase review, the final date for Project construction advertisement is set. Any comments from the PS&E Design review are addressed and a final, 100% complete design package is prepared for Project advertisement.

3.4 Construction Phase

During the Construction phase, UDOT selects a construction contractor, and the Project is constructed with UDOT oversight as defined in the UDOT Project Manager Guide (UDOT 2013 [or most current edition]). The specific limitations on Project construction methods or activities spelled out in the Project specifications and Project-specific specifications during the Final Design phase of the Project become contractually binding requirements for the contractor to follow. To promote competitive construction bidding, construction means and methods, estimated types and number of equipment, material sources, and staging areas are typically left to the discretion of the selected contractor within the bounds of the Project specifications developed during the NEPA and Final Design phases of the Project.

A design consultant is often retained for design support during construction to resolve any design issues that arise during construction activities. A public involvement specialist is also assigned to the Project to communicate with third parties and the public regarding construction activities, phasing, and any issues that may arise. They are also available to respond to questions from the public and coordinate between the contractor, the BLM, and the public on any issues.

4 PROJECT DESCRIPTION

The Project will be a four-lane, divided highway with two travel lanes in each direction. The roadway will connect the existing Red Cliffs Parkway to the existing Green Springs Drive and will include new intersections at Red Hills Parkway, Cottonwood Springs Road, and Green Springs Drive.

UDOT has advanced the design of the roadway based upon a design speed of 55 miles per hour (mph). The typical roadway cross section is shown in Figure 3 and a typical cross section of the bridges included in the design are shown in Figure 4.

4.1 Right-of-Way

The BLM issued UDOT a 1.9-mile-long by 500-foot-wide ROW across BLM-administered lands on January 13, 2021. The ROW was issued pursuant to Title V of the Federal Land Policy and Management Act (43 U.S.C. 1761) with a term extending through December 31, 2050, with a right to renew.

The total length of the Project between Red Hills Parkway and Green Springs Drive will be approximately 4.4 miles. In addition to the BLM-administered lands crossed, the Project will also cross lands administered by SITLA, Washington County, and the State of Utah, as well as private lands in Washington County, Utah. UDOT will acquire the necessary ROW from these entities using standard ROW acquisition procedures during the Final Design phase prior to the initiation of construction of the Project. The width of the ROW acquired by UDOT on lands not administered by the BLM will be determined based on the final Project design, but is anticipated to vary between 300 and 500 feet because

of variations in the cut and fill slopes and construction requirements. These variations will be based on geotechnical analysis and terrain type (for example, rock or dirt) and further designed to minimize impacts.

The approximate amount of ROW and length of various administrative jurisdictions crossed by the Project are shown in Table 1.

Table 1. Administrative Jurisdictions Crossed by the Project

Jurisdiction	Road Length (miles)	Permanent ROW (acres)
BLM	1.9	122
SITLA	[to be determined]	[to be determined]
Washington County	[to be determined]	[to be determined]
State of Utah (Utah Division of Wildlife Resources)	[to be determined]	[to be determined]
Private	[to be determined]	[to be determined]
Total	**[to be determined]**	**[to be determined]**

Figure 1 shows the location of the Project ROW granted by the BLM. Appendix A provides the legal descriptions of those BLM lands that the Project will cross. Appendix B contains maps of the ROW and associated Project features.

In certain areas, additional ROWs may be required for temporary construction access, structures, or other features. ROW needs will be confirmed through the design process and included in the Final POD. In addition to the permanent ROW, a temporary ROW may be necessary during construction for construction equipment staging, contractor access, or other needs. Temporary ROW needs will also be confirmed through the design process and included in the Final POD. Should the BLM acquire certain non-federal lands crossed by the Project prior to the initiation of construction, UDOT will coordinate with the BLM to determine the appropriate path forward.

4.2 Roadway Design

The Project will be an approximately 4.4-mile-long, four-lane divided highway with two 12-foot-wide travel lanes in each direction. Other features associated with the roadway will include a 20-foot-wide island median or turn lane (at intersections), a 14-foot-wide bicycle and pedestrian trail, signals, lighting, and associated signage. Drainage design will include a combination of swales and curb and gutter to capture drainage from the roadway. The typical roadway cross section is shown in Figure 3, and a typical cross section of the bridges included in the design area is shown in Figure 4. Appendix B contains maps of the ROW and associated Project features.

4.2.1 Roadway Design Criteria

The Project will be designed to meet applicable UDOT, Federal Highway Administration, and AASHTO standards. Table 2 provides the roadway characteristics and design criteria used by UDOT during the design process.

Table 2. Roadway Characteristics and Design Criteria

Roadway Characteristic or Design Criteria	Value
Functional class	Urban arterial
Posted speed	50 mph
Design speed	55 mph
Number of lanes (typical)	Four
Pavement width (typical)	96 feet
Lane width – mainline	12 feet
Lane width – median/two-way left turn lane	20 feet
Lane width – left turn/right turn	12 feet
Shoulder width – outside	8 feet
Shoulder width – inside	4 feet
Shoulder width – barrier shy	2 feet
Superelevation rate	6%
Maximum grade	6%
Cross slope	2%
Stopping sight distance	495 feet
Lateral offset to obstruction	4 feet on tangents, 6 feet on curves
Clear zone	24 feet

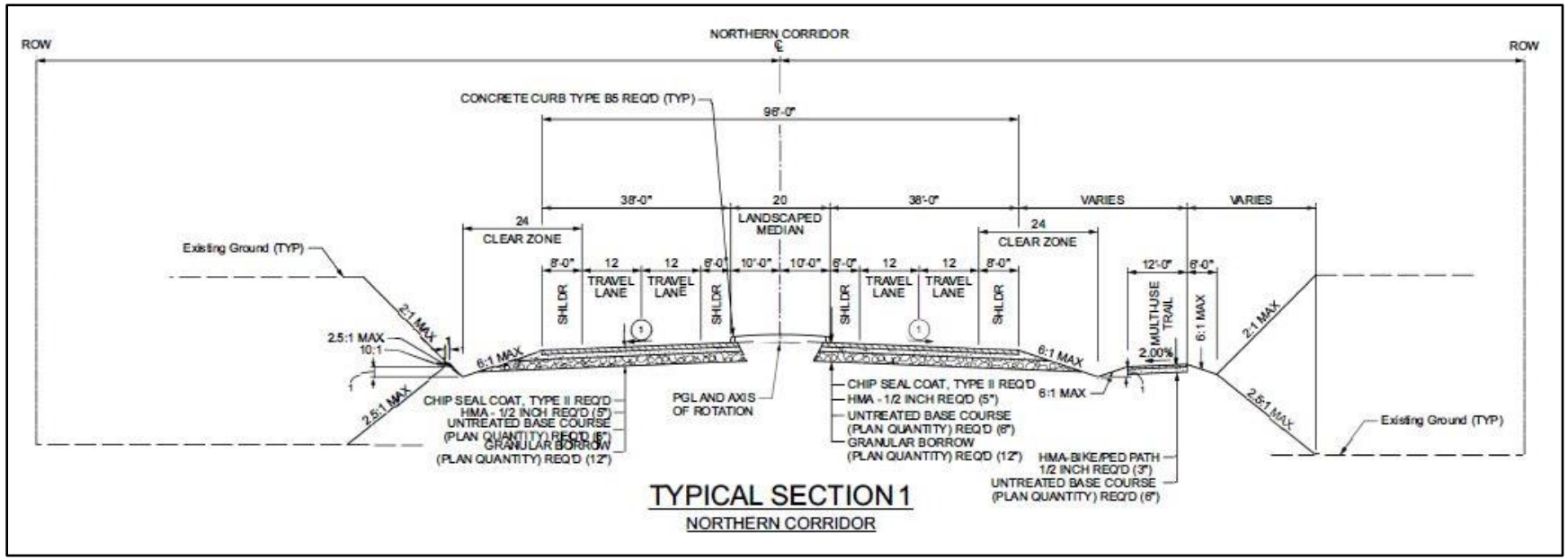


Figure 3. Northern Corridor typical section (roadway).

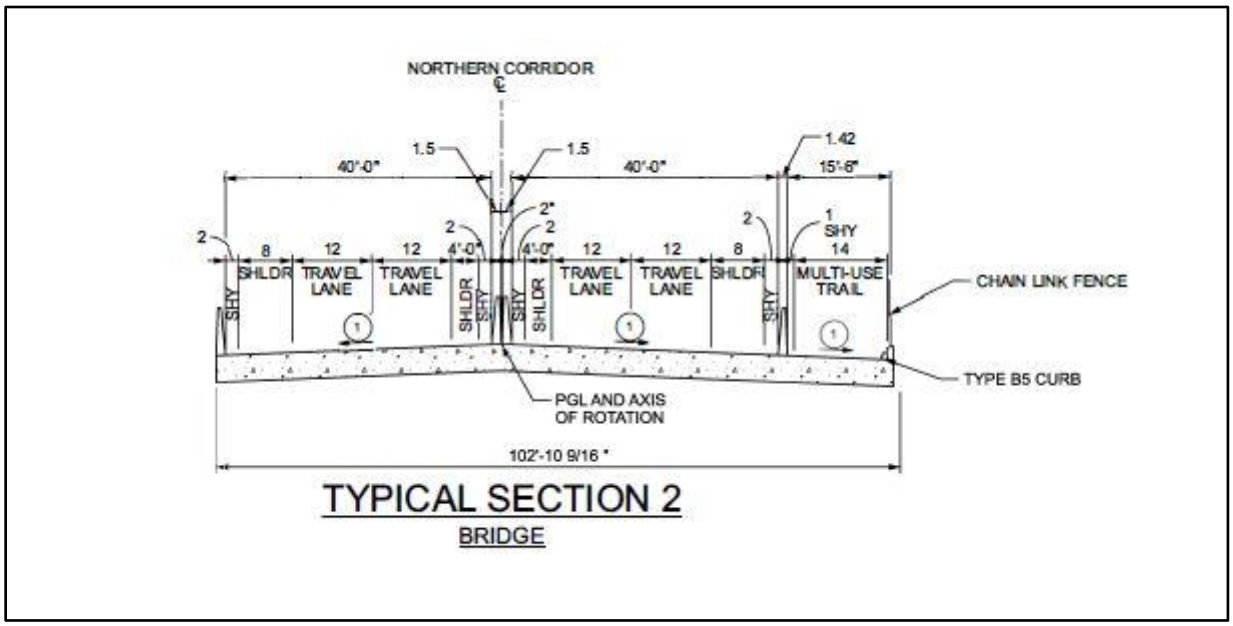


Figure 4. Northern Corridor typical section (bridge).

4.2.1.1 CUT AND FILL

Excavation and placement of fill will be necessary within the ROW to construct the roadway. In general, finished slopes within the roadway clear zone (i.e., within 24 feet of travel lanes inclusive of the roadway shoulder) will have a maximum slope of 6:1. Cut slopes outside of the clear zone will have a maximum slope of 2:1 and fill slopes outside of the clear zone will have a maximum slope of 2.5:1. Final cut and fill slopes will be based on existing topography and geotechnical analysis. Retaining walls or other structures will be utilized where necessary.

Cut and fill lines delineating areas of cut and fill are shown on the maps in Appendix B.

4.2.1.2 INTERSECTION LOCATIONS AND DESIGN

All intersections on the Project will be at-grade, with the exception of the intersection with Red Hills Parkway, which will initially be designed as an at-grade intersection with traffic signals and lighting and may ultimately be converted to a grade-separated intersection at a future date. The grade-separated intersection that could be designed and constructed would be similar to a freeway interchange with bridges, ramps, and lighting. The conversion to the grade-separated intersection is anticipated to occur by 2050, based on traffic levels and available funding.

On the east end of the Project, a full-access intersection will be provided at Concord Parkway and Green Springs Drive. As shown in Appendix B, these intersections are currently designed as stop-controlled intersections. These intersections could be converted to signalized intersections depending on future traffic volumes.

The only full access intersection between Red Hills Parkway and Green Spring Drive will be located at Cottonwood Spring Road (also known as Old Dump Road or Turkey Farm Road), which will be constructed as an at-grade intersection.

Appropriate turn lanes and deceleration lengths have been included in the design and are displayed on the maps included in Appendix B. Appropriate striping and signage to match UDOT and MUTCD standards will be provided at each intersection. Appropriate intersection sight distance calculations were completed as a component of the design process to determine intersection geometrics at each intersection. Additional geometric refinement will be continued after the PIH Design phase. Additional detailed signing and striping design will be finalized after the PIH Design phase.

4.2.1.3 TRAFFIC SIGNALS

The appropriate type of access control at each intersection (unsignalized or signalized) was determined by performing a traffic operations analysis at each location and conducting a traffic signal warrant analysis based on the expected opening day traffic volumes. These analyses may be revisited over the life of the Project as traffic volumes increase, resulting in conversion of unsignalized intersections into signalized intersections.

Currently, the intersection of the Project and Red Hills Parkway is being designed as a signalized intersection due to traffic projections. The intersections at Cottonwood Road, Concord Parkway, and Green Springs Drive are currently being designed as unsignalized (stop-controlled) intersections.

UDOT and MUTCD signal standards will be used for all traffic signals on the Project, including signing, striping, signal heads, lighting, and appropriate pedestrian access.

4.2.1.4 COMMUNICATIONS AND POWER SUPPLY

Communications infrastructure (e.g., roadway cameras and associated fiber) and power supply for roadway cameras, lighting, and traffic signals may be required within the ROW. The requirements for these appurtenances will be determined during roadway design after the PIH Design phase. If required, power supply and fiber will be buried within the ROW. Power supply and communications infrastructure for the Project and Red Hills Parkway signalized intersection will likely be brought from the south along Red Hills Parkway. Trenching or directional boring, or both along Red Hills Parkway may be required to bring the communications infrastructure from the existing infrastructure to the new intersection.

4.2.2 Bridges and Other Structures

The Project will have two large bridges (referred to as major bridges in this POD) and several smaller structures along the alignment. Each structure is assigned a structure number by UDOT.

4.2.2.1 MAJOR BRIDGES

The two major bridges will be located either side of the Middleton Black Ridge Mesa at Chisel Wash and Middleton Wash. Due to the depth of the two washes compared to the roadway elevation (over 120 feet deep) it is impractical to utilize embankment alone to cross them. Bridges were utilized to limit the impact to the environment below and reduce costs.

Each bridge will be split into two separate bridges with a longitudinal 2-inch gap. The bridges will carry two lanes of traffic in each direction with accompanying shoulders and a 14-foot pedestrian trail on the south side of the bridge. The eastbound lanes, westbound lanes, and pedestrian trail will all be divided by bridge parapet. All bridge parapets will meet the TL-4 impact requirements of AASHTO Load and Resistance Factor Bridge Design Specifications (AASHTO 2020). A chain-link fence will be located on the south side of the structure that acts as a fall protection fence for pedestrians.

The westbound structures for both bridges will be 42 feet 10 inches wide, whereas the eastbound structures for both bridges will be wider (57 feet 10 inches) because they will accommodate the pedestrian trail. With the 2-inch gap, the total structure width for each bridge will be 100 feet 10 inches.

Haunched welded plate steel girders will be utilized as the superstructure type for both bridges. Steel girders with a four-span configuration were selected as the preferred superstructure type for various reasons. Steel girders have lower or similar costs to concrete girders because they are capable of longer spans, reducing the number of bents, which will be costly due to the height of the columns and cost of the oversized drilled shafts. Reducing the environmental impact of this Project was also a key concern during bridge design. The four-span steel girder alternative has fewer spans and bents than the other structure designs and has a reduced environmental impact. Because the area around the bridges has rough terrain with steep slopes and no easy way to access the site, bridge designs that are simpler to construct and require smaller equipment and cranes are preferable. The four-span steel girder design is considered the most constructable due to the relative ease of delivering and erecting the steel girder segments because they are typically lighter and smaller than the concrete girder alternative.

The steel girders for these bridges will use weathering steel, which means they are not painted and require minimal maintenance. Each bridge will be a four-span, 1,050-foot-long structure. The span lengths for both bridges will be 240 feet, 285 feet, 285 feet, and 240 feet. Due to the continuous steel girder superstructure, the span lengths are optimized for efficiency. Girder spacing will be 11 feet 8 inches with 3-foot-11-inch overhangs for the westbound structure and 12 feet 2 inches with 4-foot-7-inch overhangs for the eastbound structure.

For the Chisel Wash bridge, spill-through abutments will be utilized at both ends of the structure with embankment sloping down in front of and to the sides of the abutment to tie to existing ground. For the Middleton Wash bridge, spill-through abutments will also be utilized; however, only the east abutment will need to be built up with embankment. The west abutment is in a cut area on the mesa (approximately 20 feet deep), which will require rock excavation for both the roadway and bridge abutment.

For the abutments built-up with embankment, 2:1 slopes will be utilized. These spill slopes will result in an increased footprint of disturbance at the abutments versus the bents. This is especially true for the west abutment of the Middleton Wash bridge. Due to the elevation difference between the mesa and existing ground on the east side of the wash, the bridge longitudinal grade is set at 6% sloping down to the east. The elevation difference results in a high embankment at the east abutment (up to 40 feet of height) resulting in a larger area of disturbance.

The abutments will be founded on multiple 36-inch-diameter drilled shafts. Typical 25-foot UDOT approach slabs are utilized at the beginning and end of each bridge. Modular expansion joints will be required at each end of the bridge. No interior expansion joints will be required. Approach slab drains and roadway catch basins are utilized immediately adjacent to the bridge expansion joints to limit water flow across the joint.

Two column bents are utilized and are supported on 10-foot-diameter oversized drilled shafts. Deep washes below the bridges result in columns lengths reaching a height of over 100 feet. Due to their ability to handle high bridge loads and limited footprint (minimizing the impact to the surrounding environment) oversized drilled shafts were selected as the preferred foundation type. Depending on soil parameters, spread footings can be incapable of handling such high loads. They also require a large footprint, which results in a greater area of disturbance to the surrounding environment.

Seismic design is an important consideration for the bridges. Although the seismic design is not anticipated to have a substantial effect on the overall bridge layout, there are detailing strategies that will be implemented at the abutments and bents to meet the seismic requirements. These strategies include

increasing the abutment diaphragm height and utilizing finwalls to engage passive soil resistance to reduce seismic movements and detailing bent cap and column reinforcing in accordance with AASHTO Guide Specification for Load and Resistance Factor Seismic Design (AASHTO 2011).

4.2.2.1.1 Additional Design Efforts to be Completed

The major bridges described here have been designed and developed through UDOT's PIH stage of design. At this stage, UDOT provides acceptance of the bridge type and layout; however, the geotechnical site investigations, testing, and analysis are incomplete and have not been used to inform the current design. Having complete geotechnical recommendations is important to finalize the bridge type and layout. Once the geotechnical analysis is complete, foundation capacities can be verified, embankment heights can be evaluated, and seismic considerations can be finalized. These factors have the potential to affect foundation and girder type, abutment and bent locations, and span lengths. As the Project continues to progress through UDOT's design process, the bridge design will go through another PIH submittal process and the superstructure type and bridge layout will be finalized.

Once geotechnical evaluations are complete, there is also potential to shorten the Middleton Wash bridge, which could result in eliminating an entire span. This will be accomplished by building the embankment heights up to 50 or 60 feet, which will potentially result in reduced bridge area and associated cost savings to the Project but will result in a larger embankment footprint.

Unit costs can also fluctuate over time, which could cause another girder type (i.e., concrete girders) to end up being the low-cost alternative, which could also affect the span arrangement. Once the bridge type and layout have been finalized, the bridges will go through the Final Design phase. PS&E will be finalized in preparation for advertising.

4.2.2.2 OTHER MINOR STRUCTURES

There are four minor structures that qualify as such per UDOT's Structures Design and Detailing Manual (UDOT 2022): three recreational trail crossings and one drainage culvert. All structures provide connectivity to features under the Project.

4.2.2.2.1 Recreational Trail Crossings

The three recreational trail crossings under the Project (Structures E 2807, E 2808, and E 2809) will be the same in use and structure type. Structure E 2807 will be located south of the bridge over Chisel Wash. Structures E 2808 and E 2809 are located north of the bridge over Middleton Wash. All three structures serve to facilitate recreational trail connectivity under the roadway. Although all these structures are not specifically designed for wildlife crossing, sensitivity to wildlife mobility is part of the design.

Three trail structure types were evaluated during the design process: a cast-in-place box culvert, a precast concrete box culvert, and a precast three-sided arch structure. The three-sided arch structure was selected as the final structure type based on efficiencies in cost and construction time and having the least environmental impact to the surrounding area. The three-sided arch structure inherently provides a natural bottom travel surface, which has been determined to facilitate wildlife movements in the area. Additionally, an arch structure has an aesthetic benefit as specified in the UDOT Structures Design and Detailing Manual (UDOT 2022).

The trail undercrossing structures will be designed per UDOT standards and specifications. Given this, the structures will not require bridge live load rating analyses, nor seismic analyses. All three structures have a 10-foot vertical × 10-foot horizontal clearance envelope. The structures range in length from 170 feet to 206 feet.

Structure E 2807 is oriented to avoid conflict with an existing 12-inch water line owned by the City of St. George. This provision introduces a 15-degree skew with respect to the Project alignment. If the water line is relocated as a component of future design efforts, consideration will be given to reorienting the structure normal to the Project alignment. The impact of this will amount to a shortened structure length and approximately 100 feet of trail rerouting at the undercrossing approaches.

Structures E 2808 and E 2809 are oriented normal to the Project alignment to minimize the length of the structures. Approximately 150 feet and 100 feet of existing trail realignment will be required to connect to structures E 2808 and E 2809, respectively.

Additional Design Efforts to be Completed

Structure length, arch portion, and overall length, including wingwalls, will require refinement in future design efforts. The arch portion of the structures will be adjusted to further account for joints between the precast sections. Minor adjustments to wingwall lengths, heights, and angles will be required with consideration of any changes to the general grading in the area. These modifications will be generally minor.

Slight adjustments to the locations of tortoise fencing (refer to Section 4.2.6) and the recreational trail structure interface may be required as the result of wingwall geometry refinements. Additionally, potential refinements to the Project's geometry profile will have implications on the undercrossing profiles and may include revised elevations at points of tangency, slopes of structure profile, and grading at the approaches. Changes to these locations will be generally minor.

Footing sizes of the three-sided arch structures have been preliminarily determined based on an assumed soil bearing capacity. Once the geotechnical investigation at the crossing locations has been completed during future design efforts, the final sizes of the footings will be determined. The footing sizes included in the PIH Design are based on the depths of soil fill above the structure and loading conditions. Changes to footing widths could increase overall structure footprint.

The current design does not include provision for lighting inside the trail crossing structures. In the event that lighting is added during future design efforts, the overall geometry of the structure will not be impacted, and the original clearance envelope will be maintained. Conduits for lighting will be surface mounted on the inside of the arch roof structure, run through the fill above the arch, or placed in a conduit channel precast into the arch. Lighting fixtures will either be surface mounted or slightly recessed into the roof of the arch.

4.2.2.2.2 Drainage Structure

Structure E 2810 is a double-barrel (two culverts place side-by-side), precast concrete drainage culvert that will convey water from an unnamed tributary located near the east end of the proposed alignment (referred to by Washington City as Green Springs West) to the existing water collection and transport facility located just north of the drainage structure.

The proposed drainage culvert design, horizontal layout, and vertical profile are a function of existing conditions at the location of the structure. Channelization of water flow at both ends of the box structures by way of extended wingwall and apron structures serve to maintain the natural existing flow patterns. The culvert is designed to carry a flow rate of approximately 570 cubic feet per second. The two precast concrete box structures are each 9 × 4 feet; the 4-foot height dimension facilitates the roadway profile.

Additional Design Efforts to be Completed

A final hydraulics report will be issued as a component of future design efforts. In association with the finalization of the hydraulics report, the design of the drainage culvert will be finalized. Change to the flow demands is not anticipated. Changes to flow direction (projected) may result in a shift of structure orientation, which also may require changes to the wingwall orientation, length, and height as well as headwall geometry adjustments. Changes are anticipated to have little impact on the structure footprint.

Currently, the alignment of the structure E 2810 is at a 36-degree skew relative to the roadway centerline. Per Section 6.2.3 of UDOT's Drainage Manual of Instruction (UDOT 2018a), the alignment skew should not exceed 30 degrees. As described above, a 36-degree skew is required based on the existing conditions such as the natural stream channel location, local topography, and ROW constraints. An adjustment to the skew or approval of a design deviation for the current skew will be required during future design efforts.

4.2.3 Stormwater Management and Drainage Design

The Project passes through incorporated areas of St. George, Washington City, and unincorporated Washington County. UDOT drainage criteria were used for the design process, which include UDOT's Drainage Manual of Instruction (UDOT 2018a) and UDOT's Stormwater Quality Design Manual (UDOT 2018b). Drainage criteria from local municipalities may apply at the eastern and western termini where drainage connections to local stormwater management systems are possible. Potential connections to local systems will be coordinated as additional data become available and the design progresses beyond the PIH stage.

4.2.3.1 ON-SITE ROADWAY DRAINAGE

Over 8,000 acres drains through the Project alignment. Existing drainage patterns in the Red Cliffs NCA can be described as natural ephemeral washes generally flowing from north to south or west to east. The beds and banks of these washes generally consist of sand and rock, with vegetation and ground cover in some areas. These washes provide for natural outfalls for Project drainage. Some erosion and bed movement are expected to occur during heavier storm and flow events. Major washes in the area include Chisel Wash, Middleton Wash, and an unnamed tributary located near the east end of the proposed alignment (referred to by Washington City as Green Springs West). Washes in this area ultimately drain to the Virgin River through portions of Washington City and St. George. Middleton Wash includes a regulated floodplain. No drainage issues or problems are known to exist in the general area crossed by the Project.

On-site runoff is generally drained, captured, conveyed, and treated separately from off-site flows. Based on roadway geometry, ditches, inlets and catch basins, and pipe networks are designed to limit spread on the traveled way, provide freeboard in open channels, and provide adequate capacity in pipe conduits. UDOT, AASHTO, and the Federal Highway Administration specify a number of additional locations where inlets and catch basins are to be located, which are included in the design. Because natural streams and washes will receive runoff from the roadway surface and grading, detention ponds are typically used to help limit post-Project discharge rates to pre-Project levels. A single detention pond was identified as required and is shown on the maps included in Appendix B.

Bentley OpenRoads Designer 2021 Release 2 was used for the majority of the on-site drainage analysis and design. This platform uses the steady-state rational-based StormCAD engine to develop an analysis of on-site hydrology and hydraulic performance.

The design hydrology for the on-site drainage systems is primarily designed for 10-year rainfall based on the National Oceanic and Atmospheric Administration Atlas 14, which provides intensity-duration data. On-site drainage basins were delineated to each individual catch basin or ditch terminus.

4.2.3.2 OFF-SITE CROSS DRAINAGE

Proposed off-site drainage basin boundaries were delineated based on available topographic data, including light detection and ranging (LiDAR) data collected for the Project as well as publicly available data with up to 1-meter resolution. Basin boundaries included the impacts of the proposed roadway profiles. Off-site hydrology in the form of post-Project hydrographs, which inform both peak discharge rate and runoff volume, were developed using Soil Conservation Service and Natural Resource Conservation Service methodology.

Although the design team and agencies evaluated the use of drainage culverts as additional tortoise crossings, it was decided that culverts were to be designed for drainage purposes only. As a result, elements that would have otherwise been incorporated into culvert design to help aid tortoise mobility were not used. Therefore, all round culverts are not accessible by tortoises, and are to be located within the limits of the tortoise fencing. Tortoise fencing placed away from culvert ends means that the fences will cross natural washes. In addition to regular monitoring and maintenance, reinforcing and breakaway fencing features should be considered during the Final Design phase.

As described in more detail in Section 4.2.2.2.2, the unnamed tributary wash will drain beneath the roadway in a double 9 × 4–foot reinforced concrete box at a skew angle of 36 degrees. Concrete headwalls, aprons, cutoff walls, and a riprap or concrete transition will be provided.

The other eight proposed cross-culvert pipes are corrugated metal pipes (CMPs) with one culvert designed as round reinforced concrete pipe. Hydraulic culvert calculations were completed per UDOT requirements. Calculations included tailwater estimates as well as inlet and outlet control headwater elevations and outlet barrel and tailwater velocities. Riprap aprons were sized and designed at culvert exits and based on HEC-14.

4.2.3.3 FUTURE DRAINAGE DESIGN EFFORTS

No survey was obtained or provided for existing drainage systems at the west or east ends of the roadway. Future design efforts will need to use such data to modify the local municipal storm drain system to accommodate the Project. There are a few drainage-related items that will also need to be addressed in the next phase of design. For example, adjusting the location of the detention pond further away from the recreational trail crossing, finalizing pond locations, showing utility crossings on pipe profiles, and completing Final Design phase efforts on the roadway low-point near station 242+00.

4.2.4 Multi-use Trail

A 14-foot multi-use trail will be included for the full length of the Project from Red Hills Parkway to Green Springs Drive. The trail will be located on the south side of the roadway outside of the roadway clear zone as shown in Figure 3. The trail will follow the roadway alignment and profile. The trail will be paved with asphalt. Drainage will be collected between the trail and the roadway in a drainage ditch.

The multi-use trail will be continuous from Red Hills Parkway to Green Springs Drive. Tortoise fencing will be provided between the trail and the surrounding area to maximize protection for tortoises from pedestrians, cyclists, and motor vehicles.

4.2.5 Recreational Trail Crossings

Recreational trail crossings will be provided between Red Hills Parkway and Green Springs Drive for three existing recreational trails (T-Bone Loop, Middleton Waterline, and Cottontail; see Appendix B). These crossings are designed to cross under the proposed Project roadway in three-sided structures with a natural bottom, matching the existing recreational trail materials. Additional details regarding these structures is provided in Section 4.2.2.2.1 of the POD.

No access between the Project multi-use trail and these existing recreational trail crossings will be provided. This is to discourage motorists from stopping, loading, or unloading along the Project roadway to access the recreational trails of the area. Minimizing access points in the tortoise fence will also maximize protection for tortoises from pedestrians, cyclists, and motor vehicles. Additional structural details of these crossings will be determined after the PIH Design phase.

4.2.6 Mojave Desert Tortoise Crossings and Fencing

4.2.6.1 MOJAVE DESERT TORTOISE CROSSINGS

Tortoise crossing structures are included in the design to allow tortoises and other wildlife to cross the Project roadway safely. Without these structures, the roadway will fragment habitat for the tortoise (which is listed as a threatened species under the Endangered Species Act) and other wildlife species. Specific locations for tortoise crossings were chosen by overlaying recorded observations of tortoise sign with the proposed roadway alignment and identifying areas along the alignment with the most tortoise sign. There are 19 tortoise crossing structures included in the PIH Design plans (refer to maps in Appendix B). The seven required crossing locations had been identified previously during the Section 7 consultation process with the U.S. Fish and Wildlife Service (USFWS). Twelve additional crossing structures were added during the initial design phase. Each additional crossing was assigned a priority ranking on the scale of 1 to 3 based on relative importance of the area as evidenced by the amount of tortoise sign recorded in that location.

All tortoise crossings are designed as CMPs with 12 inches of soil covering the bottom to provide a smooth natural surface on which tortoises can easily walk. The structures are categorized in descending order of importance as required, priority 1, priority 2, and priority 3. The seven required and five priority 1 crossings are designed as CMPs that are 6 feet in diameter with a reinforced concrete headwall at each opening. The four priority 2 and three priority 3 crossings are designed as CMPs that are 3 feet in diameter with circular steel end sections at each opening. Table 3 presents the 19 tortoise crossings included in the design and their corresponding priority level and crossing design type. Note that crossings 4 and 6 have been intentionally omitted from the design.

Additional information regarding the design of tortoise crossings will be included in Appendix I of the Final POD.

Table 3. Mojave Desert Tortoise Crossings

Crossing Number	Priority Level	Crossing Design Type
1	Required	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
2	Required	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
3	Required	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
5	Required	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
7	Required	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
8	Required	6-foot-diameter CMP metal pipe with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
9	Required	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
10	1	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
11	1	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
12	1	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
13	1	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
14	1	6-foot-diameter CMP with reinforced concrete headwall and a 12-inch-deep layer of soil inside the entire length of the pipe
15	2	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe
16	2	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe
17	2	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe
18	2	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe
19	3	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe
20	3	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe
21	3	3-foot-diameter CMP with circular steel end sections at each opening and a 12-inch-deep layer of soil inside the entire length of the pipe

Note: Crossings 4 and 6 have been intentionally omitted from the design.

4.2.6.2 MOJAVE DESERT TORTOISE FENCING

The design includes tortoise fencing that will be attached to the bottom of the ROW fence, with two options identified. With both options, 24 inches of the tortoise fence will be aboveground, and 12 inches will be buried straight down below the surface. In areas of bedrock, the tortoise fence will be bent at a 90-degree angle at ground level with 22 inches of tortoise fence above ground and the remaining 14 inches extending away from the ROW fence on the ground surface covered with up to 4 inches of cobble.

Tortoise fence is included in the design to prevent tortoises from entering the ROW where they could be injured or killed by moving vehicles. The tortoise fence will serve to funnel tortoises toward the crossing structures that will allow safe passage under the road.

4.2.6.3 ADDITIONAL DESIGN EFFORTS TO BE COMPLETED

In future design phases, there will likely be some fine-tuning of tortoise crossings. Locations may be moved slightly to make better use of existing topography and known tortoise movement areas or to optimize spacing between crossing structures.

4.2.7 Utility Crossings

Existing utilities cross the project alignment: five overhead power lines, four underground water lines, and two communications lines. These utilities are owned by Rocky Mountain Power, the City of St. George, and CenturyLink, respectively, and are shown on the maps included in Appendix B. These crossings and potential conflicts along these lines have been identified as a component of the PIH Design process. Utilities will be protected in place if possible. Additional utility coordination and utility relocation designs will be performed after the PIH Design phase, and additional information will be added to the POD as necessary.

4.2.8 Temporary Use Areas

As described in Section 4.1, temporary ROWs on BLM-administered lands and temporary construction easements on private or state lands may be required to accommodate temporary construction activities, equipment storage or staging areas, and other activities. The need for these temporary use areas will be identified during future phases of the design process and these areas will be included in the Final POD. Any temporary use areas not identified during the NEPA phase of the Project and authorized in the decision document will require clearance and approval from the appropriate agencies. If any temporary use areas not authorized in the decision document are needed, the review and approval of these areas with the appropriate agencies will be obtained by the selected construction contractor.

4.2.9 Additional Components

No additional components of the Project are anticipated based on the current status of the design process. Additional components of the Project that could be identified during future phases of the design process may include power and communications supply, roadway lighting, noise mitigation structures, or other features. If required, these features will be included in the Final POD.

4.3 Permitting Requirements and Preconstruction Surveys

4.3.1 Permits and Approvals

Non-federal land acquisitions will be required to complete the Project. In addition to these non-federal ROW acquisitions, Table 4 lists permits, reviews, clearances, and approvals that may be required for the Project.

Table 4. Permits, Reviews, Clearances, and Approvals that may be Required for the Project

Jurisdiction	Approvals	Granting Agency	Applicant	Application Timeline	Granting Timeline	Applicable Portion of Project
Federal permits, reviews, and approvals	Discharge permit under Section 404 of the Clean Water Act	U.S. Army Corps of Engineers	UDOT	Prior to construction	Prior to construction	Portions of roadway or structure in waters of the United States
Federal permits, reviews, and approvals	Endangered Species Act compliance	USFWS	BLM	Completed during NEPA process	Completed during NEPA process	Tortoise habitat
Federal permits, reviews, and approvals	Compliance with Section 106 of the National Historic Preservation Act	Utah State Historic Preservation Office and Advisory Council on Historic Preservation	BLM	Concurrent with the NEPA document	Prior to BLM issuing NTP	Considerations of impact to historic properties; includes consultation between agencies and interested parties
State permits, reviews, and clearances	Water quality certification under Section 401 of the Clean Water Act	Utah Division of Water Quality	UDOT	Concurrent with Section 404 permit	Concurrent with Section 404 permit	Required if the Project could discharge fill into navigable waters and certification not included in Section 404 permit
State permits, reviews, and clearances	Utah Pollutant Discharge Elimination System Construction General Permit under Section 402 of the Clean Water Act	Utah Division of Water Quality	Contractor	Construction phase	Prior to construction	Stormwater quality during construction
State permits, reviews, and clearances	Stream alteration permit	Utah Division of Water Rights	UDOT	After the final NEPA document	Prior to construction	Required if the Project will alter the bed or banks of a natural stream
State permits, reviews, and clearances	Fugitive dust control plan permit	Utah Division of Air Quality	Contractor	Prior to construction	Construction phase	Required for all construction activities
Local permits and clearances	Floodplain development permit	Local jurisdictions	UDOT	Final design	Final design	Portions of roadway or structure in Federal Emergency Management Agency floodplain
Local permits and clearances	Construction-related permits and approvals such as archaeological clearance, fugitive dust control plan, and others that must be obtained by contractor	Various agencies	Contractor	Contractor	Before construction	Impacts associated with off-site activities such as construction staging areas, borrow areas, batch plant sites, etc.
Local permits and clearances	Noise permit	Washington County	UDOT	Construction phase	Construction phase	Night work in any areas
Local permits and clearances	Private lands acquisition	Private landowners	UDOT	Final design	Prior to construction	Private lands needed for ROW

4.3.2 Preconstruction Surveys

4.3.2.1 ENGINEERING SURVEYS

Prior to the initiation of construction, on-ground investigations will be completed to accurately locate the centerline of the ROW. Before construction surveying begins, required permits to survey on public and state lands or right-of-entry for privately owned land will be obtained. Construction survey work will consist of centerline location, ROW boundaries, and other features that will be flagged and staked where needed.

4.3.2.2 ENVIRONMENTAL SURVEYS

Surveys for environmental resources were completed during the NEPA phases of the Project to inform the development of the NEPA analysis and development of appropriate environmental design features and mitigation measures. Other preconstruction environmental surveys will be conducted as required based on mitigation measures agreed to during the environmental process. Additional information about those surveys and the information gained through their completion will be included in the Final POD.

4.4 Project Construction

4.4.1 Construction Phasing

The Project may be constructed in phases depending on future travel demand and availability of Project funding. The phased approach will be implemented by designing and building the roadway initially to provide one lane in each direction connecting the proposed termini of the Project. Future phases could then widen this roadway to add the additional lanes based on travel demand and available funding. The full built-out roadway will be a four-lane divided highway with two 12-foot-wide travel lanes in each direction, and may not be completed until 2050 or later, as determined by the Applicant.

If a phased construction approach is used on the Project, additional design processes will be implemented to ensure that the Project is built for functionality in the current and future phases. The term “forward compatibility” is often used on phased Projects to describe the design approach that considers future phases and full Project implementation throughout intermediate phases of a Project to verify that future phases can be implemented and to minimize total Project costs and tear-out of existing construction during future phases. Through completion of the Final Design phase, design components such as drainage (including flow capacity and size), trail and cross-street connections, roadway and structure geometry, etc., will be evaluated to verify their compatibility with the future built-out condition to confirm that each of these components will be feasible with the final built-out design and still meet design standards.

4.4.2 Construction Plan and Program

On all UDOT construction Projects, site-specific construction methods are left to the discretion of the construction contractor selected by UDOT within the bounds of the Project specifications developed during the NEPA and Final Design phases of the Project. UDOT will be responsible for contractor oversight to ensure that all required construction practices, standards, and specifications are adhered to. Specific construction methods, including those designed to avoid or mitigate potential Project impacts, will be identified in the Final POD, as available.

Construction will be completed using established highway construction practices, standards, and specifications. UDOT Standard Specifications for Road and Bridge Construction (UDOT 2023 [or latest

edition]) (Standard Specifications) define required construction practices on all UDOT construction Projects. The Standard Specifications are updated periodically via a review and approval process; all Projects must comply with the most current edition. Supplemental specifications may be used to add additional specifications specific to a location or issue of concern. Additionally, a "special provision" may be used to revise a standard specification when required for a certain Project.

4.4.2.1 FLAGGING, STAKING, AND FENCING

The ROW will be marked by surveyors using stakes and lath. Identification of sensitive areas to be avoided will be done using pin flags, flagging ribbon, flexible fence, or temporary wire mesh fence. Where determined to be appropriate, temporary fencing will be installed to discourage access by wildlife and the public.

All flagging, staking, and fencing will be completed in accordance with the specifications described in Section 6 of the POD. If required by the BLM, additional details regarding flagging, staking, and fencing will be included in the Final POD.

4.4.2.2 CLEARING AND GRADING

Surface preparations for roadway development will include surveying, clearing, grubbing, and grading. Clearing includes removal and disposal in an approved landfill or other approved location of trees, stumps, logs, limbs, sticks, vegetation, debris, and other materials from the natural ground surface. Grubbing is the removal in the limits of clearing of roots, buried logs, debris, organic matter and other deleterious materials typically to a depth of 2 feet below natural ground surface. The contractor will be responsible for removal and disposal in an approved landfill or other approved location of cleared and grubbed material that cannot be reused on the Project outside of BLM-administered land.

Only the minimum amount of vegetation and topsoil necessary will be removed for each phase of construction. For each phase of construction, topsoil will be removed and stored in dedicated locations within the ROW for reclamation of areas disturbed by construction. Topsoil will be stored and applied during the reclamation of construction disturbances in accordance with the restoration and rehabilitation specifications shown in Table 5. To preserve topsoil quality, topsoil will not be stored between phases of construction. Additional information will be included in the Final POD; see also Section 4.5 and Appendix L.

4.4.2.3 ROAD CONSTRUCTION

All Project construction will follow the most recently approved applicable construction standards until and unless a newer set is adopted prior to completion of the design phase of the Project.

Construction of the Project will include typical earthwork operations needed for ROW preparation, as well as roadway excavation and placement and compaction of embankment and/or borrow. Pavement subgrade will consist of imported granular borrow and untreated base course and will also require compaction and water trucks.

Construction of pavement will involve equipment such as asphalt trucks, paving machines, and compactors.

If specified in the Final Design phase, underground drainage and utility conduits will be trenched into existing ground or placed during earthwork operations. Bedding and backfill material will be used in pipe and utility conduit trench areas. Inlet and outlet areas of drainage crossings may require additional grading and riprap, and geotextile will be used as necessary to stabilize them.

4.4.2.4 CONSTRUCTION EQUIPMENT

Earthwork activities will involve equipment such as scrapers, bulldozers, backhoes, water trucks, and compactors. Construction of pavement will involve asphalt trucks and compactors. Construction of drainage and utility conduits will require trenching equipment. Placement of prefabricated structures or construction of special structures such as bridges or box culverts may require cranes, drill rigs, and other specialized heavy machinery. Further details regarding types of equipment and their use will be determined by the construction contractor selected by UDOT. If required by the BLM, this information could be documented in the Final POD.

4.4.3 Construction Access

Access during construction will be via local roads (e.g., Red Hills Parkway, Green Spring Drive, and Cottonwood Road) and along the ROW. During the initial construction along the ROW, temporary haul roads will be established to provide vehicular access to various work areas. These temporary haul roads will be located within the approved ROW. As available, additional information regarding exact location and nature of temporary haul roads will be included in the Final POD.

4.4.4 Safety Requirements

Road construction will comply with general Occupational Safety and Health Administration (OSHA) standards. This defines responsibility for health and safety personnel, instruction and training, accident reporting, and overall work practice control. If available, additional information will be included in the Final POD.

Work zone safety practices such as signage and pavement markings will adhere to the MUTCD. Those specifics will be provided in Appendix N.

4.4.5 Environmental Compliance Requirements

The Applicant and their construction contractor will comply with all applicable federal and state environmental regulations during Project construction, including all design features, mitigation measures, or other environmental commitments made during the NEPA process. This includes submittals such as the stormwater pollution prevention plan (SWPPP) (see Appendix M) required under the Utah Pollutant Discharge Elimination System (UPDES) Construction General Permit, a fugitive dust control plan (identified in Table 4), and documentation of environmental clearances for any areas not previously cleared in the ROD and ROW grant. The fugitive dust control plan will be provided in the Final POD (see Appendix F).

The selected construction contractor will be required to develop a SWPPP that is consistent with the UPDES Construction General Permit and any applicable stormwater management programs. The SWPPP will be provided in the Final POD (see Appendix M).

4.4.6 Industrial Wastes and Toxic Substances

No specific industrial wastes or toxic substances are anticipated with Project construction; however, if any are encountered, they will be reported and dealt with according to applicable construction standards. Any flammable or combustible materials storage areas will be identified and managed according to these standards. Additional detail will be provided in the hazardous materials, hazardous waste, and spill prevention plan in Appendix G in the Final POD.

4.5 Stabilization and Rehabilitation

The final construction site will be stabilized using erosion and sediment control measures such as silt fence, check dams, and inlet protection. A full description of stabilization, rehabilitation, and/or revegetation activities following construction will be documented in the reclamation plan (see Appendix L), as available. Once final grades are established in areas that will be revegetated, topsoil will be placed over fill material and seeding will be used to establish vegetation. A Project-specific seed mixture and application methods will be developed in coordination with the BLM. Slopes will be roughened by walking track-mounted equipment up and down slopes. Erosion will be minimized during revegetation by applying mulch, erosion control blanket, flexible channel liner or other similar treatments. In some areas, other landscape treatments to protect exposed soils from erosion may be installed.

5 OPERATION AND MAINTENANCE

Ongoing operation, maintenance, and traffic management of the roadway corridor will be managed by the Applicant's operations, maintenance, and traffic staff. Operations and maintenance will follow standard practices for UDOT roadways. Maintenance work that will require construction on BLM-administered lands will be coordinated and planned with the BLM.

5.1 Road Maintenance Schedule and Minimum Maintenance

The minimum maintenance schedule and practices for the Project will be determined based on current UDOT standards and practices at the time of implementation. If available, additional information will be included in the Final POD.

5.2 Stormwater Management

The Utah Division of Water Quality issues UPDES permits to qualifying municipalities and UDOT that authorize the discharge of stormwater from municipal separate storm sewer systems (MS4) to waters of the state, subject to meeting the terms and conditions of the permit, including implementation of a stormwater management program. The goal is to reduce or eliminate the discharge of pollutants to waters of the state to the maximum extent practicable through the programmatic implementation of control measures, best management practices (BMPs), monitoring, and adaptive management.

The Project and all associated stormwater management facilities will be incorporated into UDOT's existing MS4 permit in effect at the time of completion of construction. Ongoing operations and maintenance will be managed as part of UDOT's stormwater management program, which is updated periodically to reflect the MS4 permit that is in effect. UDOT will be responsible for implementing the stormwater management program to reduce or eliminate the discharge of pollutants to waters of the state to the maximum extent practicable. If implementation of the stormwater management program requires construction activities on BLM-administered lands, UDOT will coordinate with the BLM in advance of the planned construction activities.

5.3 Control, Warning, and Directional Traffic Signs

Roadway signage will be inspected and deficiencies will be repaired, or signs replaced as warranted.

5.4 Special Needs or Seasonal Conditions

Special roadway needs or seasonal conditions requiring maintenance could include planned foot race or bicycle race events that require traffic accommodation or seasonal storm events.

5.5 Safety

The roadway will be designed for safe use and operation. AASHTO and the MUTCD provide requirements for clear zones, lateral offsets, rumble strips, signing, striping, and other safety features, which are included in the Standard Specifications and roadway design. Once constructed, safety features will be inspected and maintained according to current standards and practices applicable at the time of implementation.

Data will be gathered on roadway performance, accidents, natural events, and other traffic parameters to track roadway safety. If implementation of UDOT's safety program identifies a need for construction activities on BLM-administered lands, UDOT will coordinate with the BLM in advance of the planned construction activities.

5.6 Inspection and Maintenance

Once the Project is built, a survey will be completed to inspect all features on the Project. As-built drawings will be provided by the contractor and made available to the BLM upon request. Regular inspections will be conducted to ensure all equipment, structures, and BMPs are in good working order. If deficiencies are detected during regular inspections, repairs will be made as required. If implementation of UDOT's inspection activities identifies a need for construction activities on BLM-administered lands, UDOT will coordinate with the BLM in advance of the planned construction activities.

6 MITIGATION OF ENVIRONMENTAL CONCERNS

Two types of measures to reduce potential environmental impacts were developed during the Pre-NEPA and NEPA process for the Project: 1) design features of the Project for environmental protection, and 2) mitigation measures. These measures are included in Table 5. The Final POD will specify how the design features and mitigation measures will be implemented during design, construction, and over the life of the Project. The construction contractor will be required to comply with all design features of the Project for environmental protection and mitigation measures through the use of standard and special specifications and other Applicant requirements provided in the construction documents.

6.1 Design Features of the Project for Environmental Protection

Design features of the Project for environmental protection are standard practices of the Applicant that are incorporated into the Project description. These design features for environmental protection typically address specific environmental policies and regulatory requirements and are applied Project-wide, wherever applicable. Project design features for environmental protection were developed following UDOT's Standard Specifications for environmental compliance. The design features are identified as such in Table 5.

6.2 Mitigation Measures

Where warranted, based on the analysis in the NEPA document and on a case-by-case basis, mitigation beyond these design features for environmental protection were recommended to reduce potential impacts in specific locations. These types of mitigation are referred to as mitigation measures.

Mitigation measures were developed during the Pre-NEPA and NEPA phases of the Project by the Applicant in collaboration with the BLM to achieve appropriate avoidance, minimization, and mitigation of environmental impacts identified through the NEPA process. In addition to those measures identified during the NEPA process and included in the EIS, the BLM identified additional required mitigation measures in the ROD and ROW grant.

The mitigation measures required by the BLM are identified in Table 5. The Final POD will contain additional information regarding where and how the measures will be implemented. The description of where and how the measures will be implemented may be described in appendices included in the Final POD. Where applicable, the locations where the measures will be implemented will be identified on the maps included in Appendix B in the Final POD.

Table 5. Project Design Features and Mitigation Measures for Environmental Protection

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-1	Air Quality and Climate Change/Greenhouse Gases (GHGs)	Do not conduct open burning within the site of work without approval from the Utah Division of Air Quality (DAQ).	01355 Environmental Compliance 1.10 Open Burning	Construction, operations, and maintenance	Appendix F
DF-2	Air Quality and Climate Change/GHGs	A. Submit a Fugitive Dust Control Plan to DAQ for construction activities as defined in Utah Administrative Code (UAC) R30, such as: 1. Disturbing a ground surface greater than ¼ acre in size. 2. Demolition activities, including razing homes, buildings, or other structures. 3. Material storage, hauling, or handling operations. B. Minimize fugitive dust from construction activities using methods such as watering and chemical stabilization of potential fugitive dust sources or other methods approved by the DAQ. 1. Do not exceed 10 percent opacity caused by fugitive dust at the project boundary and 20 percent within the project site. This requirement does not apply when wind speeds exceed 25 mph and the operator is taking appropriate actions to control fugitive dust. 2. Conduct opacity observations according to U.S. Environmental Protection Agency (EPA) Method 9 for stationary sources. Refer to http://www.udot.utah.gov/go/standardsreferences. 3. Use procedures similar to EPA Method 9 to conduct opacity observations for intermittent and mobile sources. a. The requirement for observations to be made at 15 second intervals over a six-minute period does not apply. C. Minimize fugitive dust from material storage, handling, or hauling operations through the use of covers, stabilization, or other methods approved by the DAQ.	01355 Environmental Compliance 1.11 Fugitive Dust	Construction	Appendix F
DF-3	Air Quality and Climate Change/GHGs	Apply water for dust control in quantities and locations as directed by the Engineer and to maintain environmental compliance. 1. Dust control may be required at any time. 2. Do not waste water.	01572 Dust Control and Watering 3.1 Application	Construction	Appendix F
DF-4	Air Quality and Climate Change/GHGs	A. Refer to Section 01355. B. Contact the Utah Division of Air Quality (DAQ) and obtain the appropriate Air Quality Permit for the project. Permit application forms can be obtained from DAQ's Web site. Refer to http://www.udot.utah.gov/go/standardsreferences. Utah Division of Air Quality 195 North 1950 West PO Box 144820 Salt Lake City, UT 84116 Phone: (801) 536-4000 Fax: (801) 536-4099 C. Do not proceed with work affecting air quality without an Air Quality Approval Order, Notice of Intent to Approve letter, or a Temporary Approval Order for the project, process, or equipment to be used.	00820 Legal Relations and Responsibility to the Public 1.18 Air Quality Protection	Construction	Appendix F
MM-1	Blasting	UDOT will draft and submit a Blasting Plan to the BLM and USFWS for review. All explosives will be securely stored and marked and will comply with OSHA standards. UDOT will notify the BLM and USFWS through email communication of any changes to the Blasting Plan that occur after blasting is in process.	Not applicable	Construction	Appendix C
DF-5	Blasting	A. Use explosives, delay fuses, and all blasting materials as recommended by the explosives firm. Refer to National Fire Protection Association (NFPA) 495 – Explosive Materials Code.	02316 Roadway Excavation 2.3 Explosives	Construction	Appendix C
DF-6	Blasting	A. Store all explosives securely in compliance with Laws and Regulations. Refer to Section 00820. Refer to NFPA 495: Explosive Materials Code. B. Mark all storage places clearly	02316 Roadway Excavation 3.2 Blasting Material Storage	Construction	Appendix C
DF-7	Blasting	A. Comply with OSHA Constructions Standards 1926 Subpart U - Blasting and the Use of Explosives. B. Comply with NFPA 495 – Explosive Materials Code. C. Provide a qualified explosives expert to act as an advisor and consultant during drilling and blasting operations. D. Do not blast beyond designated areas.	02316 Roadway Excavation 3.7 Rock Removal – Explosive Method	Construction	Appendix C

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-8	Cultural Resources	A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction	Appendix D
DF-9	Cultural Resources	A. Suspend work within the vicinity if historical, archaeological or paleontological objects, features, sites or human remains are discovered during construction: 1. Provide a 100-foot minimum buffer around the perimeter of the discovery. 2. Protect the discovery area. 3. Contact the Engineer and send notice of the nature and exact location of the discovery. 4. Provide written documentation to the Engineer within two calendar days of discovery. B. Do not recommence work within the area of discovery until the Engineer provides notice.	01355 Environmental Compliance 1.13 Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites, or Human Remains	Construction, operations, and maintenance	Appendix D
MM-2	Cultural and Paleontological Resources	After the highway and associated facilities have been designed to a level where adverse effects to historic properties can be fully evaluated, a Memorandum of Agreement must be prepared, signed by the signatories and interested parties for this project, and implemented by the Holder. The Memorandum of Agreement will include terms and conditions to address the resolution of adverse effects to historic properties, including the approved historic properties Treatment Plan. The Holder shall be responsible for hiring and funding a contractor to develop the Treatment Plan, which must be reviewed by the signatories to the Memorandum of Agreement, including the BLM, State Historic Preservation Officer, Tribes, others, and finally approved by the State Historic Preservation Officer. All field work associated with data recovery treatments, including those that require excavations, will be completed prior to issuance of a Notice to Proceed.	Not Applicable	Design, Construction	Appendix D
DF-10	Cultural and Paleontological Resources	Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.	01355 Environmental Compliance 1.13 Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites, or Human Remains	Construction	Appendix D, Appendix K
DF-11	Cultural and Paleontological Resources	If in connection with operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the holder shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the authorized officer. The holder shall continue to protect the immediate area of the discovery until notified by the authorized officer that operations may resume.	01355 Environmental Compliance 1.13 Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites, or Human Remains	Construction	Appendix D
MM-3	Environmental Protection	The Holder shall promptly remove and dispose of all litter and debris, caused by its activities to the satisfaction of the authorized officer.	Not Applicable	Construction	Appendix H
MM-4	Environmental Protection	Access with motorized vehicles/equipment must be kept to existing or approved constructed routes, in accordance with the Plan of Development.	Not Applicable	Construction	N/A
MM-6	Environmental Protection	Avoid construction activities causing sound levels to exceed 95 decibels in daytime (7 a.m. to 9 p.m.) or 55 dba in nighttime (9 p.m. to 7 a.m.) within 10 feet of the nearest noise receptor.	Not Applicable	Construction	N/A
MM-7	Fire Prevention	The Holder or its contractors will notify the BLM of any fires and comply with all laws and regulations administered by the BLM concerning the use, prevention and suppression of fires on Federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The Holder or its contractors may be held liable for the cost of fire suppression, stabilization and rehabilitation. In the event of a fire, personal safety will be the first priority of the Holder or its contractors.	Not Applicable	Construction, Operations and Maintenance	N/A
MM-8	Fire Prevention	Construction staff will adhere to BLM fire prevention and suppression requirements; all construction personnel will have fire tools and extinguishers available at all times.	Not Applicable	Construction	N/A
DF-12	Fish and Wildlife Resources	A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction	N/A
DF-13	Fish and Wildlife Resources	A. Locate Wildlife Escape Ramps by type as shown. B. Clear and grade within the footprint of the Wildlife Escape Ramp to permit proper installation. C. Install Wildlife Escape Ramp according to FG Series Standard Drawings. D. Place embankment material for ramp as shown on the isometric view. Refer to FG Series Standard Drawings. E. Cover the Wildlife Escape Ramp with topsoil, broadcast seed, and Hydraulic Erosion Control Products (HECP) Type 1 mulch after placing embankment. Refer to Sections 02912, 02922, and 02911.	02827 Wildlife Escape Ramps 3.1 Installation	Design, Construction	N/A

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-9	Fish and Wildlife Resources	If project construction occurs during the maximum migratory bird nesting season (January 1 through August 31), a pre-construction survey by a qualified biologist (<less than 10 days prior to when work actually begins on the project site) is to be conducted for nesting birds. If an active nest is identified, a no-activity buffer (ranging from 100 feet to 1 mile, depending on species) is to be established around the nest site and remain in place until the young have fledged and/or the nest becomes non-active. If existing topography limits line of sight between an active nest and construction activities, spatial and seasonal buffers may be reduced. Spatial and seasonal buffers may also be adjusted based on existing activities or other site-specific factors. Upon completion of Migratory Bird surveys, a report detailing survey locations, survey methods, and results must be provided to the BLM St. George Field Office.	Not Applicable	Construction	N/A
MM-10	Fish and Wildlife Resources	Activities will comply with Utah BLM BMPs for Raptors and Their Associated Habitats in Utah (BLM 2006). Project activities will not occur within recommended spatial and seasonal buffers for raptors unless otherwise approved by the BLM. If existing topography limits line of sight between an active nest and construction activities, spatial and seasonal buffers may be reduced. Spatial and seasonal buffers may also be adjusted based on existing activities or other site-specific factors.	Not Applicable	Construction	N/A
MM-11	Hazardous Materials and Waste	Prepare Hazard Materials, Hazardous Waste, and Spill Prevention Plan.	Not Applicable	Construction	Appendix G
MM-12	Hazardous Materials and Waste	Develop and implement a Litter Management Plan for the ROW.	Not Applicable	Construction	Appendix H
DF-14	Hazardous Materials and Waste	A. Suspend work immediately in an area if abnormal conditions are encountered or exposed during construction that indicates the presence of a hazardous waste. 1. Notify the Engineer. B. Do the following if a waste discovered or spilled on-site is suspected of being considered hazardous according to the reportable quantity limits identified in Title 40 CFR 302.4. 1. Take appropriate actions to minimize the threat to human health and the environment. 2. Contact the Engineer immediately. 3. Follow appropriate testing measures to determine if waste is hazardous. 4. Do the following if waste is determined to be hazardous: a. Contact the Utah Department of Environmental Quality (DEQ), 24-hour Answering Service at (801) 536-4123, and the National Response Center at (800) 424-8802. 5. Follow requirements in UAC R315. C. Coordinate with the Engineer to initiate development of a remediation plan according to DEQ and the EPA regulations and requirements. 1. Pay for costs to address hazardous waste discovery or spill cleanup when caused by Contractor's activities. 2. Cost to test and remedy waste not caused by Contractor to be considered as contract change order by Engineer. D. Complete the work required by the remediation plan before resuming operations in the affected area.	01355 Environmental Compliance 1.7 Hazardous Waste	Construction, Operations and Maintenance	Appendix G
DF-15	Hazardous Materials and Waste	Spill of Petroleum-Based Product and Used Oil A. Contact the Engineer if a spill occurs that exceeds 25 gallons, or that poses a potential threat to human health or the environment, such as discharging to groundwater, surface water, or a storm drain. 1. Send notice following the discovery of the spill. 2. Notify DEQ, 24-hour Answering Service, at (801) 536-4123. 3. Coordinate with the Engineer to develop a remediation plan for spilled used oil or petroleum-based product according to UAC R315-15-8 and R315-15-9. B. Cleanup petroleum-based or used oil product when caused by Contractor's activities.	01355 Environmental Compliance 1.8 Spill of Petroleum-Based Product and Used Oil	Construction, Operations and Maintenance	Appendix G

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-16	Hazardous Materials and Waste	C. Implement at least the following Pollution Prevention and Good Housekeeping Practices: 1. Concrete Washout a. Provide a watertight container on-site before concrete placement activities begin and where concrete trucks, tools and equipment are to be washed. 1) Do not exceed 75 percent of total storage capacity 2) Do not place within 50 feet of storm drain inlets, open ditches or watercourses. b. Remove and properly dispose of concrete waste and washout water. 2. Street sweeping debris generated from construction track-out. a. Sweep debris back onto disturbed pervious project areas 1) Remove trash and litter b. Store debris collected by sweeping equipment on disturbed pervious project areas where it cannot enter into waterway or storm drain system. 3. Waste collected from cleaning pipes, inlets, culverts or ponds. a. Dispose of waste at a solid waste disposal facility currently regulated by the State of Utah, as follows: 1) Coordinate with facility in advance to determine disposal requirements 2) Comply with facility acceptance requirements. 3) Document waste collection and disposal using Department's waste disposal tracking form. Refer to http://www.udot.utah.gov/go/standardsreferences. b. Waste may be temporarily stored within a contained and impervious surface that prevents runoff to adjacent areas and seepage into the ground until disposal. c. Coordinate with Engineer for the disposal of waste that is not accepted at a solid waste disposal facility. 4. Prevent material from entering into stormwater conveyances, such as storm drain inlets and drainage pipes, ditches, natural waterways, and wetlands. 5. Maintain site of work in a clean condition through proper disposal and clean-up of sanitary waste, trash, spills, chemicals, and other waste materials. 6. Use drip pans and absorbent materials to mitigate discharges from leaking equipment until repairs can be made. Maintain a spill kit within the site of work.	01355 Environmental Compliance 1.14 Stormwater Management Compliance	Design, Construction, Operations and Maintenance	Appendix M
MM-13	Hazardous Materials and Waste	Local, State, and Federal laws and regulations related to the use, handling, storage, transportation, and disposal of hazardous materials will be followed. No equipment oil or fuel will be drained on the ground; oils or chemicals will be hauled to an approved site for disposal.	Not Applicable	Construction	Appendix G
MM-14	Hazardous Materials and Waste	All toxic substances (e.g., oil, gas, antifreeze) will be stored in waterproof closed containers at all times. Accidental spills will be reported and cleaned up immediately.	Not Applicable	Construction	Appendix G
MM-15	Hazardous Materials and Waste	Refuse and trash, including stakes and flags, will be removed and disposed of properly.	Not Applicable	Construction	Appendix H
MM-16	Hazardous Materials and Waste	Construction sites, staging areas, and access roads will be kept orderly during construction.	Not Applicable	Construction	Appendix H
MM-17	Hazardous Materials and Waste	Portable toilets will be used on-site and maintained on a regular schedule.	Not Applicable	Construction	N/A
MM-18	Hazardous Materials and Waste	A hazardous materials spill kit that is appropriate for the solvents involved in operation and maintenance of vehicles and machinery used during the Project will be kept on-site during construction.	Not Applicable	Construction	Appendix G
MM-19	Hazardous Materials and Waste	The BLM and other regulatory agencies will be contacted as soon as possible in the event of a fuel/oil or hazardous material spill. Actions will be taken to minimize the amount and spread of the spill material, including the use of straw bale plugs, earthen berms, and the use of absorbent materials. If necessary, soil remediation will be conducted, including the removal of contaminated soils to an approved facility and soil sampling to verify successful site remediation.	Not Applicable	Construction	Appendix G

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-20	Land and Water Conservation Fund	Although Section 7 of the Land and Water Conservation Fund (LWCF) makes monies available for federal acquisition and land management activities, it does not assign management prescriptions or limitations to any federal lands in which LWCF funds are used for acquisition or management (54 U.S.C. 200306). In contrast, Section 6 of the LWCF generally requires that any property acquired or developed with funds under a state program cannot be converted to another use without approval from the National Park Service (54 U.S.C. § 200305(f)(3); see also 36 CFR § 59.3). In contrast to Alternative 5, the roadway design under Alternatives 2, 3, and 4 does not impact any parcels acquired through the state LWCF program, and accordingly would not require a Section 6(f) approval. In development of the roadway design included in the Final POD, UDOT will make reasonable efforts using construction techniques and technology or equipment available at the time of roadway construction and reasonable feasibility, including economic feasibility, to incorporate such technology into the project design as may be reasonably appropriate to comply with any specific requirements applicable to impacted LWCF parcels, such as avoiding any encumbrance that would be inconsistent with the purposes of the conservation easement acquired by BLM under UTU-79246.	Not Applicable	Design, Construction	N/A
MM-21	Mojave Desert Tortoise	All Project personnel designated to handle desert tortoises will use the most recent desert tortoise handling protocols to minimize effects from handling or translocating tortoises.	Not Applicable	Construction, Operations and Maintenance	Appendix I
MM-22	Mojave Desert Tortoise	The action agency and applicant will design the Project to minimize desert tortoise fragmentation by constructing passage structures to allow effective desert tortoise dispersal, within the scope of the Project and consistent with the POD.	Not Applicable	Design, Construction	Appendix I
MM-23	Mojave Desert Tortoise	The action agency will ensure biological monitoring expertise on-site. Authorized activities will require monitoring of the desert tortoise population throughout the duration of the project construction. The development of the appropriate level of monitoring will occur in coordination with the action agency and FWS.	Not Applicable	Construction, Operations and Maintenance	Appendix I
MM-24	Mojave Desert Tortoise	The action agency shall submit a desert tortoise translocation report to the Utah Ecological Services Field Office by February 1 for the previous calendar year. Specifically, the report shall briefly document the number of desert tortoises moved out of harm's way, as well as actions taken to implement these terms and conditions, the effectiveness of these terms and conditions at reducing take of desert tortoise, and information on individual desert tortoise encounters. The report shall make recommendations for modifying or refining these terms and conditions to enhance desert tortoise protection.	Not Applicable	Construction, Operations and Maintenance	Appendix I
MM-25	Mojave Desert Tortoise	The action agencies shall notify the Utah Ecological Services Field Office of any postconstruction desert tortoise fatalities documented within the ROW. The report should include the estimated age class, size, and sex of the desert tortoise. Additionally, any circumstances that can be determined regarding the fatalities should be included. The action agencies shall notify the Utah Ecological Services Field Office (801- 975-3330) within 72 hours of discovering the fatalities, or as soon as possible.	Not Applicable	Construction, Operations and Maintenance	Appendix I
MM-26	Mojave Desert Tortoise	Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effect of incidental take that might otherwise result from the proposed action. If the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The action agencies must immediately provide an explanation of the causes of the taking and review with the Utah Ecological Services Field Office the need for possible modification of the reasonable and prudent measures.	Not Applicable	Construction, Operations and Maintenance	Appendix I
MM-27	Mojave Desert Tortoise	We recommend that the BLM and the applicants manage activities (minimizing waste, reducing perching and nesting opportunities for ravens, etc.) so that they do not contribute to the proliferation of predators within desert tortoise habitat.	Not Applicable	Construction, Operations and Maintenance	Appendix I
DF-17	Noise	3. Minimize noise during Nighttime Construction Work. a. Comply with temporary noise permit conditions. 1) Notify the Engineer and local government authority two weeks in advance of percussive noise activity. 2) Nonconformance with temporary noise permit conditions will result in disincentive according to Section 01355. b. Department obtained Temporary Noise Permits are included in the contract. c. Obtain required temporary noise permits for: 1) Nighttime construction work within the project construction limits when nighttime construction work is not required in the contract. 2) Activities outside of the project limits such as off-site batch plants and gravel pits.	01355 Environmental Compliance 00555 Prosecution and Progress 1.9 Limitation of Operations	Design, Construction, Operations and Maintenance	N/A
MM-28	Paleontological Resources	Prepare Paleontological Resources Protection Plan.	Not Applicable	Construction	Appendix K
DF-18	Paleontological Resources	A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction	Appendix K

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-19	Paleontological Resources	A. Suspend work within the vicinity if historical, archaeological or paleontological objects, features, sites or human remains are discovered during construction: 1. Provide a 100-foot minimum buffer around the perimeter of the discovery. 2. Protect the discovery area. 3. Contact the Engineer and send notice of the nature and exact location of the discovery. 4. Provide written documentation to the Engineer within two calendar days of discovery. B. Do not recommence work within the area of discovery until the Engineer provides notice.	01355 Environmental Compliance 1.13 Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites, or Human Remains	Construction, Operations and Maintenance	Appendix K
MM-29	Public Health and Safety	The Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601 et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.	Not Applicable	Construction	N/A
MM-30	Public Health and Safety	The holder shall provide for the safety of the public entering the right-of-way consistent with applicable law.	Not Applicable	Construction, Operations and Maintenance	N/A
MM-31	Public Health and Safety	Signs will be placed on roads and trails where needed to warn recreational users of any hazards.	Not Applicable	Design, Construction, Operations and Maintenance	N/A
MM-32	Public Health and Safety	Project traffic control will be coordinated with local emergency and law enforcement agencies. Emergency maintenance will be provided 7-days a week, 24-hours a day until completion of the project. Contact information will be provided.	Not Applicable	Construction	Appendix N
MM-33	Public Health and Safety	All new roads will be constructed to a safe and appropriate standard, to accommodate intended vehicle use. Roads will follow the contour of the land where practical.	Not Applicable	Design, Construction, Operations and Maintenance	N/A
MM-34	Recreation	Recreational trails: UDOT would install under-road passages for each of the three existing recreational trails that cross the ROW. The T-Bone Trail passage may be incorporated into the passage that would be designed for Mojave desert tortoise. All under-road passages would provide sufficient clearance to allow for safe passage of users and UDOT and the BLM would collaboratively determine the final design to be included in the Final POD.	Not Applicable	Design, Construction	Appendix E
MM-35	Recreation	Interpretive displays: UDOT would provide a minimum of eight waypoints along the new hike and bike path and install an interpretive display at each one. The content of the displays would be guided by the Red Cliffs NCA Interpretive Concept Plan and promote public education and understanding of the eight purposes for which the Red Cliffs NCA was designated. UDOT and the BLM would collaboratively determine the final location and design of the waypoints and interpretive displays through the Final POD.	Not Applicable	Design, Construction	Appendix E
DF-20	Rehabilitation and Restoration	A. Preserve public and private property during the work. B. Secure legal right to access the property before any work is performed on public or private property. All damage as a result of trespass will be the financial responsibility of the Contractor, including additional acquisition costs. C. Accept liability for any damage to public or private property resulting from defective work, materials, or non-execution of the contract until contract completion. D. Restore damaged property and items removed temporarily during construction to a condition similar or equal to that existing before the damage. E. Temporarily discontinue work if remains of prehistoric dwelling sites or artifacts of historical or archeological significance are encountered. Refer to Section 01355.	00820 Legal Relations and Responsibility to the Public 1.12 Protecting and Restoring Property and Landscape	Construction, Operations and Maintenance	Appendix L
DF-21	Rehabilitation and Restoration	A. Land monuments, property markers, or official datum points 1. Protect until their removal is approved. 2. Reference for re-establishment before removing. B. Protect trees from damage to roots and branches if they are designated to remain. C. Protect other vegetation and objects designated to remain.	02231 Site Clearing and Grubbing 3.6 Protection	Design, Construction	Appendix L

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-22	Rehabilitation and Restoration	C. Clean and finish areas within the clear zone as follows: 1. Remove protrusions or depressions greater than 3 inches within the clear zone such as rocks, boulders, ridges, and stumps. 2. Remove trees and provide proper sight distance. 3. Determine clear zone according to AASHTO Roadside Design Guide when not shown. D. Clean drainage facilities of debris and obstructions caused by construction. 1. Dispose of material removed. E. Remove or cover with fine material from roadway excavation or borrow, large rocks or boulders on fill slopes with the following exception: 1. Large rocks and boulders protruding from the final graded surface six inches or less, on slopes steeper than 3:1 or beyond the clear zone. F. Do not undercut the slope on cut slopes. 1. Remove all overhanging rocks. 2. Solid ledge rock or partially buried boulders 0.33 yd^3 or more may be left in place on slopes steeper than 4:1 beyond the clear zone. G. Clean and finish areas within right-of-way limits as follows: 1. Remove all dead trees and shrubs. 2. Prune trees and shrubs as required. 3. Trim and shape trees to provide horizontal sight distance and 20-foot vertical clearances above the roadway. 4. Remove undesirable live trees, shrubs, and all fruit trees to a depth of 18 inches below natural ground. 5. Dispose of trash and debris. H. Clean and finish areas within staging and office sites as follows: 1. Clean up and finish as specified for finishing local material source sites, including seeding and mulching. Refer to Section 01455.	01741 Final Cleanup	Construction	Appendix L
DF-23	Rehabilitation and Restoration	A. Remove temporary environmental controls when surrounding disturbed areas have met final stabilization measures, except as follows: 1. Do not remove perimeter controls, such as silt fence, fiber rolls or straw bales, when they protect a wetland or waterway unless the surrounding area meets final stabilization requirements identified within the UCGP. 2. When the Engineer determines that controls should remain in place. B. Remove temporary environmental fence and posts upon completion of construction.	01571 Temporary Environmental Controls 3.4 Removal	Construction, Operations and Maintenance	Appendix L
DF-24	Rehabilitation and Restoration	A. Complete final grading, trench settling, and surface preparation before placing topsoil. B. Place and spread topsoil as the slope is being constructed on steep cut slopes steeper than 2:1 and higher than 15 feet that require the placement of topsoil. Finish according to this Section, Article 3.3, paragraph D. C. Provide a suitable topsoil surface just before seeding on the remaining top soiled areas not covered under this article, paragraph B. Suitable topsoil surface is: 1. Non-compacted and finished according to this Section, Article 3.3. 2. Weed free. 3. Finish grade uniform surface with smooth transitions between grade changes and disturbed areas. D. Do not strip or handle wet topsoil. E. Establish finish grade at 1 inch below the top of all walks, curbs, mow strips, and other hard surfaces for areas receiving seed or turf seed and 1½ inch for areas receiving turf sod.	02912 Topsoil 3.1 General Requirements	Construction	Appendix L
DF-25	Rehabilitation and Restoration	A. Clear area to receive topsoil of all trash, debris, weeds, and rock 3 inches or larger and dispose of objectionable material in an approved manner. B. Place and spread the stockpiled topsoil over the prepared slopes to the plan depths. Use 4 inches if no depth is indicated in the plans. C. Disc or harrow the placed topsoil along the contour on slopes 3:1 and flatter or cat-track the slopes to create continuous cleat tracks that run parallel with the contours. D. Cat-track slopes steeper than 3:1 to create continuous cleat tracks that run parallel with the contours.	02912 Topsoil 3.3 Spread Stockpiled and Contractor-Furnished Topsoil	Construction	Appendix L

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-26	Rehabilitation and Restoration	A. Complete all final grading, irrigation work, trench settling, topsoil placement, and surface preparation before seed or sod application. B. Prepare general seedbed for all seeded and sodded areas. 1. Verify that a suitable topsoil surface has been prepared according to Section 02912 before seeding. 2. Do not work topsoil or seed when the soil is saturated or frozen. C. Prepare Turf Seedbed 1. Review finish grade to confirm that topsoil is 1 inch below the top of all walks, curbs, mow strips, and other hard surfaces. 2. Apply fertilizer at the rate of 2 lbs/100 yd^2 and mix thoroughly into upper 2 inches of topsoil. 3. Do not apply fertilizer and seed at the same time in the same machine. D. Prepare Turf Sod Surface 1. Review finish grade to confirm that topsoil is 1½ inch blow the top of all walks, curbs, mow strips, and other hard surfaces. 2. Apply fertilizer at the rate of 2 lbs/100 yd^2 and mix thoroughly into upper 2 inches of topsoil. 3. Level and roll prepared areas using a 21-gal water-filled hand roller containing 8 to 10 gal of water. 4. Lightly rake and dampen with water the top ⅛ to ⅝ inches of soil just before laying the sod.	02922 Seed, Turf Seed, And Turf Sod 3.1 Preparation	Construction	Appendix L
DF-27	Rehabilitation and Restoration	A. Notify the Engineer seven working days before seeding. B. Apply seed at the rate indicated in the Seed Schedule as shown. Note that drill seed and broadcast seed are applied at different rates.	02922 Seed, Turf Seed, And Turf Sod 3.2 Seeding - General	Construction	Appendix L
DF-28	Rehabilitation and Restoration	A. Use the drill method of seeding on accessible slopes 3:1 and flatter. B. Use a drill equipped with the following: 1. Depth band 2. Seed box agitator 3. Seed metering device 4. Furrow opener 5. Packer wheels or drag chains C. Use the drill manufacturer's directions in the presence of the Engineer. Calibrate the drill to apply seed at the rate indicated in the seeding schedule. D. Space drill rows a minimum of 6 inches and a maximum of 8 inches. E. Fill the seed boxes no more than half full when drilling on a slope. F. Set depth bands to drill seeds to a ½ inch depth. G. Drill along the contour. H. Maintain the drill at the calibrated setting throughout the seeding operation. I. Allow the furrows that are created by the drill to remain.	02922 Seed, Turf Seed, And Turf Sod 3.3 Drill Seeding Method	Construction	Appendix L

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-29	Rehabilitation and Restoration	A. Use the broadcast method of seeding under the following conditions: 1. Slopes steeper than 3:1. 2. Slopes 3:1 and flatter where the area to be seeded is inaccessible to drill. 3. The area to be seeded is not large enough to justify using a drill. 4. Rocky surface conditions will damage a drill. B. Obtain approval of the broadcast method by demonstrating the procedure on a 100 yd^2 area. C. Evenly broadcast seed using either: 1. A cyclone seeder or other approved mechanical seeder. 2. A hydroseeder. a. Apply seed, water, and 300 lbs of cellulose fiber mulch (tracer) per acre. D. Do not seed during windy weather or when soil is saturated. E. Incorporate the seed into the soil by one of three methods: 1. Cat-tracking by running the dozer up and down the slope creating continuous cleat tracks that run parallel with the contours. 2. Hand raking the seed in ½ inch deep and along the contours of the slope. 3. Slope chaining by pulling the chain along the contour until the seed is covered. F. Obtain approval from the Engineer that the seed has been adequately incorporated into the soil before applying wood fiber mulch, erosion control blanket, flexible growth medium, flexible channel liner, or other topdressing.	02922 Seed, Turf Seed, and Turf Sod 3.4 Broadcast Seeding Method	Construction	Appendix L
DF-30	Rehabilitation and Restoration	A. Verify that the area prepared to receive plants is graded properly according to the plan, all work is completed in the area, and that topsoil has been placed. Refer to Section 02912. B. Install the irrigation system and have it fully operational before installing plants. C. Stake or delineate plant locations for approval before installation.	02932 Trees, Shrubs, and Groundcovers 3.1 Preparation	Construction	Appendix L
DF-31	Rehabilitation and Restoration	A. General 1. Install plants using the plan details. 2. Water the plants within one hour of installation to saturate the rootball to a minimum of 4 inches below and around the plant hole. a. Add more backfill if settling occurs. B. Containerized Plants 1. Excavate plant holes to twice the diameter and the same depth of the rootball. 2. Carefully remove the plant from its container, scarify the sides and bottom of the rootball if needed, and place it in the prepared hole. 3. Place excavated soil in 4-inch lifts around the rootball and eliminate voids by tamping the soil between each lift. C. Balled and Burlapped Plants 1. Excavate plant holes to twice the diameter and the same depth of the rootball. 2. Gently place the plant in the prepared hole with burlap securely intact. 3. Do not mishandle or break root balls. 4. Carefully remove any wire baskets and the top half of the burlap without disturbing the root ball. D. Tubeling Plants 1. Auger a hole the same size as the tube. 2. Gently place watered tubeling in the prepared plant pit immediately following excavation of the hole so that the roots are not tangled, compacted, or curled up at the ends. 3. Compress the soil at the base of the tubeling to eliminate voids between the rootball and existing soil.	02932 Trees, Shrubs, and Groundcovers 3.2 Installation	Construction	Appendix L
MM-36	Rehabilitation and Restoration	UDOT would prepare a Reclamation Plan for the highway ROW for approval by the BLM. The Reclamation Plan would support the goal of returning the land to be reclaimed to a condition approximate to or more productive than that which existed before disturbance, while also allowing for the operation, maintenance, and safety needs of the roadway. The Reclamation Plan would include at least the following elements: (1) Reclamation timing, (2) Topsoil and Subsoil Measures, (3) Recontouring, Seeding, and Outplanting Measures, (4) Weed Control, (5) Performance Standards, (6) Reclamation Monitoring, including Reference sites (Qualitative and Quantitative), (7) Reclamation Success criteria, and (8) BLM Reclamation Goals and Process.	Not Applicable	Construction	Appendix L

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-37	Rehabilitation and Restoration	All disturbed areas will be re-vegetated in compliance with the Red Cliffs NCA RMP or other applicable standards at the time of reclamation. The BLM would inspect reclamation activities at the end of construction to ensure disturbed areas are revegetated/restored according to the performance standards within the approved Reclamation Plan.	Not Applicable	Construction	Appendix L
DF-32	Safety, Fire Protection, Emergency Preparedness	A. Perform work with minimal obstruction to traffic. B. Follow the safety provisions of all applicable laws, rules, codes, and regulations to protect the safety and convenience of the public and property. C. Provide, erect, and maintain all traffic control devices such as barriers, barricades, and warning signs according to the TC Series Standard Drawings and Section 01554 requirements to protect the work and the public safety. 1. Use barriers and barricades to delineate highway sections closed to traffic. 2. Illuminate obstructions during darkness and provide warning signs to control and direct traffic. D. Erect warning signs for work that may interfere with traffic, or where new work crosses or coincides with an existing road. 1. Place and maintain warning signs according to the authorized Traffic Control Plan. 2. Obtain approval before dismantling or removing traffic control devices. E. Pedestrians 1. Place and maintain warning signs according to the authorized Traffic Control Plan. 2. Provide Americans with Disabilities Act–compliant access in areas where construction interferes with existing access.	00820 Legal Relations and Responsibility to the Public 1.11 Public Convenience and Safety	Design, Construction	Appendix N
DF-33	Safety, Fire Protection, Emergency Preparedness	A. Stop Work Order: 1. The Engineer has the authority to stop work on a project, wholly or in part, when it is determined that the Contractor does not: a. Correct conditions unsafe for the project personnel or the public. b. Perform work properly or comply with contract provisions. c. Comply with the Engineer's orders. 2. Contract time will continue to accrue during a stop work order. Do not resume work until notification is received from Engineer. 3. The Engineer will provide a written Stop Work Order, within 24 hours of verbal notification, that describes the reason for ordering work to stop and what actions need to be taken or how conditions need to change before work may resume. 4. The Engineer will notify the Contractor when to resume work. 5. Time charges will continue to accrue during periods of stopped work. B. Work may be stopped for any of the following reasons: 1. Contractor's failure to comply with the contract. 2. Contractor's failure to keep insurance coverage according to 00820. 3. Contractor's failure to provide workers or equipment. 4. Work is being performed when unsuitable weather or soil conditions exist that are detrimental to the quality of the finished product. 5. Conditions exist that threaten the safety of the workers, public or nearby property.	00555 Prosecution and Progress 1.14 Stop Work Orders	Construction	N/A
DF-34	Safety, Fire Protection, Emergency Preparedness	A. Perform work within or adjacent to State or National Forest under regulations of the State Fire Marshal, Conservation Commission, Forestry Department, or other authority having jurisdiction governing the protection of forests. B. Prevent and assist with the suppression of forest fires. C. Cooperate with responsible forestry officials.	00820 Legal Relations and Responsibility to the Public 1.7 Protecting Forests	Construction, Operations and Maintenance	N/A
DF-35	Safety, Fire Protection, Emergency Preparedness	A. Establish a local public information office. Office may be located within the Contractor's regular office provided that the telephone number is a local call or toll-free number for project stakeholders. 1. Maintain established working hours and days. 2. Provide a telephone or cell phone with voice mail capability dedicated to project public information services. B. Maintain daily communication with the Engineer. C. Maintain and document weekly communications with Region Public Involvement Manager, affected residents, businesses, organizations, and public agencies such as local emergency services, public works, transit authorities, city offices, and other stakeholders.	01540 Public Information Services 1.7 PIC Responsibilities	Construction	N/A

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-36	Safety, Fire Protection, Emergency Preparedness	G. Maintain and document weekly communication and project updates with the following: 1. Department, Region, and Public Involvement Manager 2. Affected local public agencies a. Emergency Service Agencies 1) Fire Departments 2) Police Departments and Highway Patrol 3) Ambulance Services b. Local city offices c. Public works departments d. Local transit authorities e. Local school districts f. Local U.S. Post Office 3. Affected businesses 4. Affected trucking and carrier associations 5. Local organizations interested in the project 6. Private citizens when requested 7. Engineer and Region Public Involvement Manager, providing copies of logbook documentation 8. Other stakeholders as required	01540 Public Information Services 3.1 Establish Local Public Information Services	Construction	Appendix N
DF-37	Safety, Fire Protection, Emergency Preparedness	D. Responsibilities and Duties 7. Coordinate project traffic control with emergency services and local law enforcement agencies.	01554 Traffic Control 1.9 Traffic Control Maintainer	Construction	Appendix N
DF-38	Safety, Fire Protection, Emergency Preparedness	B. Provide emergency maintenance on a 7-day per week, 24-hour basis until substantial completion of the project. 1. Respond within 15 minutes and be on-site within 30 minutes plus travel time when contacted by the dispatcher. 2. Provide contacts and telephone numbers to the Engineer for the emergency service.	02892 Traffic Signal 3.24 Traffic Signal Maintenance During Construction	Construction	N/A
DF-39	Soils and Erosion Control	A. Do not interfere with the navigation of waterways when conducting work over, on, or adjacent to navigable waters. B. Comply with all conditions of permits from the U.S. Coast Guard or the U.S. Army Corps of Engineers.	00725 Scope of Work 1.10 Construction Over or Adjacent to Navigable Waters	Design, Construction	N/A
DF-40	Soils and Erosion Control	(see Wetlands, Riparian Resources, and Waters of the U.S., below)	01355 Environmental Compliance 1.9 Water Resource Permits	Design, Construction	N/A
DF-41	Soils and Erosion Control	A. Install appropriate controls as shown before beginning earth disturbing activities. B. Refer to installation procedures outlined in EN Series Standard Drawings and the AASHTO Construction Stormwater Field Guide. C. Install temporary environmental fence in the required locations before construction activities begin. 1. Install posts at a 12-foot maximum spacing so the fence does not sag more than 2 inches between posts. 2. Weave the fence over the support posts alternating every two loops and secure it to the posts with fasteners. D. Install Gutter-Inlet Barrier according to manufacturer's recommendations.	01571 Temporary Environmental Controls 3.1 Installation	Construction	Appendix M
DF-42	Soils and Erosion Control	A. Check installed controls before and after each rain event to verify proper working function and compliance with the UCGP. B. Replace controls that are not properly working to prevent erosion and sedimentation.	01571 Temporary Environmental Controls 3.2 Inspection	Construction	Appendix M
DF-43	Soils and Erosion Control	A. Maintain controls to function properly until surrounding disturbed areas have met final stabilization measures. B. Remove accumulated sediments from controls when depth reaches 50 percent of the control height or when it interferes with the performance of the control. C. Properly dispose of accumulated sediment.	01571 Temporary Environmental Controls 3.3 Maintenance	Construction	Appendix M
DF-44	Soils and Erosion Control	A. Complete all required grading, topsoil placement, and seeding in designated areas before installing RECP. B. Make soil surface stable, firm, free of rocks, roots and other obstructions. C. Apply the RECP within 24 hours after seeding.	02376 Rolled Erosion Control Products 3.1 Preparation	Construction	Appendix L

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-45	Soils and Erosion Control	A. Minimize disturbance of the prepared seedbed when installing the product. B. Install product according to manufacturer's recommendations. C. Unroll product parallel to the primary direction of flow and place it in direct contact with the soil. 1. Do not stretch the product or allow it to "tent" or bridge over surface inconsistencies during installation. D. Install flexible channel liner or turf reinforcement mat, within a channel, ditch or swale, to allow runoff to flow directly to the centerline of ditch, not undermining or bypassing the lined ditch. E. Place additional staples in areas such as swales, base of humps, against rock outcrops, and as required achieving maximum contact between the product and the soil.	02376 Rolled Erosion Control Products 3.2 Installation	Construction	Appendix L
DF-46	Soils and Erosion Control	A. Complete required grading, topsoil placement, and seeding in designated areas before applying HECP. B. Apply HECP within 24 hours after seeding. C. Provide sufficient time for HECP to cure according to manufacturer's recommendation before precipitations falls.	02911 Hydraulic Erosion Control Products 3.1 Preparation	Construction	Appendix L
DF-47	Soils and Erosion Control	A. Backfill all stump holes, cuts, depressions, and other holes resulting from clearing and grubbing within areas to receive embankment. 1. Compact backfilled areas to the density of the surrounding ground. B. Measure and pay separately for materials used for backfilling under Roadway Excavation or Borrow. C. Consider Roadway Excavation and Borrow as incidental to the work when these items are not included in the bid proposal. 1. No separate measurement or payment made in this case.	02231 Site Clearing and Grubbing 3.3 Backfilling	Construction	Appendix L
DF-48	Soils and Erosion Control	A. Dispose of material. Refer to Section 01355. B. Do not dispose of material within the designated roadbed. C. Outside of the Right-of-Way 1. Acceptable when done according to prevailing laws, including environmental laws, ordinances, regulations, and rules. D. Inside the Right-of-Way 1. Bury material at locations specified by or acceptable to the Engineer. 2. Use material to widen embankments and flatten embankment side slopes as approved by the Engineer. 3. Cover disposed material with at least 2 feet of earth and grade to drain properly. 4. Reduce wood to chips a maximum of ½ inch thick for mulching cut and fill slopes. a. Chips may be buried or distributed uniformly on the ground surface and mixed with the underlying earth so the mixtures will not sustain burning.	02231 Site Clearing and Grubbing 3.4 Disposal	Construction	Appendix L
DF-49	Soils and Erosion Control	A. Strip the topsoil: 1. Only from areas shown or determined by Engineer. 2. To a depth determined by the Engineer. B. Remove and dispose of any roots larger than 2 inches in diameter or 12 inches in length. C. Stockpile stripped topsoil: 1. At locations acceptable to the Engineer. 2. So that placement or activity around the stockpile does not damage or impact any existing trees, shrubs, or environmentally sensitive areas. Obtain appropriate clearances if such impacts are unavoidable. D. Grade to minimize erosion on and around the stockpiles.	02912 Topsoil 3.2 Strip and Stockpile Topsoil	Design, Construction	Appendix L
DF-50	Soils and Erosion Control	D. Topsoil free of: 1. Subsoils (no B or C horizon soils) 2. Coarse sand and gravel 3. Stiff clay, hard clods, or hard pan soils 4. Rock larger than 3 inches in any dimension 5. Trash, litter, or refuse 6. Noxious weeds and weed seeds	02912 Topsoil 2.1 Contractor Furnished Topsoil	Construction	Appendix L
MM-38	Soils and Erosion Control	Stormwater prevention controls will be maintained until surrounding disturbed areas have met final stabilization measures.	Not Applicable	Construction	Appendix M

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-51	Special Status Species: BLM Sensitive Species	A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds. 1. Comply with the Endangered Species Act.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction	Appendix I
MM-39	Special Status Species: BLM Sensitive Species	Surface-disturbing activities will be avoided within 100 meters of occupied BLM- sensitive plant species habitat wherever possible and where geography and other resource concerns allow. Fragmentation of existing populations and identified areas of suitable habitat will be avoided wherever possible, unless authorized by the BLM and USFWS. In such instances, a monitoring plan approved by the USFWS will be implemented for the duration of the project to assess impacts to the plant population or seed bank. If detrimental effects are detected through monitoring, corrective action will be taken through adaptive management.	Not Applicable	Construction	Appendix I
MM-40	Special Status Species: Federally Listed Species	Mojave desert tortoise fencing and shade structures: UDOT would install and maintain Mojave desert tortoise exclusion fencing and shade structures along the approved ROW in accordance with the most recent USFWS guidance as incorporated into the Final POD. Fencing precludes Mojave desert tortoise from entering the construction area or completed highway and shading provides thermal and predation cover for desert tortoise that encounter the exclusion fencing and pace along it. Attachment 1 in Appendix D of the Final EIS provides additional guidance on this measure. Maintenance may be conducted through coordination with Washington County or other entities.	Not Applicable	Design, Construction, Operations and Maintenance	Appendix I
MM-41	Special Status Species: Federally Listed Species	Under-road passages for Mojave desert tortoise: The roadway design included in the Final POD would incorporate passageways underneath the highway that could be used by Mojave desert tortoise where exclusion fencing has been placed along the highway. General locations for eight passages are provided in the POD, although they are expected to be further refined through any additional monitoring and/or field surveys and best information available at the time of design (1) to ensure effective placement for the Mojave desert tortoise and other wildlife species where concentrated use or burrows are found and (2) for technical and economic feasibility for design, construction, and long-term maintenance. To the extent consistent with project design and engineering and reasonably feasible, UDOT would consider additional locations for desert tortoise passages where natural topography creates an opportunity. Passageways would vary in size and be developed in final design of the project in coordination with the BLM, with the goal of achieving the following general design elements: Creating passages of sufficient size, based on the best available information at the time, to promote usage by desert tortoise. Incorporating natural light through sizing the passage appropriately and incorporating ceiling grates, open air sections, or other elements that allow for natural light throughout the passage. To the extent feasible, establishing a natural surface continuous with the surrounding environment and incorporating appropriate vegetation and substrate along the bottom through the passages. Focusing on fill areas and natural drainages to maximize the size of openings where consistent with natural topography. In development of the final design, UDOT would reasonably consult with the BLM, USFWS, and Utah Division of Wildlife Resources when determining the appropriate type of structure, sizing, and placement of under-road passages for Mojave desert tortoise as discussed above. Such determinations would be made based on current monitoring data, findings regarding minimizing fragmentation, construction techniques, and the availability of new technology or equipment and reasonable feasibility to incorporate such technology into the project design, realizing technology may be improved at the time the roadway is constructed. Any deviations based on site-specific conditions, topography, or design and engineering from the established parameters would be subject to review and approval by the BLM. UDOT would select the final structure type for the passages, which may incorporate culverts, bridges or modifying bridge design to better provide flyover intersections (rather than at-grade), pre-cast structures, or other methods that achieve the goals and parameters listed above, in accordance with current standards and published research studies.	Not Applicable	Design, Construction, Operations and Maintenance	Appendix I
MM-42	Special Status Species: Federally Listed Species	UDOT would evaluate and monitor existing passages along SR 18 for tortoise passage, including, as needed, additional maintenance activities and debris removal. UDOT would also consider modifying the structure design to improve tortoise passage as feasible. Modifications would ideally occur in conjunction with future road construction projects scheduled for the same area, or funding can be directed toward this project from the habitat conservation plan partners (i.e., BLM, USFWS, Utah Department of Natural Resources, etc.).	Not Applicable	Design, Operations and Maintenance	Appendix I
MM-43	Special Status Species: Federally Listed Species	Survey and Monitoring 1. Pre-project distribution surveys would be performed within 1 year prior to construction of the highway. 2. Preconstruction clearance surveys would be conducted prior to the initiation of construction. Areas that have been cleared and fenced with permanent fencing would not need to be resurveyed as long as the fence is monitored and maintained per the “Mojave desert tortoise fencing and shade structures” design feature listed above. 3. Fenceline checks would be conducted prior to activities, any breaches fixed, and if breaches are found, a coarse clearance survey would occur. Increased monitoring in the following 2 weeks and when the more active season starts would also occur.	Not Applicable	Construction	Appendix I

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-44	Special Status Species: Federally Listed Species	UDOT would hire individuals to conduct the surveys and monitoring with the following qualification requirements: Desert Tortoise Biologist – Authorized desert tortoise biologist(s) would be qualified to perform various activities that may include, but are not limited to, the following: conduct and oversee presence/absence and clearance surveys, handle desert tortoises, translocate desert tortoises, construct burrows, excavate burrows, conduct health assessments (including any necessary bloodwork), and oversee monitoring and compliance during project activities. Authorized biologists should have sufficient desert tortoise field experience in each category (a minimum of 480 hours searching for tortoises and tortoise sign) to detect the presence of desert tortoises through observations of animals and sign, including scat and burrows. Authorized biologists must maintain up-to-date Federal and State desert tortoise handling permits when they are conducting any handling activities. In some circumstances, Washington County Habitat Conservation Plan (WCHCP) Administration staff or local State or Federal biologists may be available to serve this function. All desert tortoise biologists would report to and coordinate with the BLM, Utah Division of Wildlife Resource (UDWR), and the WCHCP Biologist. The biologist would keep detailed field notes that would be submitted to the BLM and USFWS, Utah Ecological Services Field Office every 3 months. Desert Tortoise Monitor – Desert tortoise monitors are individuals who are approved by the USFWS to: assess habitat suitability; conduct presence/absence and abundance surveys for desert tortoises; monitor project activities within desert tortoise habitat; ensure proper implementation of conservation measures outlined in this document; and report incidents of non-compliance with the Reasonable and Prudent Measures and Terms and Conditions in the Biological Opinion (BO) issued for the project by the USFWS. Desert tortoise monitors should have enough desert tortoise field experience (a minimum of 480 hours searching for tortoises and tortoise sign) to detect the presence of desert tortoises through observations of animals and sign, including scat and burrows. A desert tortoise monitor is not authorized to handle desert tortoises. The monitor would keep detailed field notes and turn them in regularly to the biologist. See example field report form (Daily Desert Tortoise Report Form). Field Contact Representative – Field contact representatives (FCR) are individuals who are approved by the USFWS to: a. monitor some project activities within desert tortoise habitat (i.e., for this project, unsuitable habitat) b. assist with daily clearance sweeps as detailed in the text below; c. assist with proper implementation of protective measures; and d. call the desert tortoise monitor, biologist, BLM, UDWR, or USFWS, with any questions or concerns. The FCRs would not be permitted to assess habitat suitability or conduct USFWS protocol level surveys for desert tortoises because they would not have sufficient training or field experience. Because the project area supports such high densities of desert tortoises, FCRs would not be qualified to monitor within suitable habitat. FCRs would meet the following qualifications: can recognize signs of desert tortoises; understand monitoring protocols; and have a minimum of one field day under the supervision of a desert tortoise monitor in each activity season and habitat type. While FCRs and monitors would not be authorized to handle desert tortoise or conduct USFWS protocol level surveys, FCRs may, depending on the activity season and habitat quality, assist with daily clearance sweeps for desert tortoises immediately prior to or during project activities. The FCR would keep detailed field notes that would be turned in to the biologist.	Not Applicable	Construction	Appendix I
MM-45	Special Status Species: Federally Listed Species	For Occupied desert tortoise habitat, the following protocols would apply for project activities that occur during the Most Active Season (February 15 to November 30): A desert tortoise biologist would be on-site during all highway project activities for the protection of desert tortoises. The biologist would be responsible for determining compliance with the conservation measures as defined in a BO issued for the highway. No more than 1 hour prior to daily construction activities commencing or by 7 a.m. each work day (whichever is later), a desert tortoise biologist would conduct a clearance sweep of that day's activity area (including a 100-meter zone of influence on all sides) to identify desert tortoises and occupied burrows in the area. The monitor would also carefully inspect any hazards (e.g., trenches, open pipes). If temperatures are outside the range where desert tortoise activity is expected, the proponent may coordinate with the USFWS to reduce the monitoring requirements. A desert tortoise monitor would be assigned to each grouping of equipment (heavy machines which use power to perform a construction function specific to the machine) operating in spatially disjunct areas within the project site. A grouping of equipment is defined as all construction equipment working within a 1,000-foot linear distance from the first piece of equipment to the last piece of equipment. Equipment performing backfilling, re-contouring, and reclamation activities are included in this measure. Project vehicle speeds in the project area would be limited to 15 mph. Speed limit signs would be posted when entering and exiting the project area.	Not applicable	Construction	Appendix I

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
		Blasting may be required for the highway. Blasting would not be conducted within 100 meters of an occupied desert tortoise burrow due to possible direct effects of this action on burrow stability. The desert tortoise biologist would conduct 10-meter belt transect protocol desert tortoise surveys prior to and within 100 meters of any blasting. If a burrow is occupied, the UDWR, BLM, and USFWS would be contacted to discuss appropriate translocation measures based on the case-specific circumstances. Any contractor performing blasting would comply with applicable regulations, codes, and standards established by the regulatory agencies, and follow the Reasonable and Prudent Measures and Terms and Conditions in the USFWS BO to minimize impacts to desert tortoise. If highway project activities occur during the desert tortoise Most Active Season (February 15 to November 30, highest activity during March 15 to May 15 and August 20 to October 20), UDOT would hold a short refresher meeting with all highway project personnel that would be led by the desert tortoise biologist on February 15 or the first working day just prior to that date and on March 15 and August 20 (or the first working day just prior to those dates). This meeting would include instruction and handouts to remind workers of the highway project's conservation measures. Refresher meetings would be held in addition to the pre-project meeting described in General Measures. However, if the initial pre-project meeting occurred recently (within 1 month prior to the Most Active Season start date, March 15 or October 20), the refresher meeting that would have normally been held on that date is not required. Because shade structures are being installed, once daily fenceline checks by the desert tortoise biologist would be conducted no more than one hour prior to each day's project activities beginning or 7 a.m. (whichever is later). Open trenches and other open excavations would be covered or provided with desert tortoise escape ramps. Excavations left open would be checked each morning for presence of tortoise prior to commencement of daily work and at the end of the work day. Escape ramps would have a slope no steeper than 3:1 and be a minimum of 91.5 centimeters (3 feet) in length. Escape ramps would be placed at 100-meter intervals. These distances would be reduced if the desert tortoise biologist and Federal agencies determine that the plug/escape ramp spacing is insufficient to facilitate animal escape from the trench. No standing water caused by highway project operations would be permitted in desert tortoise habitat because this can attract desert tortoises and predators. Similarly, leaks on water trucks and water tanks would be repaired to prevent pooling water. If watering conditions could temporarily attract desert tortoises, the desert tortoise monitor assigned to a group of equipment constructing the project may periodically leave the group of equipment to patrol each area being watered. The storing and handling of bulk hazardous waste materials would be excluded from the project areas within 600 meters of active tortoise burrows.			
MM-46	Special Status Species: Federally Listed Species	For Occupied habitat, the same measures as above for the Most Active Season would be applied during the Less Active Season (December 1 to February 14), with the following exceptions: A desert tortoise biologist is not required on-site daily. A monitor would remain on-site during all project activities, conduct daily clearance sweeps out to 100-meter zone of influence, check any hazards, and check all backfilling, re-contouring, and reclamation activities prior to initiation. A desert tortoise biologist would conduct an initial preconstruction clearance survey and identify any occupied burrows or hibernacula. The biologist would also come out to the site weekly to check in with the monitor, review and collect field notes, and check any hazards. The fenceline would be checked once per day by the biologist or monitor. An FCR would be assigned to each grouping of equipment as described above.	Not applicable	Construction	Appendix I

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-47	Special Status Species: Federally Listed Species	For Unsuitable habitat (within the fenced areas of Cottonwood Springs Road and Red Hills Parkway), the following conservation measures would be applied during the Most Active Season (February 15 to November 30): A desert tortoise biologist would conduct an initial preconstruction clearance survey and identify any occupied burrows or other hibernacula adjacent to the desert tortoise exclusion fence. A desert tortoise biologist would come out to the site weekly to check in with the monitor, review and collect field notes, and check any hazards. A monitor would stay on-site and perform a clearance sweep out to 100 meters and check any open trench and any other open excavations at least three times daily. If a desert tortoise or fresh desert tortoise sign is found within the 100-meter zone of influence of the project, the monitor would contact BLM, UDWR, and USFWS to discuss appropriate translocation, avoidance, and minimization measures based on the case-specific circumstances. No standing water caused by project operations would be permitted in desert tortoise habitat as this can attract desert tortoises and predators. Similarly, leaks on water trucks and water tanks would be repaired to prevent pooling water. If conditions favor tortoise activity, the FCR or a desert tortoise monitor assigned to a group of equipment constructing the project may periodically leave the group of equipment to patrol each area being watered. If project activities occur during the desert tortoise Most Active Season (February 15 to November 30, highest activity during March 15 to May 15 and August 20 to October 20), the proponent would hold a short refresher meeting with all project personnel that would be led by the desert tortoise biologist on February 15, March 15, and August 20 (or the first working day just prior to those dates). This meeting would include instruction and handouts to remind workers of the project's conservation measures. Refresher meetings would be held in addition to the pre-project meeting described in General Measures. However, if the initial pre-project meeting occurred recently (within 1 month prior to February 15, March 15, or October 20), the refresher meeting that would have normally been held on that date is not required.	Not applicable	Construction	Appendix I
MM-48	Special Status Species: Federally Listed Species	For Unsuitable habitat (within the fenced areas of Cottonwood Springs Road and Red Hills Parkway), the following measures would be applied during the Less Active Season (December 1 to February 14): The on-site desert tortoise monitor does not need to remain on-site during all project activities. A monitor would perform a sweep of any open trench and any other open excavations once daily. The desert tortoise biologist would visit the site once a week to review field notes and assess any hazards. If a desert tortoise or fresh desert tortoise sign is found within the 100-meter zone of influence of the project, the monitor or FCR would contact BLM, UDWR, and USFWS to discuss appropriate translocation, avoidance, and minimization measures based on the case-specific circumstances.	Not applicable	Construction	Appendix I
MM-49	Special Status Species: Federally Listed Species	All individuals working on-site would be required to take a worker education training class, conducted by the Washington County HCP Office (WCC 2006). The class would describe desert tortoises, and the appropriate measures to take upon discovery of a desert tortoise or burrow. The class would also include a discussion of construction techniques and conservation measures to minimize potential adverse impacts. All project personnel would sign an affidavit certifying that they have read and understand the material presented in the brochure and class. UDOT would work with Washington County to maintain all records of affidavits.	Not applicable	Construction	Appendix I
MM-50	Special Status Species: Federally Listed Species	Before project activities begin, a pre-project meeting would be held between UDOT, all on-site workers, and the desert tortoise monitor and biologist to review all conservation measures. A handout of the conservation measures would be provided to all on-site workers.	Not applicable	Construction	Appendix I
MM-51	Special Status Species: Federally Listed Species	Trash and food items would be contained in closed (predator-proof) containers and removed regularly as needed to reduce attractiveness to opportunistic predators such as ravens, coyotes, and feral dogs.	Not applicable	Construction	Appendix H
MM-52	Special Status Species: Federally Listed Species	Contractor personnel would not bring domestic dogs to the project site.	Not applicable	Construction	Appendix I
MM-53	Special Status Species: Federally Listed Species	Any time a vehicle or construction equipment is parked in desert tortoise habitat, the area around and directly under the vehicle must be inspected for desert tortoises before the vehicle or equipment is moved. The inspection does not need to be performed by a desert tortoise monitor, biologist, or FCR. If a desert tortoise is observed, it would be left to move on its own – the desert tortoise would not be approached or handled. If this does not occur within 15 minutes, an approved desert tortoise biologist would be contacted to remove and relocate the animal.	Not applicable	Construction	Appendix I

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-54	Special Status Species: Federally Listed Species	A desert tortoise biologist would prepare all survey reports and field notes and submit them to USFWS quarterly. The desert tortoise biologist would prepare a final summary report and submit it to USFWS at project completion. The reports would describe: The desert tortoise survey and monitoring activity that was completed; The extent of impacts to desert tortoises, including all desert tortoise encounters within the project boundaries and how they were reported and addressed.	Not applicable	Construction	Appendix I
MM-55	Special Status Species: Federally Listed Species	During routine inspections, scheduled maintenance, emergency maintenance, or any other maintenance, if desert tortoises are encountered, they would be avoided, and the UDWR and BLM Biologist would be contacted if there appear to be hazards to the desert tortoise. If appreciably higher than average desert tortoise mortalities are documented at a given location, UDOT (or the subsequent ROW holder) would coordinate with the UDWR or BLM. The UDWR and BLM would coordinate with the USFWS as appropriate.	Not applicable	Construction	Appendix I
MM-56	Special Status Species: Federally Listed Species	Maintenance activities that create new surface disturbance in suitable habitat would be coordinated with the BLM. The BLM would coordinate with the USFWS as appropriate.	Not applicable	Operations and Maintenance	Appendix I
MM-57	Special Status Species: Federally Listed Species	If emergency maintenance activities create new surface disturbance in suitable habitat or are required during the Most Active Season in suitable habitat, the BLM would be contacted within 24 hours to minimize any impacts and coordinate post-emergency response. The BLM would coordinate with the USFWS as appropriate.	Not applicable	Operations and Maintenance	Appendix I
MM-58	Special Status Species: Federally Listed Species	Upon locating a dead, injured, or sick listed species, you must provide initial notification to the FWS's Law Enforcement Office, 2900 4th Avenue N., Suite 301, Billings, MT 59101 (303-729-2285) and the Utah Ecological Services Field Office (801- 975-3330) within three working days of its finding. You must make written notification within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. Send the notification to the Law Enforcement Office with a copy to the Utah Ecological Services Field Offices. You must take care in handling sick or injured animals to ensure effective treatment and in handling dead specimens to preserve the biological material in the best possible state.	Not applicable	Construction, Operations and Maintenance	Appendix I
DF-52	Survey, Flagging, Fencing, and Signage	A. Preserve public and private property during the work. B. Secure legal right to access the property before any work is performed on public or private property. All damage as a result of trespass will be the financial responsibility of the Contractor, including additional acquisition costs. C. Accept liability for any damage to public or private property resulting from defective work, materials, or non-execution of the contract until contract completion. D. Restore damaged property and items removed temporarily during construction to a condition similar or equal to that existing before the damage. E. Temporarily discontinue work if remains of prehistoric dwelling sites or artifacts of historical or archeological significance are encountered. Refer to Section 01355.	00820 Legal Relations and Responsibility to the Public 1.12 Protecting and Restoring Property and Landscape	Design, Construction	N/A
DF-53	Survey, Flagging, Fencing, and Signage	A. Remove and dispose of flagging, lath, stakes, and other staking material after the project has reached physical completion and the Engineer has approved removal.	01721 Survey 3.15 Cleanup	Construction	Appendix H
DF-54	Transportation Management	A. Minimize interference with traffic during performance of the work. B. Sunday and Category I Holiday Work 1. Provide advance notice to the Engineer no later than noon on Wednesday, or four calendar days prior, whichever is greater before any Sunday or Category I holiday work, unless otherwise restricted in the contract. C. Category II Holiday Work 1. Do not perform any work without approval except for repairing or servicing equipment, protecting work, maintaining or curing concrete, and maintaining traffic on Category II holiday. 2. Provide notice to the Engineer no later than noon on the Wednesday, or four calendar days prior, whichever is greater before any Category II holiday work, unless otherwise restricted in the contract. D. Nighttime Construction Work 1. Notify the Engineer at least five calendar days before starting nighttime construction work. 2. Provide adequate lighting for safely performing satisfactory inspection and construction operations. 3. Minimize noise during Nighttime Construction Work.	00555 Prosecution and Progress 1.9 Limitation of Operations	Design, Construction	Appendix N

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-55	Transportation Management	A. Keep roads open to traffic during the work and work suspensions or provide and maintain detour roads as specified or directed. 1. Maintain all necessary accesses to areas such as parking lots, garages, businesses, residences, and farms. 2. Exclude snow removal. B. The Department does not provide additional compensation for maintenance. C. Failure to maintain traffic is cause for the Department to take action to meet the requirements of this specification. 1. The Department deducts its costs incurred in such actions from money due.	00725 Scope of Work 1.8 Maintaining Traffic	Design, Construction	Appendix N
DF-56	Transportation Management	A. Maintain work included in the contract during construction until physical completion. 1. Maintain traffic detour routes and project travel ways according to the Traffic Control Plan. B. The Engineer immediately notifies the Contractor of failure to meet these provisions. 1. The Department maintains the project if unsatisfactory maintenance is not remedied within 24 hours after receiving notice. 2. The Department deducts the entire cost to maintain the work from the money due or to become due the Contractor.	00727 Control of Work 1.16 Maintain the Work During Construction	Construction	Appendix N
DF-57	Transportation Management	Follow the authorized Traffic Control Plan	01554 Traffic Control	Design, Construction	Appendix N
DF-58	Vegetation (excluding listed species)	A. Perform work within or adjacent to State or National Forest under regulations of the State Fire Marshal, Conservation Commission, Forestry Department, or other authority having jurisdiction governing the protection of forests. B. Prevent and assist with the suppression of forest fires. C. Cooperate with responsible forestry officials.	00820 Legal Relations and Responsibility to the Public 1.7 Protecting Forests	Construction	N/A
DF-59	Vegetation (excluding listed species)	A. Grub the areas 2 feet below natural ground, within the limits of clearing, of all stumps, roots, buried logs, and all other underground obstructions. B. Stumps, roots, and non-perishable solid objects may remain in cleared areas where the embankment is: 1. 2 feet or more above the natural ground. 2. At least 2 feet away outside the slope stake lines. C. Completely grub stumps and roots where a structure is to be constructed, piles are to be driven, or unsuitable material is to be removed.	02231 Site Clearing and Grubbing 3.2 Vegetation Removal	Construction	N/A
MM-59	Vegetation (excluding listed species)	Prepare a Noxious Weed Management Plan.	Not Applicable	Construction	Appendix J
MM-60	Vegetation (excluding listed species)	Broadcast applications of herbicides would be prohibited within the project area; if necessary, spot treatments would be applied by hand using herbicides approved by EPA and BLM in order to treat noxious weeds. The highway project area would be monitored and controlled, as necessary, for weeds for the life of the ROW grant (which may include maintenance activities).	Not Applicable	Construction, Operations and Maintenance	Appendix J
MM-61	Vegetation and Weeds	UDOT shall submit a rehabilitation plan to BLM for approval, including a weed control plan. An area is considered to be satisfactorily reclaimed when all disturbed areas have been re-contoured to blend with the natural topography, erosion has been stabilized, and an acceptable vegetative cover has been established.	Not Applicable	Construction	Appendix L, Appendix J
MM-62	Vegetation and Weeds	All equipment will be cleaned of soils, seeds, vegetation matter, and other debris prior to entering or re-entering the Project area.	Not Applicable	Construction	Appendix J
MM-63	Vegetation and Weeds	The Holder will follow BLM regulations pertaining to control of noxious weeds; use of herbicides will comply with BLM requirements.	Not Applicable	Construction	Appendix J
MM-64	Vegetation and Weeds	The Holder shall remove only the minimum amount of vegetation necessary for the construction of structures and facilities. Where possible and if needed, topsoil shall be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation. Native vegetation shall be retained in and around project activity areas.	Not Applicable	Construction	Appendix L
MM-65	Vegetation and Weeds	During construction activities UDOT will protect trees and other vegetation designated to remain.	Not Applicable	Construction	Appendix L
MM-66	Vegetation and Weeds	Where linear disturbance is proposed edges of vegetation shall be feathered to avoid long linear edges of habitat and allow for greater habitat complexity for wildlife.	Not Applicable	Construction	Appendix L
DF-60	Vegetation and Weeds	Site clearing will be conducted in accordance with BLM BMPs and UDOT specifications, including vegetation removal and topsoil stockpiling.	02231 Site Clearing and Grubbing	Construction	Appendix L

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
MM-67	Vegetation and Weeds	Disturbance of natural vegetation within the ROW will be limited to the extent necessary to complete the Project and to reduce the impact to native plant species and ground nesting pollinators.	Not Applicable	Construction	Appendix L
MM-68	Vegetation and Weeds	The top soils within the disturbance area of the proposed ROW will be salvaged, stockpiled, and redistributed along the cut-and-fill slopes. The contractor will remove these soils after clearing and grubbing activities but prior to roadway excavation or other use of the site.	Not Applicable	Construction	Appendix L
MM-69	Vegetation and Weeds	Areas of disturbance within the ROW, but outside of the road itself, will be revegetated as determined by the BLM. These areas will be established and maintained in compliance with UDOT clear zone requirements.	Not Applicable	Construction	Appendix L
MM-70	Vegetation and Weeds	The Holder shall be responsible for weed control on disturbed areas within the limits of the right-of-way. The Holder is responsible for consultation with the authorized officer and/or local authorities for acceptable weed control methods (within limits imposed in the grant stipulations).	Not Applicable	Construction	Appendix J
MM-71	Vegetation and Weeds	Prior to the import of borrow or fill from outside the ROWs, the source material location will be inspected by a qualified biologist or weed scientist to ensure it is free of noxious weeds or specifically identified in the agency-approved Weed Management Plan for the project.	Not Applicable	Construction	Appendix J
MM-72	Vegetation and Weeds	Any straw or other organic products used during construction, restoration, operations, maintenance, or for stabilization will be certified weed free. If certified weed free products are unavailable, the Holder shall coordinate with the BLM to identify other acceptable materials	Not Applicable	Construction	Appendix J
MM-73	Vegetation and Weeds	Construction vehicles and equipment will be cleaned with a high-pressure washer or high-pressure air and wire brush prior to arrival on the ROWs and prior to departure from areas of known noxious weed infestations to minimize the introduction or spread of noxious weeds. All water and material at the vehicle cleaning stations will be contained, collected, and hauled off-site for disposal at an approved disposal site.	Not Applicable	Construction	Appendix J
MM-74	Vegetation and Weeds	UDOT or its certified licensed contractor will submit a request for a Pesticide Use Proposal to the BLM and other applicable agencies prior to the planned application of any herbicide and a Pesticide Application Record after the planned application of the herbicide. The Pesticide Use Proposal will identify areas of planned herbicide application. No herbicide mixing or rinsing of containers or application equipment will occur within 100 feet of natural water sources (i.e., lakes, streams, or springs). An annual report on herbicide application on public lands within the ROWs will be provided to applicable agencies.	Not Applicable	Construction	Appendix J
DF-61	Visual Resources	D. Nighttime Construction Work 1. Notify the Engineer at least five calendar days before starting nighttime construction work. 2. Provide adequate lighting for safely performing satisfactory inspection and construction operations. 3. Minimize noise during Nighttime Construction Work.	00555 Prosecution and Progress 1.9 Limitation of Operations	Construction	N/A
MM-75	Visual Resources	Roadway Lighting: Lighting installation within the ROW would be minimized to only emergency lighting where the roadway crosses the NCA, except where additional lighting is necessary near intersections or other areas that would support safety and proper visibility for vehicles and pedestrians.	Not applicable	Design, Construction	N/A
MM-76	Visual Resources	The Holder shall paint all facilities a color that best allows the facility to blend with the background.	Not Applicable	Design, Construction	N/A
MM-77	Visual Resources	Impacts to dark night skies will be prevented or reduced through the following mitigation measures: directing lighting downward, using shield lights, using minimum illumination necessary, using less prone lamps, using circuit timers and motion sensors.	Not Applicable	Design, Construction	N/A
DF-62	Water Resources: Federal Emergency Management Agency Floodplains	Environmental Clearance by the Contractor A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds. 3. Comply with the National Flood Insurance Program's floodplain management regulations if the activity is in a Special Flood Hazard Area.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Design, Construction	N/A
DF-63	Water Resources: Stormwater Pollution Prevention Methodology	UDOT will be required to obtain an UPDES General Stormwater Discharge Permit from the State Division of Water Quality. The general permit requires the development and implementation of a Stormwater Pollution Prevention Plan that will identify good housekeeping BMPs, such as materials handling and storage and fueling and equipment maintenance, as well as site-specific measures to protect slopes and natural features, minimize erosion, and prevent eroded sediment from leaving the construction zone. The Plan will be prepared in accordance with the requirements of the UDOT Stormwater Management Program plan.	01355 Environmental Compliance 1.5 Submittals	Construction	Appendix M

Design Feature (DF) or Mitigation Measure (MM) Number	Resource or Issue Applicability	Design Feature/Mitigation Measure	UDOT Construction Specification (UDOT 2020)	Applicability	Applicable Appendix
DF-64	Water Resources: Stormwater Pollution Prevention Methodology	Environmental Clearance by the Contractor A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds. 4. Comply with National (NPDES) and Utah (UPDES) Pollutant Discharge Elimination System regulations.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction	N/A
DF-65	Wetlands, Riparian Resources, Waters of the U.S.	A. Check installed controls before and after each rain event to verify proper working function and compliance with the UCGP. B. Replace controls that are not properly working to prevent erosion and sedimentation.	01571 Temporary Environmental Controls 3.2 Inspection	Design, Construction, Operations and Maintenance	Appendix M
DF-66	Wetlands, Riparian Resources, Waters of the U.S.	A. Comply with the Utah State Stream Alteration Program. B. Comply with Section 10 of the Rivers and Harbors Act. C. Comply with Section 404 of the Clean Water Act. D. Comply with the National Flood Insurance Program for a project within a Special Flood Hazard Area, as defined by the Federal Emergency Management Agency.	01355 Environmental Compliance 1.9 Water Resource Permits	Design, Construction, Operations and Maintenance	N/A
DF-67	Wetlands, Riparian Resources, Waters of the U.S.	A. Comply with applicable environmental regulations as part of a ground disturbing activity not previously evaluated in the project environmental document such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds. 2. Comply with regulations governing Waters of the United States and Waters of the State of Utah.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction	N/A

7 DEFINITIONS

Definitions of terms used in this POD from UDOT's Standard Specifications (UDOT 2023) and other UDOT manuals are included in this section.

Borrow: Construction material that must be imported from outside the roadway limits for the construction of the roadbed embankments, subgrade, shoulders, etc.

Capacity: The maximum rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or a roadway during a given time period under prevailing roadway and traffic conditions. Capacity may refer to the entire roadway, a single lane, or an intersection. Measures of capacity may include traffic volumes, speed, throughput, and density.

Construction limits: The established boundaries within the highway ROW or construction easements that define the construction area.

Contractor: The individual or legal entity contracting with UDOT for performance of prescribed work.

Easement: An interest in real property that conveys use, but not ownership, of a portion of an owner's property.

Equipment: All machinery, tools, and apparatuses and the fuels, lubricants, batteries, and other supplies and parts needed to use, operate, and maintain these items for use in constructing and completing the work.

Highway: A general term denoting a public way used by vehicles and pedestrians, including the entire area within the ROW.

Intersection: The general area where two or more highways or streets join or cross at-grade.

Impervious surface: Surfaces through which water cannot infiltrate.

Land disturbance: Activities that alter natural ground or material below impervious surfaces (e.g., clearing, excavation or grading).

Notice to proceed (BLM): A written notice provided by the BLM Authorized Office to begin action under an approved plan and grant or permit, subject to any particular provisions the BLM includes.

Pavement structure: The combination of subbase, base course, and surface course placed on a subgrade to support and distribute the traffic load to the roadbed.

a. **Surface course** – One or more layers of a pavement structure designed to accommodate the traffic load, the top layer that resists skidding, traffic abrasion, and the disintegrating effects of climate. The top layer is sometimes called the wearing course.
b. **Base course** – One or more layers of specified material and thickness placed on a subbase or a subgrade to support a surface course.
c. **Subbase** – One or more layers of specified material thickness placed on a subgrade to support a base course.

Skew: The term “angle of skew” or “skew angle” refers to the angle between a line normal/perpendicular to the alignment/centerline of the roadway and the angle of the feature crossing.

Specifications: The compilation of provisions and requirements for the performance of prescribed work, including any combination of the following:

a. **Project-specific specifications** – A unique specification or a modification or revision to the Standard Specifications applicable to an individual contract.
b. **Standard specifications** – Specifications approved for general application and repetitive use.

Superelevation: The rotation of the pavement on the approach to and through a horizontal curve.

8 LITERATURE CITED

American Association of State Highway and Transportation Officials (AASHTO). 2011. *AASHTO Guide Specifications for LRFD Seismic Bridge Design. 2nd Edition.* Washington, D.C.: American Association of State Highway and Transportation Officials.

———. 2018. *Policy on Geometric Design of Highways and Streets.* Washington, D.C.: American Association of State Highway and Transportation Officials.

———. 2020. *LRFD Bridge Design Specifications. 9th Edition.* Washington, D.C.: American Association of State Highway and Transportation Officials.

Bureau of Land Management (BLM) 2006. *Utah Supplemental Planning Guidance: Raptor Best Management Practices*. Instruction Memorandum No. UT 2006-096. Salt Lake City, Utah.

———. 2008. *BLM National Environmental Policy Act Handbook H-1790-1*. Available at: https://www.ntc.blm.gov/krc/uploads/366/NEPAHandbook_H-1790_508.pdf. Accessed March 7, 2023.

Dixie Metropolitan Planning Organization (DMPO). 2019. *2019–2050 Regional Transportation Plan*. Approved October 2019. Available at: https://dixiempo.files.wordpress.com/2020/02/2019-2050-rtp-final-dtec.pdf. Accessed March 7, 2023.

Utah Department of Transportation (UDOT) 2013. *UDOT Project Manager Guide – A Resource for UDOT Project Managers*. 2013 Edition. Available at: https://drive.google.com/file/d/1TK5qiN_bElXrcRu6L2peN5WngiqW_3l9/view. Accessed March 7, 2023.

———. 2018a. *Drainage Manual of Instruction*. June 2018. As revised March 1, 2022. Available at: https://drive.google.com/file/d/1sxmhKziSdENiN03kQUhUlu8xyAHMdJol/view. Accessed March 7, 2023.

———. 2018b. *Stormwater Quality Design Manual*. June 2018. As revised March 20, 2019. Available at: https://geodata.geology.utah.gov/pages/download.php?direct=1&noattach=true&ref=61105&ext=pdf&k=. Accessed March 7, 2023.

———. 2020. *Utah Department of Transportation 2020 Standard Specifications for Road and Bridge Construction*. July 9, 2020. Available at: https://drive.google.com/drive/folders/1bHZnAA5CdqvTPBy1ot8lQHwUbGr2Zkka. Accessed March 9, 2023.

———. 2022. Utah Department of Transportation Structures Design and Detailing Manual. October 2022. Available at: https://udot.utah.gov/connect/business/structures-geotechnical-guidance-manuals/structures-design-detailing-manual/. Accessed March 7, 2023.

———. 2023. *Utah Department of Transportation 2023 Standard Specifications for Road and Bridge Construction*. Available at: https://drive.google.com/drive/folders/1WUQNI_0zcbBPPAYqZTIe2dTwcJ-2IsqJ. Accessed March 9, 2023.

APPENDIX A

Legal Description of Northern Corridor Right-of-Way on Bureau of Land Management–Administered Lands

Legal Description of Northern Corridor Right-of-Way on Bureau of Land Management–Administered Lands

The preliminary land description for the ROW issued to UDOT by the BLM is below. Additional cadastral review is needed to confirm the final legal description of the ROW in the Final POD.

Salt Lake Meridian, Utah
T. 42S., R. 15W.
Sec. 9, SW1/4 NE1/4, NW1/4 SE1/4
Sec. 17, Lots 7, 8, 9, 10, 11, 12, 13, 14
Sec. 18, Lots 7, 8, 13, 14, SW1/4 SE1/4

APPENDIX B

Northern Corridor Design and Environmental Map Books

Appendix B1: Northern Corridor Design Map Book

Appendix B2: Northern Corridor Environmental Features and Mitigation Map Book

APPENDIX C

Blasting Plan

[Appendix C will be provided in a future version of the POD.]

APPENDIX D

Cultural Resources: Memorandum of Agreement and Programmatic Agreement

[Appendix D will be provided in a future version of the POD.]

APPENDIX E

Recreational Trail Crossings and Interpretive Signs

[Appendix E will be provided in a future version of the POD.]

APPENDIX F

Fugitive Dust Control Plan

[Appendix F will be provided in a future version of the POD.]

APPENDIX G

Hazard Materials, Hazardous Waste, and Spill Prevention Plan

[Appendix G will be provided in a future version of the POD.]

APPENDIX H

Litter Management Plan

[Appendix H will be provided in a future version of the POD.]

APPENDIX I

Mojave Desert Tortoise Plan

[Appendix I will be provided in a future version of the POD.]

APPENDIX J

Noxious Weed Management Plan

[Appendix J will be provided in a future version of the POD.]

APPENDIX K

Paleontological Resources Protection Plan

[Appendix K will be provided in a future version of the POD.]

APPENDIX L

Reclamation Plan

[Appendix L will be provided in a future version of the POD.]

APPENDIX M

Stormwater Pollution Prevention Plan

[Appendix M will be provided in a future version of the POD.]

APPENDIX N

Traffic Control Plan

[Appendix N will be provided in a future version of the POD.]

Attachment D:
BLM ROW Grant Stipulations / Terms and Conditions

STIPULATIONS / TERMS AND CONDITIONS
UDOT, Northern Corridor Road ROW UTUT106052586

General

1. Hereinafter, Holder means any party granted this right-of-way (ROW), temporary use permit, or both, its agents, contractors, representatives, or other persons directed by Holder to construct, maintain, repair, restore, relinquish, abandon, modify, rehabilitate, or terminate this ROW, and Holder's successors, or assigns.

2. Completion of Final Plan of Development: Prior to any ground disturbing activity, a Notice to Proceed (NTP) shall be required. To obtain an NTP to allow the initiation of construction of the roadway, UDOT is required to submit a Final Plan of Development (POD) to the BLM. The Final POD will identify the site-specific ROW needs and disturbance areas, include maps of all proposed facilities, site-specific construction actions, temporary work areas, and any other facilities required for the project. The Final POD will also identify the site-specific application of design features and mitigation measures as required in the Decision issued by the BLM. The BLM may issue interim NTPs for specific actions such as data collection, including geotechnical data, implementation of required mitigation, including the installation of tortoise fencing and the attached ROW fence, vegetation clearing and grading, and other actions that may occur in advance of commencing construction of the roadway.

3. After completion of the roadway construction, an NTP will be required prior to undertaking non-emergency work in areas of the ROW that are undisturbed or which have been reclaimed. The Holder shall submit to BLM in writing, 90 days prior to activities the following information: The Company Point of Contact; the BLM serial number or location of the ROW (legal description, GIS data, coordinate location); map or GIS data with access route; a listing of activities proposed (type of work, acreage of treatment area, equipment used, start and end dates. Recent biological data and/or cultural survey data may be required for approval. This pre-approval does not apply to Operation and Maintenance work.

4. The Holder shall comply with all Federal, State, and local laws and regulations whether or not specifically mentioned within this grant.

5. Only those structures that are associated with the roadway and/or approved in the Final POD are authorized under this grant.

6. This grant is issued subject to the Holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2800.

7. The Holder shall notify the BLM Field Manager 7 days in advance of his/her intent to commence any field operations associated with this ROW grant.

8. Within 60 days of construction completion, the Holder shall submit to the authorized officer the as-built drawings (e.g., Geographic Information System data, CADD data, or other format) incorporating all design modifications, field changes, and corrections or

deviations during construction for all constructed facilities and access to those facilities.

9. If the ROW Holder violates any of the terms and conditions of this grant, the authorized officer, after giving written notice, may declare the grant terminated.

10. This grant will be issued subject to all existing valid rights including other authorized rights-of-way that may be located adjacent to, or which may be affected by the construction, operation, maintenance and termination of this described ROW. Any existing facilities which may be damaged during operation, maintenance, or termination of this ROW shall be repaired or restored to the same condition as existed prior to the damage.

11. In case of legal name changes, transfers/sales, or change of address the Holder shall notify the BLM authorized officer within 30 calendar days of any such change.

12. This ROW applies only to public lands. It is the grantee's responsibility to obtain appropriate authorization from the landowners of other affected lands.

13. Holder may not construct or make access roads or travel cross-country by vehicle to reach the grant area unless prior written approval is given by the Authorized Officer.

14. The Holder shall protect all survey monuments found within the ROW. Survey monuments include, but are not limited to: General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the Holder shall immediately report the incident, in writing, to the Authorized Officer and the respective installing authority, if known. Where General Land Office or BLM ROW monuments or references are obliterated during operations, the Holder shall secure the services of a registered land surveyor or a Bureau cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the Manual of Surveying Instructions for the Survey of the Public Lands in the United States, latest edition. The Holder shall record such survey in the appropriate county and send a copy to the Authorized Officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monument, the Holder shall be responsible for the survey cost.

15. The Holder shall conduct all activities associated with the operation and termination of the ROW within the authorized limits of the ROW.

16. The Holder shall comply with the provision of Title VI of the Civil Rights Act of 1964, and will not engage in any discriminatory actions prohibited by 43 CFR Part 17, to the end that no person in the United States shall, on the grounds of race, color, national origin, or gender, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under the program for which the Holder has received a Federal authorization.

17. The Holder or their contractors will notify the BLM of any fires and comply with all rules and regulations administered by the BLM concerning the use, prevention and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The Holder or their contractors may be held liable for the cost of fire suppression, stabilization and rehabilitation. In the event of a fire, personal safety will be the first priority of the Holder or their contractors. The Holder or their contractors will:

    a) Operate all internal and external combustion engines on federally managed lands per 36 CFR 261.5(j), which requires all such engines to be equipped with a qualified spark arrester that is maintained and not modified.

    b) Initiate fire suppression actions in the work area to prevent fire spread to or on federally administered lands.

    c) Carry equipment such as shovels, water, and/or fire extinguishers that are rated at a minimum as ABC – 5 pounds on all equipment and vehicles. If a fire spreads beyond the suppression capability of workers with these tools, all will cease fire suppression action and leave the area immediately via pre-identified escape routes.

    Notify the Color Country Interagency Fire Center at (435) 865-4600, or 911 immediately of the location and status of any escaped fire. Construction personnel will be trained in basic fire control procedures.

18. UDOT will comply with all measures in the UDOT Northern Corridor Plan of Development and the applicable UDOT 2026 Standard Specifications and Standard Drawings for Road and Bridge Construction ("Standards"), or current edition.

Public Health & Safety/Environmental Protection

19. Failure of the Holder to comply with applicable law or any provision of this ROW grant shall constitute grounds for suspension or termination thereof.

20. Holder shall maintain the ROW in a safe, usable condition, as directed by the Authorized Officer.

21. The Holder shall promptly remove and dispose of all litter and debris caused by its activities.

22. Access with motorized vehicles/equipment must be kept to existing or approved constructed routes, in accordance with the POD.

23. Stormwater prevention controls will be maintained until surrounding disturbed areas have met final stabilization measures.

24. The Holder will comply with local and state noise management requirements.

25. Signs will be placed on roads and trails where needed to warn recreation users of any hazards.

26. Local, State, and Federal laws and regulations related to the use, handling, storage, transportation, and disposal of hazardous materials will be followed. No equipment oil or fuel will be drained on the ground; oils or chemicals will be hauled to an approved site for disposal.

27. All toxic substances (e.g., oil, gas, antifreeze) will be stored in waterproof closed containers at all times. Accidental spills will be reported and cleaned up immediately.

28. Refuse and trash, including stakes and flags, will be removed and disposed of properly.

29. Construction sites, staging areas, and access roads will be kept orderly during construction.

30. Portable toilets will be used on-site and maintained on a regular schedule during construction of the roadway.

31. A hazardous materials spill kit that is appropriate for the solvents involved in operation and maintenance of vehicles and machinery used during the Project will be kept on-site during construction.

32. The Holder agrees to indemnify and hold harmless the United States for any and all liability, including injury to persons or damage of property, which may result directly from the use permitted. The indemnity in this paragraph shall exclude any liability, including injury to persons or damage of property, to the extent such liability is caused or contributed to by the act, omission, or negligence of the United States or any of its agencies, subdivisions, employees, agents, or contractors. Nothing in this grant will be construed as a waiver by the Holder of the provisions of the Governmental Immunity Act of Utah (Utah Code § 63G-7-101, et seq.) or the provisions of the Federal Tort Claims Act (28 U.S.C. §§ 1346(b), 2671-2680).

33. The Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601 et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the ROW (unless the release or threatened release is wholly unrelated to the ROW Holder's activity on the ROW. This agreement applies without regard to whether a release is caused by the Holder, its agent, or unrelated third parties, but shall not apply to the extent a release is caused or contributed to by the act, omission, or negligence of the United States or any of its agencies, subdivisions, employees, agents, or contractors.

34. The Authorized Officer may suspend or terminate in whole, or in part, any notice to proceed which has been issued when unforeseen conditions arise which result in the approved terms and conditions being inadequate to protect the public health and safety or to protect the environment.

35. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 U.S.C. 2601 et. Seq. (1982) with regards to any toxic substances that are used, generated by, or stored on the ROW or on facilities authorized under this ROW grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

36. The BLM and other regulatory agencies will be contacted as soon as possible in the event of a fuel/oil or hazardous material spill. Actions will be taken to minimize the amount and spread of the spill material, including the use of straw bale plugs, earthen berms, and the use of absorbent materials. If necessary, soil remediation will be conducted, including the removal of contaminated soils to an approved facility and soil sampling to verify successful site remediation.

37. If during any phase of the construction, operation, or termination any oil or other pollutant should be discharged from containers or vehicles and impact Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the Holder, regardless of fault. Upon failure of Holder to control, cleanup, or dispose of such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting there from, the authorized officer may take such measures as he deems necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the Holder. Such action by the authorized officer shall not relieve the Holder of any liability or responsibility

Cultural and Paleontological Resources

38. The Holder shall be responsible for developing a Treatment Plan and following the process for review as described in the *Programmatic Agreement Between the United States Department of the Interior, Bureau of Land Management Saint George Field Office, and the Utah State Historic Preservation Officer, Regarding the Northern Corridor Highway Project, Washington County, Utah* (Programmatic Agreement). All field work associated with data recovery treatments in the ROW, including those that require excavations, will be completed prior to issuance of an NTP for any activities that could adversely affect identified sites.

39. Any cultural or paleontological resource (historic or prehistoric site or object) or Native American human remains, funerary item, sacred object, or objects of cultural patrimony discovered by the permit Holder, or any person working on their behalf, during the course of activities on Federal land, shall be immediately reported to the BLM Authorized Officer who will proceed as per the Treatment Plan or the State Protocol Agreement

between BLM and the SHPO. The permit Holder shall suspend all operations within the immediate area of the discovery and appropriately protect the discovery until an evaluation has been made by the BLM Authorized Officer.

a. If in connection with operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) (NAGPRA) are discovered, the Holder shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the authorized officer. The Holder shall continue to protect the immediate area of the discovery until notified by the authorized officer that operations may resume.

b. For cultural resources other than Native American human remains, funerary item, sacred object, or objects of cultural patrimony, this evaluation will determine the significance of the discovery and what mitigation measures are necessary to allow activities to proceed. The Holder is responsible for the cost of evaluation and mitigation. Any decision on treatment and/or mitigation will be made by the BLM Authorized Officer after consulting with the permit Holder. Operations may resume only upon written authorization to proceed from the BLM Authorized Officer.

Soil and Erosion Control

40. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of four inches deep, the soil shall be deemed too wet to adequately support construction equipment.

41. The Holder shall provide satisfactory reclamation of all sites disturbed by the activity. This may include installation of additional erosion control devices and seeding at the discretion of the authorized officer.

Vegetation/Weeds

42. The Holder will be responsible for controlling noxious weeds within the limits of the ROW. Noxious weeds are defined as those which are listed by the Utah Commissioner of Agriculture under the Noxious Weed Act, and those declared noxious by the County in which the ROW resides. The Holder will employ weed control methods approved in writing by the BLM Authorized Officer. An approved Pesticide Use Proposal (PUP) must be obtained prior to application of herbicides. Upon coordination with the Authorized Officer, the Holder may elect to operate under an approved PUP which the BLM holds, or may apply for its own PUP, either through the Authorized Officer or the BLM Utah State Office. A Pesticide Application Report (PAR) must be submitted to the Authorized Officer for each day weeds are sprayed on the ROW. The report may be submitted on a weekly basis if spraying is occurring on multiple days.

43. UDOT shall submit a Reclamation Plan to BLM for approval, including a weed control plan. An area is considered to be satisfactorily reclaimed when all disturbed areas have been re-contoured to blend with the natural topography, erosion has been stabilized, and an acceptable vegetative cover has been established.

44. All equipment will be cleaned of soils, seeds, vegetation matter, and other debris prior to entering or re-entering the Project area.

45. The Holder will follow BLM regulations pertaining to control of noxious weeds; use of herbicides will comply with BLM requirements.

46. The Holder shall remove only what the Holder determines is the minimum amount of vegetation necessary for the construction of structures and facilities. Where possible, of appropriate quality, and if needed, topsoil shall be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation. Native vegetation shall be retained in and around project activity areas where it does not present a safety concern.

47. During construction activities UDOT will protect trees and other vegetation designated to remain.

48. Site clearing will be conducted in accordance with BLM best management practices (BMP) and UDOT specifications, including vegetation removal and topsoil stockpiling.

49. Disturbance of natural vegetation within the ROW will be limited to the extent necessary to complete the Project and to reduce the impact to native plant species and ground nesting pollinators.

50. The topsoil within the disturbance area of the proposed ROW will be salvaged, stockpiled, and redistributed where possible along the cut-and-fill slopes. The contractor will remove these soils after clearing and grubbing activities but prior to roadway excavation or other use of the site.

51. Areas of disturbance within the ROW, but outside of the road itself, will be revegetated as determined by the BLM. These areas will be established and maintained in compliance with UDOT clear zone requirements.

52. The Holder shall be responsible for weed control on disturbed areas within the limits of the ROW. The Holder is responsible for consultation with the authorized officer and/or local authorities for acceptable weed control methods (within limits imposed in the grant stipulations).

53. Prior to the import of borrow or fill from outside the ROWs, the source material location will be inspected by a qualified biologist or weed scientist to ensure it is free of noxious weeds or specifically identified in the agency approved Weed Management Plan for the project.

54. Any straw or other organic products used during construction, restoration, operations, maintenance, or for stabilization will be certified weed free. If certified weed free products are unavailable, the Holder shall coordinate with the BLM to identify other acceptable materials.

55. Construction vehicles and equipment will be cleaned with a high-pressure washer or high-pressure air and wire brush prior to arrival on the ROWs and prior to departure from areas of known noxious weed infestations to minimize the introduction or spread of noxious weeds. All water and material at the vehicle cleaning stations will be contained, collected, and hauled off site for disposal at an approved disposal site.

56. UDOT or its certified licensed contractor will submit a request for a Pesticide Use Proposal to the BLM and other applicable agencies prior to the planned application of any herbicide and a Pesticide Application Record after the planned application of the herbicide. The Pesticide Use Proposal will identify areas of planned herbicide application. No herbicide mixing or rinsing of containers or application equipment will occur within 100 ft. of natural water sources (i.e., lakes, streams, or springs). An annual report on herbicide application on public lands within the ROWs will be provided to applicable agencies.

57. Surface-disturbing activities will be avoided within 100 meters of occupied BLM-sensitive plant species habitat wherever possible and where geography and other resource concerns allow. Fragmentation of existing populations and identified areas of suitable habitat will be avoided wherever possible, unless authorized by the BLM. If detrimental effects are detected through monitoring, corrective action will be taken through adaptive management.

Visual Resources

58. The Holder shall paint all facilities a color that best allows the facility to blend with the background.

59. Impacts to dark night skies will be prevented or reduced through the following mitigation measures: directing lighting downward, using shield lights, using minimum illumination necessary, using less prone lamps, and using circuit timers and motion sensors.

Wildlife

60. No ground disturbance or otherwise disruptive maintenance activities would be allowed from April 1 through July 31 without the completion of migratory bird nest surveys within priority habitats. Surveys would focus on bird species identified as priority bird species in Utah through Partner's in Flight and U.S. Fish and Wildlife Service Birds of Conservation Concern. The need for field surveys will be determined by the BLM Authorized Officer. Based on surveys, the BLM Authorized Officer will determine appropriate buffers and timing limitations.

61. Major habitat alteration, removal, or destruction or activities with substantial noise impacts during the primary nesting season for raptor migratory birds (December 1 –

August 31) will require nesting surveys for raptor species to be conducted within suitable raptor nesting habitats occurring within up to 0.5 miles of the project activities, as determined by the Authorized Officer, by a qualified biologist. Any active nests found will be given appropriate spatial buffers and seasonal timing restrictions, as determined by the Authorized Officer, to ensure no active nests are impacted. If active nests are identified, biological monitors will continue to monitor active nests until it has been determined by the Authorized Officer that the nest is no longer active and buffers can be lifted.

Transfer of Federal Ownership/Relinquishment/Assignment

62. In accordance with federal regulations in 43 CFR 2807.21 any proposed transfer of any right or interest in the ROW grant shall be filed with the BLM Authorized Officer. An application for assignment shall be accompanied by a showing of qualifications of the Assignee. The assignment shall be supported by a stipulation that the Assignee agrees to comply with and to bound by the terms and conditions of the grant to be assigned. No assignment shall be recognized unless and until it is approved in writing by the Authorized Officer.

63. In the event that the public land underlying the ROW encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the ROW, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part 2800, including any rights to have the Holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the ROW, or portion thereof, within the conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

64. Prior to termination of the ROW, the Holder shall contact the authorized officer to arrange a joint inspection of the ROW. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include but is not limited to, removal of facilities, drainage structures, or surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the Holder's commencement of any termination activities.

65. The ROW shall be relinquished to the United States if the authorized uses are no longer needed.