

# DRAFT PLAN OF DEVELOPMENT

## Northern Corridor – Red Hills Parkway to Green Spring Drive Project

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Submitted to:



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Bureau of Land Management  
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## ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion
CFR	Code of Federal Regulations
DAQ	[Utah] Division of Air Quality
DEQ	[Utah] Department of Environmental Quality
DMPO	Dixie Metropolitan Planning Organization
DWQ	[Utah] Division of Water Quality
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FCR	field contact representatives
FEMA	Federal Emergency Management Agency
ft	foot/feet
HCP	Habitat Conservation Plan
HECP	hydraulic erosion control products
I-15	Interstate 15
lb	pound(s)
LOS	level of service
LWCF	Land and Water Conservation Fund
mph	mile(s) per hour
MUTCD	Manual on Uniform Traffic Control Devices
NCA	National Conservation Area
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association



NOI	Notice of Intent
OSHA	Occupational Safety and Health Administration
POD	Plan of Development
PS&E	Plans, Specifications, and Estimates
RECP	Rolled Erosion Control Products
RMP	Resource Management Plan
ROW	right-of-way
SFHA	Special Flood Hazard Area
SR	State Route
STIP	Statewide Transportation Improvement Program
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
UT	Utah
WCHCP	Washington County Habitat Conservation Plan
yd <sup>2</sup>	square yard



## 1 Overview

The Utah Department of Transportation (UDOT, or Applicant) proposes to construct the Northern Corridor roadway between Red Hills Parkway and Green Spring Drive (the Project), in Washington County, Utah (Figure 1). The Project would connect to the Washington Parkway at Green Spring Drive. The Northern Corridor (UDOT project number S-R499(324)) and Washington Parkway (Green Spring Drive to I-15) (UDOT project number F-R499(326)) are separate projects in the Statewide Transportation Improvement Program (STIP) (UDOT 2018a). The Washington Parkway project, sponsored by Washington City, is not part of this right-of-way (ROW) application. This ROW application applies to the above-described Project, which crosses federal lands administered by the Bureau of Land Management (BLM). A short segment of the Project is within the Washington City boundary and may require specific design considerations that may vary from the design outside of Washington City.

The proposed Project would be approximately 4.5 miles in length, depending on the final route selected. A ROW Application was initially filed with the BLM on September 18, 2018, for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299). A project description, in the form of a Plan of Development (POD), is required by the BLM to process the application for a ROW 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. This POD describes the proposed facilities associated with the Project, including the design criteria, facility location, construction activities, project phasing, access, and other features. As described in this document, the POD will continue to be refined during the BLM's National Environmental Policy Act (NEPA) process as additional information becomes available regarding the Project. The Final POD would need to be approved by the BLM, and compliance with the POD would become a binding condition of a BLM ROW grant.

As described in this POD, the Project would be constructed in phases to address future travel demand and financial constraints. At full build-out, the roadway would be an approximately 4.5-mile-long, four-lane divided highway with two 12-foot-wide travel lanes in each direction. Other features would include a median, drainage swales, bicycle and pedestrian trails, and associated signage. The full roadway build-out may not be completed until 2050 or later, as determined by the Applicant.

The Project would require an intersection for connection to Red Hills Parkway as well as a new intersection at Cottonwood Spring Road (also known as Old Dump Road or Turkey Farm Road).

The Project is in the Dixie Metropolitan Planning Organization's (DMPO's) planning area, which covers the urbanized area of Washington County. The Project would cross lands managed by the BLM, Utah School and Institutional Trust Lands Administration, Washington County, the State of Utah, as well as private lands in Washington County, Utah. The BLM lands that would be crossed by the roadway are part of the Red Cliffs National Conservation Area. Appendix A provides the legal descriptions of those BLM lands that would be crossed by the Project. Appendix B contains maps of the proposed ROW.



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

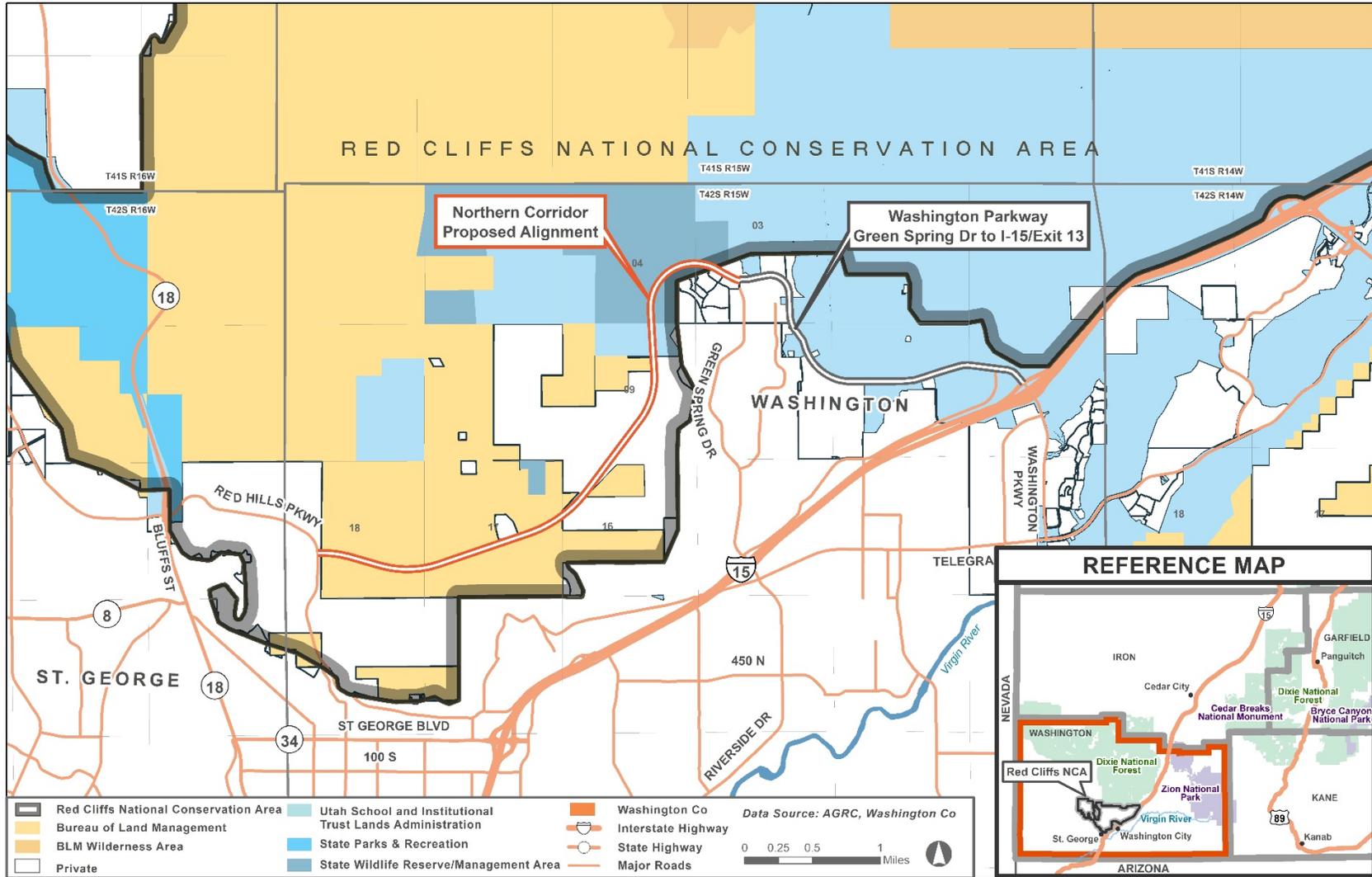


Figure 1. Northern Corridor Proposed Alignment



## 1.1 Process for Developing the Plan of Development

This POD uses bracketed text to identify placeholders for information that will be developed and included in future versions of the POD during the project development process, as described in this section.

*[This description of the phased approach to developing the POD will be eliminated from the POD when the POD is being finalized to support final design and construction.]*

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 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 and what information would be available at various stages of each process.

Project development phases:

- **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 Northern Corridor will be 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 a Notice to Proceed with construction. This phased development of the POD is anticipated to result in the submittal of three or more versions of the POD to BLM to support various components of the ROW application review and processing. The documents that will be submitted to BLM are referenced in this document as the Preliminary POD, the Draft POD, and the Final POD. While these terms are not defined in 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.

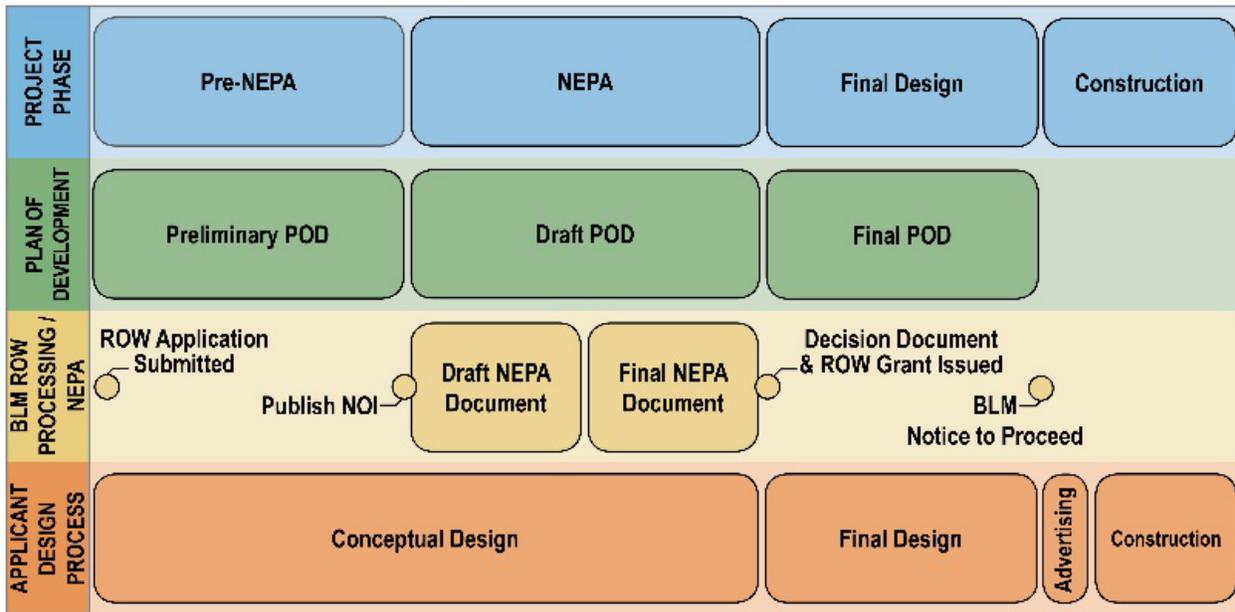


Figure 2. Anticipated Milestones and Phases in the BLM ROW Application, NEPA, and Design Processes

### 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. The Preliminary POD was developed from the following sources:

- **Development Standards for Washington Parkway from Red Hills Parkway to I-15 Exit 13 (UDOT 2018b)** were developed by UDOT to generally describe the size, type, and configuration of the road facility and to establish standards to which the Project would be designed and constructed in future stages.
- **Previous Work Completed by Washington County and UDOT to Evaluate the Northern Corridor:** Washington County, the City of St. George, the DMPO, and UDOT have engaged in various studies during the development of the Project. These studies include but are not limited to the 2012 *Washington Parkway Cost/Benefit Study* and the *Washington Parkway Study: Integration of East-West Transportation Needs with Conservation Objectives for Desert Tortoise in Washington County, Utah*.

### 1.1.2 Draft Plan of Development

This Draft POD was further developed by incorporating additional information about the Project developed during the NEPA phase of the Project (described in Section 3). 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.

As described in Section 3, a conceptual design process was completed for each alternative analyzed in detail during the NEPA process to support the evaluation of areas that would be impacted and described the corresponding potential environmental effects. The Draft POD addresses the preferred alternative. All design and engineering activities completed during the Final Design phase of the Project after the NEPA decision is formalized would be required to be consistent with the engineering information contained in the Draft POD.

Additional information incorporated into the Draft POD includes:

- The Applicant's objectives for the Project.
- Additional information about the proposed roadway design criteria including geometry, ROW needs, and lands that may be affected by construction, operation, and maintenance of the Project.
- Additional information regarding design features and mitigation measures that would be implemented to reduce the potential environmental effects of the Project.
- Additional details regarding information included in the Preliminary POD.
- Conceptual design/geometry for the preferred alternative.

### 1.1.3 Final Plan of Development

The Final POD would be developed in collaboration with the BLM prior to the initiation of Construction. The Final POD would need to be approved by the BLM before the BLM issues a Notice to Proceed with construction. Compliance with the Final POD would be a binding condition of a BLM ROW grant, if a ROW is issued.

Information to be developed and included in the Final POD includes:

- Additional details regarding information included in the Draft POD.
- Design features and mitigation measures that would be identified in applicable agency decision documents that would be implemented to reduce the potential environmental effects of the Project. Design features and mitigation measures would be informed by surveys completed to support the NEPA analysis and compliance with other environmental laws and regulations.
- Design/geometry for the selected alternative.
- Final determination of ROW needs and disturbance areas, including maps of all proposed facilities, site-specific construction actions, temporary work areas, and any other facility required for the Project.

## 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 (I-15) at milepost 13. This objective is driven by the current and forecasted population growth within the county, which will continue to increase demand on the transportation network. Currently, the existing transportation network between SR 18 and I-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 DMPO's regional travel demand model (DMPO 2019).

### **3 Northern Corridor Project Development Process**

#### **3.1 Pre-NEPA Phase**

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

1. Applicant/BLM Coordination
2. POD Development (Preliminary POD and Draft POD)
3. Preliminary Applicant and BLM Purpose and Need Development
4. Environmental Resource Identification
5. Conceptual Design/Roadway Alternative Development
6. Initial (Pre-NEPA) Scoping
7. Agency/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 roadway alternatives, and ongoing coordination and additional topic-specific meetings were scheduled as needed.

The Applicant's objectives and supporting documentation was 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 resource data and sources and confirmed additional data needs to support the NEPA process and survey/documentation methods.

The conceptual design and roadway alternatives development process occurred hand in hand 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).

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 a roadway project would be designed and constructed. Project-specific roadway design elements accounted for design standards from the AASHTO "A Policy on Geometric Design of Highways and Streets," commonly referred to as the AASHTO Green Book, and the Utah Manual on Uniform Traffic Control Devices (MUTCD) that include but are not limited to Average Daily Traffic, design vehicle, design speed, geometric controls, number of lanes, lane widths, and shoulder widths. These project-specific roadway design standards for the Northern Corridor 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/vertical alignment, potential active transportation features (trail, 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. Those project details, including design features (environmental commitments), are described further in Sections 4 through 6 of this POD.

## 3.2 NEPA Phase

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

The conceptual design, alternative development, and environmental resource 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; alternative 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/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/fill limits and an approximate footprint of the roadway.

After the project moves into Final Design, the conceptual design will be confirmed and further refined. Items determined in the conceptual design include:

- Structure types
- Roadway design refinements
- Capacity analysis
- Drainage design refinements
- Structure hydraulics
- Aesthetics and landscape concepts
- Potential utility impacts

### 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 Environmental Impact Statement (EIS) and Draft POD and will be carried forward into the Final Design phase.

Specific environmental impacts and corresponding mitigation commitments identified during the NEPA phase are documented in the Draft POD and will be further refined and applied during final design and completion of the Final POD.

### 3.3 Final Design Phase

Activities in the Final Design phase would occur after completion of the NEPA process and signing of a decision document. All design completed during the Final Design phase would be required to conform with the decisions made during the NEPA process and all other relevant environmental regulatory processes and supported by the decision document and BLM ROW grant. The Final Design phase would respect all environmental commitments for avoidance and protection of sensitive areas and resources. All deliverables completed during the Final Design phase would be provided to BLM for review and comment. It is anticipated that BLM would not issue a Notice to Proceed for construction activities until BLM is satisfied that all design is consistent with the Final POD and decision document.

Final design 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 final design are listed and described below:

1. Plan-in-hand



2. Plans, Specifications, and Estimates
3. Construction Advertising

Final design typically indicates that design is being completed with the intent to advertise for construction rather than to advance concepts, evaluate alternatives, or determine impacts. 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 NEPA phase of the project will bring the project design to a roughly 30% design level. The Final Design will likely begin with a review of the 30% Design, additional environmental due diligence as applicable, and then progress from that point, with Plan-in-hand as the first design milestone submittal.

At the conclusion of each stage of Final Design, there will be a review meeting. Prior to the review meeting, the submittal for each stage is 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 Final Design 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 stage will focus on implementation and development of plans and specifications and implementation of commitments made in the previous phases of the project.

Factors such as availability of funding or traffic demand may lead to a phased approach to construction for the project. A phased approach to the Northern Corridor would likely be implemented by building a partial roadway section, including at least one lane in each direction, that would connect the proposed termini of the project. Future phases could then widen this roadway to add additional lanes as needed based on travel demand or available funding. Additional features such as trails and cross-street connections may be implemented in phases as well.

If a phased 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” describes a design approach that considers future phases and full project implementation throughout intermediate phases of a project in order to verify that future phases can be easily implemented and to minimize total project costs and tear-out of existing construction during future phases.

The forward-compatibility approach to design starts by creating a final full-design for the project. The current phase is then evaluated to see how it fits into the Final Design. As an example, drainage pipes may carry additional flow in future phases and will be constructed under pavement in the current phase. In this scenario, the pipes may be designed and sized for future phases even though flows will be lower in the current phase. This approach will prevent removal of pavement and additional pipe material in the future, even though larger pipes may



not be warranted in the current phase. A forward-compatible approach will also evaluate all roadway and structure geometry to verify that any pavement or structures can be easily widened in the future and still meet design standards.

### 3.3.1 Plan-in-Hand Design

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

This stage also generally coincides with final identification of needs for ROW acquisition from private and state entities and the acquisition of these parcels. It is anticipated that ROW needs would 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.

Items typically determined at the Plan-in-hand Design stage include:

- ROW acquisition from state and private entities is complete or underway.
- Discipline designs are completed.
- Individual discipline plan sets are created (roadway, drainage, utilities, etc.).
- Utility relocation design is complete.
- Project is reviewed for constructability.

At completion of Plan-in-hand Design stage, 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 Plans, Specifications, and Estimates (PS&E) Design stage finalizes all designs based on comments received at the Plan-in-hand Design stage, 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, environmental controls, etc.

Items typically determined in the PS&E Design stage include:

- Plan-in-hand Design stage 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 stage 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 design criteria are based upon a design speed of 55 miles per hour (mph; posted speed limit 50 mph); and roadside drainage would be accommodated through a combination of drainage swales and curb and gutter. The currently proposed typical section is shown in Figure 3 and discussed in more detail in Section 4.2.



## 4.1 Right-of-Way

The total width of the ROW would vary between 300 and 500 feet because of variations in the cut and fill slopes and construction requirements along the length of the proposed highway. These variations would be based on geotechnical analysis, terrain type (for example, rock or dirt), and further design to minimize impacts. Based on the conceptual engineering design using readily available topographical and design-related information completed to date, some areas requiring cut and fill slopes would extend beyond the standard 300-foot typical section, requiring a ROW up to 500 feet wide.

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)	Temporary ROW (acres)	Permanent ROW (acres)	Total ROW (acres)
BLM	[to be determined]	[to be determined]	[to be determined]	[to be determined]
Utah School and Institutional Trust Lands Administration	[to be determined]	[to be determined]	[to be determined]	[to be determined]
Utah Division of Wildlife Resources State Wildlife Reserve/Management Area	[to be determined]	[to be determined]	[to be determined]	[to be determined]
Private	[to be determined]	[to be determined]	[to be determined]	[to be determined]
<b>Total</b>	[to be determined]	[to be determined]	[to be determined]	[to be determined]

Figure 1 shows the location of the proposed Northern Corridor ROW. The ROW requested from BLM is in the following sections:

- Salt Lake Meridian, Utah
- T. 42 S., R. 15 W.
- sec. 17, NE1/4, SE1/4, and SW1/4
- sec. 18, SE1/4, and SW1/4

UDOT has applied for a ROW grant from the BLM for the construction of the portions of the Project that cross BLM-administered lands. The requested permanent ROW across BLM-administered lands would be up to 500 feet wide and approximately 1.75 miles long. The Project's western terminus is roughly 1.3 miles east of the Bluff Street-Red Hills Parkway intersection in St. George, Utah; the eastern terminus is at Green Spring Drive in Washington City, Utah.



In certain areas, additional permanent ROW width may be required for access, structures, or other features. ROW needs would be confirmed through the conceptual design process and included in the Final POD. In addition to the permanent ROW, temporary ROWs may be necessary during construction for construction equipment staging, contractor access, or other needs. Temporary ROW needs would also be confirmed through the conceptual design process and included in the Final POD.

The Project will require acquisition of necessary lands (i.e., ROW) and construction easements from private landowners, Utah School and Institutional Trust Lands Administration, and the Utah Division of Wildlife Resources using a standard ROW acquisition process after a decision is issued on the NEPA document. Should BLM acquire certain non-federal lands crossed by the Northern Corridor prior to the completion of a decision document for the NEPA process, those lands would be included as part of an amended ROW application.

*[The ROW description will be refined in the Final POD as more information becomes available from the conceptual design process. A full legal description as well as updated ROW physical requirements (widths, staging areas, structures, etc.) and temporary use areas, if necessary, will be included in the Final POD. If necessary, based on the information developed during the conceptual design process, the ROW application submitted to BLM may be amended to update the specific ROW needs of the Project. Maps of the proposed ROW and associated Project features would be included in the Final POD.]*

## 4.2 Roadway Design

At full build-out, the roadway would be an approximately 4.5-mile-long, four-lane divided highway with two 12-foot-wide travel lanes in each direction. Other features associated with the roadway would include a raised island median, bicycle and pedestrian trail, signals, lighting, and associated signage. Drainage design would include a combination of swales and curb and gutter to capture drainage from the roadway. See Figure 3 for a typical section of the Project.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

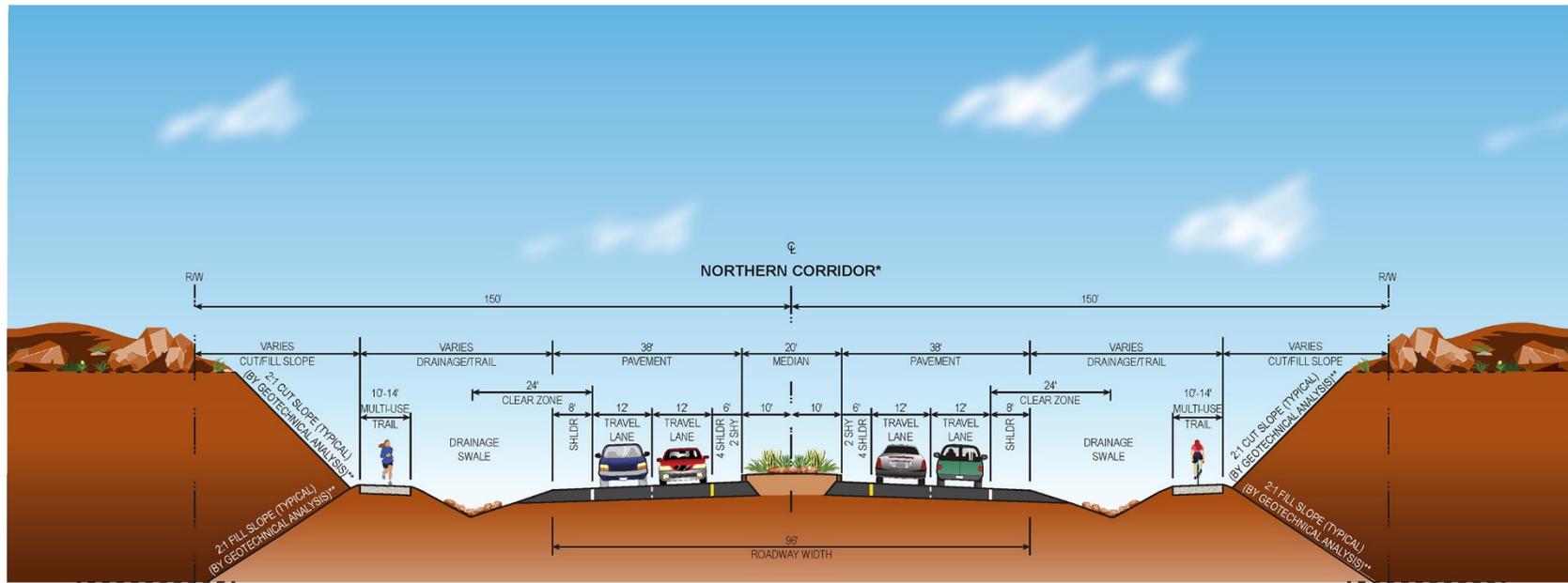
### 4.2.1 Engineering Standards

Local and/or UDOT standards, publications, and policies will be applicable to the Project as the roadway design process moves forward. These standards address design aspects such as roadway drainage, road and bridge design, geotechnical, utility coordination, geometric design, ROW operations, and advanced traffic management system design.



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

## Draft Plan of Development



**NOTES:**

\*TOTAL ROW 300' – 500' DEPENDING ON SLOPE AND CONSTRUCTION REQUIREMENTS.

\*\*THE FINAL SLOPE WILL BE BASED ON GEOTECHNICAL ANALYSIS, TERRAIN TYPE (E.G., ROCK OR DIRT), AND FURTHER DESIGN TO ACHIEVE A "BEST FIT" DESIGN THAT MINIMIZES IMPACTS AND BLENDS IN WITH THE NATURAL ENVIRONMENT.

Figure 3. Northern Corridor Typical Section



#### 4.2.1.1 Design Speed

The Project would be designed for a 55-mph speed and posted with a 50-mph speed limit.

#### 4.2.1.2 Horizontal Alignment

AASHTO criteria would govern the design of all horizontal elements based on the design speed. All horizontal curves will include adequate superelevation (i.e., cross slope) transition lengths. A maximum superelevation rate of 6.0 percent will be utilized for the roadway based on the 55-mph design speed. Superelevation design will be in accordance with AASHTO criteria (i.e., Method 5 for high-speed roadways). Adequate tangent between all reverse curves will be included.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.2.1.3 Vertical Alignment

AASHTO criteria will govern the design of all vertical elements based on the design speed. The minimum longitudinal grade is 0.5 percent and the maximum longitudinal grade is 6.0 percent.

*[Additional information developed during preliminary engineering design would be included in Final POD.]*

#### 4.2.1.4 Road Surfacing Material

Pavement design will be based on 2050 traffic volumes and an AASHTO WB-67 vehicle design. The full pavement design will be provided for all construction elements at the time of construction. Pavement design will be approved by the UDOT. It is expected that the final surface course would be asphalt and not concrete.

*[Additional information developed during preliminary engineering design would be included in Final POD.]*

#### 4.2.1.5 Cut and Fill

Excavation and placement of fill will be necessary within the ROW to construct the roadway base consistent with engineering standards and design criteria. Where fill is necessary, graded roadway fill slopes will have a maximum slope of 2:1 and a preferred slope of 3:1 or flatter. Final cut and fill slopes will be based on existing topography and geotechnical analysis. Retaining walls or other structures may be used if necessary to satisfy commitments made during the NEPA process.

*[Additional information developed during preliminary engineering design would be included in the Final POD. Preliminary requirements for structures (preliminary locations and potential structures) such as retaining walls will also be determined for the Final POD. All anticipated cut and fill areas would be identified on the ROW maps included in Appendix B.]*



#### 4.2.1.6 Intersection Locations and Design

As described in Section 4.4.1, construction of the Project would be phased, with initial construction likely to address a two-lane facility (one lane in each direction).

All intersections on the Project would be at-grade, with the exception of the intersection with Red Hills Parkway, which may ultimately be grade-separated. The Red Hills Parkway intersection would initially be designed as an at-grade intersection with traffic signals and lighting. The intersection would later be converted to a grade-separated interchange with bridges, ramps, and lighting similar to a freeway interchange. The conversion to the interchange would occur by 2050, based on traffic levels and available funding. Because anticipated traffic volumes will be higher in future years in the east/west direction by a magnitude of 3 to 1, UDOT's design priority should be given to the Northern Corridor in the east/west direction to prepare for the ultimate grade-separated interchange configuration.

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

If proposed at a future date, additional intersections connecting to the roadway in the future would be considered based on the criteria described in Section 4.2.1.6.1 (Access Management).

For all intersections or approved access areas, acceleration and/or deceleration lanes would be required. Auxiliary or turn lanes at intersections and access points would be determined by a detailed traffic analysis. At a minimum, signalized intersections would be constructed with dedicated left and right turn lanes.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

##### 4.2.1.6.1 Roadway Access Management

Access is defined by UDOT as “any driveway or other point of entry or exit such as a street, road, or highway that connects to the general street system” (UDOT 2013). The State of Utah rules for access management are found in the Utah Administrative Code (R930-6) and serve to provide for public safety and efficient highway operations. The Project will be designed as an urban arterial. These facilities move traffic across multiple communities or jurisdictions, typically connecting facilities of interstate or system importance and through urban areas that have significant potential for development or redevelopment.

“Full access” means that ingress and egress is provided at the point of access; it does not mean full movement (UDOT 2013). The full access location currently planned would be at Cottonwood Springs Road (also known as Old Dump Road and Turkey Farm Road). Other accesses may be permitted for recreational uses such as access to trailheads, if these facilities are proposed during the Project development or after it is constructed.



Management of public and pedestrian access to the ROW during construction is described in Table 3, under Safety, Fire Protection, and Emergency Preparedness. UDOT requires that a Traffic Control Plan be submitted by the contractor to provide for the safety of commuters, pedestrians, and construction personnel.

*[Public and pedestrian access during operation of the roadway would be provided in a future version of the POD after being developed by UDOT and discussed with BLM.]*

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.2.1.7 Traffic Signals

The appropriate type of access (unsignalized or signalized) on the Project will be 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.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.2.1.8 Stormwater Drainage and Management

Drainage on a roadway project is broken into two categories: offsite flow and onsite flow. Offsite flow is flow from outside the project ROW that enters and/or crosses the ROW and is addressed in Section 4.2.2. Onsite flow is flow generated from paved surfaces or other areas inside the project ROW. Onsite flow is generally collected and conveyed within the ROW to limit increased runoff from paved surfaces and to provide water quality treatment before discharge back to natural water bodies.

The Project roadway drainage may be accommodated via an open system with roadside ditches/swales with water quality treatment methods that are approved by appropriate agencies. Within the Washington City limits, drainage will be a closed system with curb, gutter, catch basins, drop inlets, and underground piping. The design storm event will be as determined by the Applicant and the local agencies and adhere to applicable UDOT stormwater design standards.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.2.1.9 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 would be determined during roadway design. If required, power supply and fiber would be buried within the ROW.



*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.2.2 Bridges and Other Structures

Structures would be designed in accordance with applicable UDOT design standards. Bridges would match the full width of the approaching roadway.

Bridges and culverts would be designed such that offsite flow would be conveyed across the ROW to maintain flow patterns close to the existing conditions. Bridge and culvert designs would be developed based on a drainage analysis. The drainage analysis and bridge and culvert design would consider watershed characteristics, physical characteristics, hydrologic and meteorological data, existing and proposed land use in the project drainage area, permit requirements, floodplain limits, and environmental regulations. Bridge and/or culvert sizes may be expanded to serve multi-use purposes such as trail or wildlife crossings.

*[Additional information developed during preliminary engineering design would be included in the Final POD. Preliminary requirements for structures (preliminary locations and potential structures) such as retaining walls will also be determined for Final POD. All anticipated bridges and structures would be identified on the ROW maps included in Appendix B.]*

#### 4.2.3 Other Features Associated with Project

A 10- to 14-foot-wide paved bike/pedestrian trail would be designed to the latest Americans with Disabilities Act, AASHTO, County, and local agency standards and constructed parallel to the Northern Corridor (see typical sections shown in Figures 3 and 4). The trail location may vary and may be on one or both sides of the roadway. Bicyclists will be able to travel along the corridor by using the trail system or sharing the roadway with vehicles in accordance with the law.

*[Additional information regarding trails or other features associated with the Northern Corridor, if any, would be included in the Final POD.]*

#### 4.2.4 Temporary Use Areas

As described in Section 4.1, temporary ROWs on BLM-administered lands may be required to accommodate temporary construction activities, equipment storage or staging areas, and other activities (e.g., asphalt or concrete batch plant). The need for these temporary use areas would be identified during the conceptual design process and these areas would 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 would 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 would be obtained by the selected construction contractor.



*[Temporary use areas, if necessary, will be included in the Final POD. If necessary, based on the information developed during the conceptual design process, UDOT may amend the ROW application submitted to BLM to update the specific ROW needs of the project. Maps of the proposed ROW and associated project features would be included in the Final POD.]*

#### 4.2.5 Additional Components

No additional components of the project are anticipated at this time. Additional components of the project that could be identified during the NEPA or conceptual design process could include material source areas, trailheads, parking areas, and information stations.

Any materials needed from outside the ROW to be used for road construction would be sourced per bid specifications by the selected contractor. No materials are anticipated to be sourced from BLM-administered lands. Excess materials sourced from the outside the ROW would not be left on BLM-administered lands without BLM approval.

*[Additional components including trailheads, parking areas, and/or information stations, if any, would be identified in the Final POD.]*

### 4.3 Permitting Requirements and Pre-Construction Surveys

#### 4.3.1 Permits and Approvals

Non-federal land acquisitions would be required to complete the Northern Corridor. In addition to these non-federal ROW acquisitions, Table 2 lists permits, reviews, clearances, and approvals that may be required for the Northern Corridor.



Table 2. 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	After the final NEPA document	Prior to construction	Portions of roadway or structure in Waters of the U.S.
Federal Permits, Reviews and Approvals	Endangered Species Act compliance	U.S. Fish and Wildlife Service	BLM	Concurrent with the final NEPA document	Prior to construction	Desert 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	Final NEPA document	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



Jurisdiction	Approvals	Granting Agency	Applicant	Application Timeline	Granting Timeline	Applicable Portion of Project
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 would 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 (FEMA) 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 offsite 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

*[Table 2 would be refined throughout the development of the Final POD.]*



## 4.3.2 Pre-Construction Surveys

### 4.3.2.1 Engineering Surveys

Once a preferred route is selected through the NEPA process, on-ground investigations would be completed to accurately locate the centerline of the ROW. The exact centerline would be determined to implement design criteria and satisfy the mitigation measures developed during the NEPA process. Before construction surveying begins, required permits to survey on public and state lands or right of entry for privately-owned land would be obtained. Construction survey work would consist of centerline location and ROW boundaries where necessary. Structure locations would be flagged and staked where needed.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

### 4.3.2.2 Environmental Surveys

Surveys for environmental resources would be completed during the Pre-NEPA and NEPA phases of the project to inform the development of the NEPA analysis and development of appropriate environmental design features and mitigation measures. Other pre-construction environmental surveys would be conducted as required based upon mitigation measures agreed to during the environmental process.

*[Additional information developed during the Pre-NEPA and NEPA phases would be included in the Final POD.]*

## 4.4 Project Construction

### 4.4.1 Construction Phasing

Factors such as availability of funding or traffic demand may lead to a phased approach to construction for the Project. A phased approach to the Northern Corridor may be implemented by 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. Features such as trails and cross-street connections may be implemented in phases as well. The phases would be constructed based upon the forward-compatible design as described in Section 4.2.

If a phased 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 easily implemented and to minimize total project costs and tear-out of existing construction during future phases. The forward-compatibility approach to design starts by creating a final full-design for the project. The current phase is then evaluated to see how it fits into the Final Design. As an example, drainage pipes may carry additional flow in future phases and will be constructed under pavement in the current phase. In



this scenario, the pipes may be designed and sized for future phases even though flows will be lower in the current phase. This approach will prevent removal of pavement and additional pipe material in the future, even though larger pipes may not be warranted in the current phase. A forward-compatible approach will also evaluate all roadway and structure geometry to verify that any pavement or structures can be easily widened in the future and still meet design standards.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 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 would be responsible for contractor oversight to ensure that all required construction practices, standards, and specifications are adhered to.

Construction would be completed using established highway construction practices, standards, and specifications. UDOT Standard Specifications for Road and Bridge Construction (UDOT 2020 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. 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.

*[Specific road construction methods designed to avoid or mitigate potential project impacts, if necessary, would be identified in the Final POD.]*

##### 4.4.2.1 Flagging, Staking, and Fencing

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

All flagging, staking, and fencing would be completed in accordance with the specifications described in Section 6 of the POD and as shown on the maps accompanying the Final POD.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

##### 4.4.2.2 Clearing and Grading

Surface preparations for roadway development would 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 would be removed for each phase of construction. For each phase of construction, topsoil would be removed and stored in dedicated locations within the ROW for reclamation of areas disturbed by construction. Topsoil would be stored and applied during the reclamation of construction disturbances in accordance with the restoration and rehabilitation specifications shown in Table 3. To preserve topsoil quality, topsoil would not be stored between phases of construction.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.4.2.3 Road Construction

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

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

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

If any underground drainage and utility conduits are identified during the design process (for future potential utility crossings), they would be trenched into existing ground or placed during earthwork operations. Bedding and backfill material would be used in pipe and utility conduit trench areas. Inlet and outlet areas of drainage crossings may require additional grading and riprap, and geotextile would be used as necessary to stabilize them.

The final construction site would be stabilized using erosion and sediment control measures such as silt fence, check dams, and inlet protection. Topsoil would be placed over fill material and seeding of an approved seed mixture would be used to establish vegetation.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.4.2.4 Construction Work Force

[The construction work force estimate will be provided in the Final POD.]



#### 4.4.2.5 Construction Equipment

Earthwork activities would involve equipment such as scrapers, bulldozers, backhoes, water trucks, and compactors. Construction of pavement would involve asphalt trucks and compactors. Construction of drainage and utility conduits would require trenching equipment. Placement of prefabricated structures or construction of special structures such as bridges or box culverts, if included in design, may require cranes, drill rigs, and other specialized heavy machinery.

*[Additional construction equipment may be identified during preliminary and final design and would be updated in the Final POD, as necessary.]*

#### 4.4.3 Construction Access

Access during construction is expected to 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 would be located within the approved ROW.

*[Additional information developed during preliminary engineering design would be included in the Final POD].*

#### 4.4.4 Safety Requirements

Road construction would comply with the general OSHA standards. This defines responsibility for health and safety personnel, instruction and training, accident reporting, and overall work practice control.

Work zone safety practices such as signage and pavement markings would adhere to the MUTCD.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.4.5 Environmental Compliance Requirements

The Applicant and its construction contractor would 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) required under the Utah Pollutant Discharge Elimination System (UPDES) Construction General Permit and a Fugitive Dust Control Plan identified in Section 4.3.1 and documentation of environmental clearances for any areas not previously cleared in the approved NEPA decision document.

The selected construction contractor would be required to develop a SWPPP that is consistent with the UPDES Construction General Permit and any applicable stormwater management programs.



*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 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 would be reported and dealt with according to applicable construction standards. Any flammable or combustible materials storage areas would be identified and managed according to these standards.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

#### 4.5 Stabilization and Rehabilitation

The final construction site would be stabilized using erosion and sediment control measures such as silt fence, check dams, and inlet protection. All disturbed areas would be stabilized and/or revegetated following construction as described in the Rehabilitation and Restoration specifications in Table 3. In areas that would be revegetated, once final grades are established, topsoil would be placed over fill material and seeding will be used to establish vegetation. A project-specific seed mixture and application methods would be developed in coordination with the BLM. Slopes would be roughened by walking track-mounted equipment up and down slopes. Erosion would 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.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

### 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.

#### 5.1 Road Maintenance Schedule and Minimum Maintenance

The minimum maintenance schedule and practices for the Northern Corridor would be determined based upon or current standards and practices at the time of implementation.

*[Additional information developed during preliminary engineering design would 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 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.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

### 5.3 Control, Warning, and Directional Traffic Signs

Roadway signage would be inspected and deficiencies would 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 trail foot race or bicycle race events that require traffic accommodation or seasonal storm events.

### 5.5 Safety

The roadway would 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. Once constructed, safety features would be inspected and maintained according to current standards and practices applicable at the time of implementation.

Data would be gathered on roadway performance, accidents, natural events, and other traffic parameters to track roadway safety.

### 5.6 Inspection, Maintenance, and Work Schedules

Once the Project is built, a survey would be completed to inspect all features on the Project. As-built drawings would be provided to by the contractor. Regular inspections would be conducted to ensure all equipment, structures, and BMPs are in good working order. Should deficiencies be detected during regular inspections, repairs would be made as required.

*[Additional information developed during preliminary engineering design would be included in the Final POD.]*

## 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. These include: 1) design features of the Project for environmental protection, and 2) mitigation measures. See Table 3. The construction contractor would 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 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 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 standard specifications for environmental compliance.

## 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. If an action alternative is selected by the BLM, additional mitigation measures or other requirements may be identified by the BLM in a Record of Decision or ROW grant. The mitigation measures required by the BLM will be described in this section of the Final POD, along with a description of where and how the measures would be implemented. The locations where the measures would be implemented would be identified on the maps included in Appendix B. If needed, additional appendices to the POD would be developed to address the implementation of mitigation committed for specific resources or issues (e.g., Mojave Desert tortoise or detailed reclamation planning).

*[Additional information developed during the Pre-NEPA and NEPA phases would be included in the Final POD.]*



Table 3. Design Features of the Project for Environmental Protection

Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Air Quality and Climate Change/GHG	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
Air Quality and Climate Change/GHG	<p>A. Submit a Fugitive Dust Control Plan to DAQ for construction activities as defined in Utah Administrative Code (UAC) R30, such as:</p> <ol style="list-style-type: none"> <li>1. Disturbing a ground surface greater than ¼ acre in size.</li> <li>2. Demolition activities including razing homes, buildings, or other structures.</li> <li>3. Material storage, hauling, or handling operations.</li> </ol> <p>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.</p> <ol style="list-style-type: none"> <li>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.</li> <li>2. Conduct opacity observations according to U.S. Environmental Protection Agency (EPA) Method 9 for stationary sources. Refer to <a href="http://www.udot.utah.gov/go/standardsreferences">http://www.udot.utah.gov/go/standardsreferences</a>.</li> <li>3. Use procedures similar to EPA Method 9 to conduct opacity observations for intermittent and mobile sources.               <ol style="list-style-type: none"> <li>a. The requirement for observations to be made at 15 second intervals over a six-minute period does not apply.</li> </ol> </li> </ol> <p>C. Minimize fugitive dust from material storage, handling, or hauling operations through the use of covers, stabilization, or other methods approved by the DAQ.</p>	01355 Environmental Compliance 1.11 Fugitive Dust	Construction
Air Quality and Climate Change/GHG	<p>Apply water for dust control in quantities and locations as directed by the Engineer and to maintain environmental compliance.</p> <ol style="list-style-type: none"> <li>1. Dust control may be required at any time.</li> <li>2. Do not waste water.</li> </ol>	01572 Dust Control and Watering 3.1 Application	Construction
Air Quality and Climate Change/GHG	<p>A. Refer to Section 01355.</p> <p>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 <a href="http://www.udot.utah.gov/go/standardsreferences">http://www.udot.utah.gov/go/standardsreferences</a>.</p> <p style="margin-left: 40px;">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</p> <p>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.</p>	00820 Legal Relations and Responsibility to the Public 1.18 Air Quality Protection	Construction
Blasting	Prepare a Blasting Plan.	Not applicable	Construction
Blasting	A. Use explosives, delay fuses, and all blasting materials as recommended by the explosives firm. Refer to NFPA 495 – Explosive Materials Code.	02316 Roadway Excavation 2.3 Explosives	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
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
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
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
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 ft 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
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
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
Fish and Wildlife Resources	Where possible, construction activities, including habitat-alteration and noise, would take place outside of Utah's migratory bird primary nesting season (April 1 to July 15). In Utah, the migratory bird nesting season can extend from January 1 to August 31 (especially for raptors). Therefore, a pre-construction survey by a qualified biologist (within 10 days of when work actually begins on the project sites) would be conducted for nesting birds. The location and timing of migratory bird surveys would be coordinated with the BLM Wildlife Biologist.	Not Applicable	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Fish and Wildlife Resources	If an active nest is identified, the BLM Wildlife Biologist would be notified, and a no activity buffer (ranging from 100 feet to 1 mile, depending on the species) would be established around the nest site and remain in place until the young have fledged and/or the nest becomes non-active (Romin and Muck 2002; USFWS 2014).	Not Applicable	Construction
Fish and Wildlife Resources	Activities would comply with Utah BLM BMPs for Raptors and Their Associated Habitats in Utah (BLM 2006). Project activities would 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.	Not Applicable	Construction
Hazardous Materials and Waste	Prepare Hazard Materials, Hazardous Waste, and Spill Prevention Plan.	Not Applicable	Construction
Hazardous Materials and Waste	Develop and implement a Litter Management Plan for the ROW.	Not Applicable	Construction
Hazardous Materials and Waste	<p>A. Suspend work immediately in an area if abnormal conditions are encountered or exposed during construction that indicates the presence of a hazardous waste.</p> <ol style="list-style-type: none"> <li>1. Notify the Engineer.</li> </ol> <p>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.</p> <ol style="list-style-type: none"> <li>1. Take appropriate actions to minimize the threat to human health and the environment.</li> <li>2. Contact the Engineer immediately.</li> <li>3. Follow appropriate testing measures to determine if waste is hazardous.</li> <li>4. Do the following if waste is determined to be hazardous:               <ol style="list-style-type: none"> <li>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.</li> </ol> </li> <li>5. Follow requirements in UAC R315.</li> </ol> <p>C. Coordinate with the Engineer to initiate development of a remediation plan according to DEQ and the EPA regulations and requirements.</p> <ol style="list-style-type: none"> <li>1. Pay for costs to address hazardous waste discovery or spill cleanup when caused by Contractor's activities.</li> <li>2. Cost to test and remedy waste not caused by Contractor to be considered as contract change order by Engineer.</li> </ol> <p>D. Complete the work required by the remediation plan before resuming operations in the affected area.</p>	01355 Environmental Compliance 1.7 Hazardous Waste	Construction, Operations and Maintenance
Hazardous Materials and Waste	<p>Spill of Petroleum-Based Product and Used Oil</p> <p>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.</p> <ol style="list-style-type: none"> <li>1. Send notice following the discovery of the spill.</li> <li>2. Notify DEQ, 24-hour Answering Service, at (801) 536-4123.</li> <li>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.</li> </ol> <p>B. Cleanup petroleum-based or used oil product when caused by Contractor's activities.</p>	01355 Environmental Compliance 1.8 Spill of Petroleum-Based Product and Used Oil	Construction, Operations and Maintenance



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Hazardous Materials and Waste	<p>C. Implement at least the following Pollution Prevention and Good Housekeeping Practices:</p> <ol style="list-style-type: none"> <li>1. Concrete Washout               <ol style="list-style-type: none"> <li>a. Provide a watertight container on-site before concrete placement activities begin and where concrete trucks, tools and equipment are to be washed.                   <ol style="list-style-type: none"> <li>1) Do not exceed 75 percent of total storage capacity</li> <li>2) Do not place within 50 feet of storm drain inlets, open ditches or watercourses.</li> </ol> </li> <li>b. Remove and properly dispose of concrete waste and washout water.</li> </ol> </li> <li>2. Street sweeping debris generated from construction track-out.               <ol style="list-style-type: none"> <li>a. Sweep debris back onto disturbed pervious project areas                   <ol style="list-style-type: none"> <li>1) Remove trash and litter</li> </ol> </li> <li>b. Store debris collected by sweeping equipment on disturbed pervious project areas where it cannot enter into waterway or storm drain system.</li> </ol> </li> <li>3. Waste collected from cleaning pipes, inlets, culverts or ponds.               <ol style="list-style-type: none"> <li>a. Dispose of waste at a solid waste disposal facility currently regulated by the State of Utah, as follows:                   <ol style="list-style-type: none"> <li>1) Coordinate with facility in advance to determine disposal requirements</li> <li>2) Comply with facility acceptance requirements.</li> <li>3) Document waste collection and disposal using Department’s waste disposal tracking form. Refer to <a href="http://www.udot.utah.gov/go/standardsreferences">http://www.udot.utah.gov/go/standardsreferences</a>.</li> </ol> </li> <li>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.</li> <li>c. Coordinate with Engineer for the disposal of waste that is not accepted at a solid waste disposal facility.</li> </ol> </li> <li>4. Prevent material from entering into stormwater conveyances, such as storm drain inlets and drainage pipes, ditches, natural waterways, and wetlands.</li> <li>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.</li> <li>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.</li> </ol>	01355 Environmental Compliance 1.14 Stormwater Management Compliance	Design, Construction, Operations and Maintenance
Land and Water Conservation Fund	<p>Although Section 7 of the 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.</p>	Not Applicable	Design, Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Noise	<p>3. Minimize noise during Nighttime Construction Work.</p> <p>a. Comply with temporary noise permit conditions.</p> <p>    1) Notify the Engineer and local government authority two weeks in advance of percussive noise activity.</p> <p>    2) Nonconformance with temporary noise permit conditions will result in disincentive according to Section 01355.</p> <p>b. Department obtained Temporary Noise Permits are included in the contract.</p> <p>c. Obtain required temporary noise permits for:</p> <p>    1) Nighttime construction work within the project construction limits when nighttime construction work is not required in the contract.</p> <p>    2) Activities outside of the project limits such as off-site batch plants and gravel pits.</p>	<p>01355 Environmental Compliance</p> <p>00555 Prosecution and Progress</p> <p>1.9 Limitation of Operations</p>	<p>Design, Construction, Operations and Maintenance</p>
Paleontological Resources	<p>Prepare Paleontological Resources Protection Plan.</p>	<p>Not Applicable</p>	<p>Construction</p>
Paleontological Resources	<p>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.</p>	<p>01355 Environmental Compliance</p> <p>1.12 Environmental Compliance by the Contractor</p>	<p>Construction</p>
Paleontological Resources	<p>A. Suspend work within the vicinity if historical, archaeological or paleontological objects, features, sites or human remains are discovered during construction:</p> <p>    1. Provide a 100 ft minimum buffer around the perimeter of the discovery.</p> <p>    2. Protect the discovery area.</p> <p>    3. Contact the Engineer and send notice of the nature and exact location of the discovery.</p> <p>    4. Provide written documentation to the Engineer within two calendar days of discovery.</p> <p>B. Do not recommence work within the area of discovery until the Engineer provides notice.</p>	<p>01355 Environmental Compliance</p> <p>1.13 Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites, or Human Remains</p>	<p>Construction, Operations and Maintenance</p>
Recreation	<p>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.</p>	<p>Not Applicable</p>	<p>Design, Construction</p>
Recreation	<p>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.</p>	<p>Not Applicable</p>	<p>Design, Construction</p>



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Rehabilitation and Restoration	<ul style="list-style-type: none"> <li>A. Preserve public and private property during the work.</li> <li>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.</li> <li>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.</li> <li>D. Restore damaged property and items removed temporarily during construction to a condition similar or equal to that existing before the damage.</li> <li>E. Temporarily discontinue work if remains of prehistoric dwelling sites or artifacts of historical or archeological significance are encountered. Refer to Section 01355.</li> </ul>	00820 Legal Relations and Responsibility to the Public 1.12 Protecting and Restoring Property and Landscape	Construction, Operations and Maintenance
Rehabilitation and Restoration	<ul style="list-style-type: none"> <li>A. Land monuments, property markers, or official datum points               <ul style="list-style-type: none"> <li>1. Protect until their removal is approved.</li> <li>2. Reference for re-establishment before removing.</li> </ul> </li> <li>B. Protect trees from damage to roots and branches if they are designated to remain.</li> <li>C. Protect other vegetation and objects designated to remain.</li> </ul>	02231 Site Clearing and Grubbing 3.6 Protection	Design, Construction
Rehabilitation and Restoration	<ul style="list-style-type: none"> <li>C. Clean and finish areas within the clear zone as follows:               <ul style="list-style-type: none"> <li>1. Remove protrusions or depressions greater than 3 inches within the clear zone such as rocks, boulders, ridges, and stumps.</li> <li>2. Remove trees and provide proper sight distance.</li> <li>3. Determine clear zone according to AASHTO Roadside Design Guide when not shown.</li> </ul> </li> <li>D. Clean drainage facilities of debris and obstructions caused by construction.               <ul style="list-style-type: none"> <li>1. Dispose of material removed.</li> </ul> </li> <li>E. Remove or cover with fine material from roadway excavation or borrow, large rocks or boulders on fill slopes with the following exception:               <ul style="list-style-type: none"> <li>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.</li> </ul> </li> <li>F. Do not undercut the slope on cut slopes.               <ul style="list-style-type: none"> <li>1. Remove all overhanging rocks.</li> <li>2. Solid ledge rock or partially buried boulders 0.33 yd<sup>3</sup> or more may be left in place on slopes steeper than 4:1 beyond the clear zone.</li> </ul> </li> <li>G. Clean and finish areas within right-of-way limits as follows:               <ul style="list-style-type: none"> <li>1. Remove all dead trees and shrubs.</li> <li>2. Prune trees and shrubs as required.</li> <li>3. Trim and shape trees to provide horizontal sight distance and 20 ft vertical clearances above the roadway.</li> <li>4. Remove undesirable live trees, shrubs, and all fruit trees to a depth of 18 inches below natural ground.</li> <li>5. Dispose of trash and debris.</li> </ul> </li> <li>H. Clean and finish areas within staging and office sites as follows:               <ul style="list-style-type: none"> <li>1. Clean up and finish as specified for finishing local material source sites including seeding and mulching. Refer to Section 01455.</li> </ul> </li> </ul>	01741 Final Cleanup	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Rehabilitation and Restoration	<p>A. Remove temporary environmental controls when surrounding disturbed areas have met final stabilization measures, except as follows:</p> <ol style="list-style-type: none"> <li>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.</li> <li>2. When the Engineer determines that controls should remain in place.</li> </ol> <p>B. Remove temporary environmental fence and posts upon completion of construction.</p>	01571 Temporary Environmental Controls 3.4 Removal	Construction, Operations and Maintenance
Rehabilitation and Restoration	<p>A. Complete final grading, trench settling, and surface preparation before placing topsoil.</p> <p>B. Place and spread topsoil as the slope is being constructed on steep cut slopes steeper than 2:1 and higher than 15 ft that require the placement of topsoil. Finish according to this Section, Article 3.3, paragraph D.</p> <p>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:</p> <ol style="list-style-type: none"> <li>1. Non-compacted and finished according to this Section, Article 3.3.</li> <li>2. Weed free.</li> <li>3. Finish grade uniform surface with smooth transitions between grade changes and disturbed areas.</li> </ol> <p>D. Do not strip or handle wet topsoil.</p> <p>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.</p>	02912 Topsoil 3.1 General Requirements	Construction
Rehabilitation and Restoration	<p>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.</p> <p>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.</p> <p>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.</p> <p>D. Cat-track slopes steeper than 3:1 to create continuous cleat tracks that run parallel with the contours.</p>	02912 Topsoil 3.3 Spread Stockpiled and Contractor-Furnished Topsoil	Construction
Rehabilitation and Restoration	<p>A. Complete all final grading, irrigation work, trench settling, topsoil placement, and surface preparation before seed or sod application.</p> <p>B. Prepare general seedbed for all seeded and sodded areas.</p> <ol style="list-style-type: none"> <li>1. Verify that a suitable topsoil surface has been prepared according to Section 02912 before seeding.</li> <li>2. Do not work topsoil or seed when the soil is saturated or frozen.</li> </ol> <p>C. Prepare Turf Seedbed</p> <ol style="list-style-type: none"> <li>1. Review finish grade to confirm that topsoil is 1 inch below the top of all walks, curbs, mow strips, and other hard surfaces.</li> <li>2. Apply fertilizer at the rate of 2 lb/100 yd<sup>2</sup> and mix thoroughly into upper 2 inches of topsoil.</li> <li>3. Do not apply fertilizer and seed at the same time in the same machine.</li> </ol> <p>D. Prepare Turf Sod Surface</p> <ol style="list-style-type: none"> <li>1. Review finish grade to confirm that topsoil is 1½ inch below the top of all walks, curbs, mow strips, and other hard surfaces.</li> <li>2. Apply fertilizer at the rate of 2 lb/100 yd<sup>2</sup> and mix thoroughly into upper 2 inches of topsoil.</li> <li>3. Level and roll prepared areas using a 21-gal water-filled hand roller containing 8 to 10 gal of water.</li> <li>4. Lightly rake and dampen with water the top ¼ to ⅝ inches of soil just before laying the sod.</li> </ol>	02922 Seed, Turf Seed, And Turf Sod 3.1 Preparation	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Rehabilitation and Restoration	<p>A. Notify the Engineer seven working days before seeding.</p> <p>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.</p>	<p>02922 Seed, Turf Seed, And Turf Sod 3.2 Seeding - General</p>	Construction
Rehabilitation and Restoration	<p>A. Use the drill method of seeding on accessible slopes 3:1 and flatter.</p> <p>B. Use a drill equipped with the following:</p> <ol style="list-style-type: none"> <li>1. Depth band</li> <li>2. Seed box agitator</li> <li>3. Seed metering device</li> <li>4. Furrow opener</li> <li>5. Packer wheels or drag chains</li> </ol> <p>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.</p> <p>D. Space drill rows a minimum of 6 inches and a maximum of 8 inches.</p> <p>E. Fill the seed boxes no more than half full when drilling on a slope.</p> <p>F. Set depth bands to drill seeds to a ½ inch depth.</p> <p>G. Drill along the contour.</p> <p>H. Maintain the drill at the calibrated setting throughout the seeding operation.</p> <p>I. Allow the furrows that are created by the drill to remain.</p>	<p>02922 Seed, Turf Seed, And Turf Sod 3.3 Drill Seeding Method</p>	Construction
Rehabilitation and Restoration	<p>A. Use the broadcast method of seeding under the following conditions:</p> <ol style="list-style-type: none"> <li>1. Slopes steeper than 3:1.</li> <li>2. Slopes 3:1 and flatter where the area to be seeded is inaccessible to drill.</li> <li>3. The area to be seeded is not large enough to justify using a drill.</li> <li>4. Rocky surface conditions will damage a drill.</li> </ol> <p>B. Obtain approval of the broadcast method by demonstrating the procedure on a 100 yd<sup>2</sup> area.</p> <p>C. Evenly broadcast seed using either:</p> <ol style="list-style-type: none"> <li>1. A cyclone seeder or other approved mechanical seeder.</li> <li>2. A hydroseeder.               <ol style="list-style-type: none"> <li>a. Apply seed, water, and 300 lb of cellulose fiber mulch (tracer) per acre.</li> </ol> </li> </ol> <p>D. Do not seed during windy weather or when soil is saturated.</p> <p>E. Incorporate the seed into the soil by one of three methods:</p> <ol style="list-style-type: none"> <li>1. Cat-tracking by running the dozer up and down the slope creating continuous cleat tracks that run parallel with the contours.</li> <li>2. Hand raking the seed in ½ inch deep and along the contours of the slope.</li> <li>3. Slope chaining by pulling the chain along the contour until the seed is covered.</li> </ol> <p>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.</p>	<p>02922 Seed, Turf Seed, and Turf Sod 3.4 Broadcast Seeding Method</p>	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Rehabilitation and Restoration	<p>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.</p> <p>B. Install the irrigation system and have it fully operational before installing plants.</p> <p>C. Stake or delineate plant locations for approval before installation.</p>	02932 Trees, Shrubs, and Groundcovers 3.1 Preparation	Construction
Rehabilitation and Restoration	<p>A. General</p> <ol style="list-style-type: none"> <li>1. Install plants using the plan details.</li> <li>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.               <ol style="list-style-type: none"> <li>a. Add more backfill if settling occurs.</li> </ol> </li> </ol> <p>B. Containerized Plants</p> <ol style="list-style-type: none"> <li>1. Excavate plant holes to twice the diameter and the same depth of the rootball.</li> <li>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.</li> <li>3. Place excavated soil in 4-inch lifts around the rootball and eliminate voids by tamping the soil between each lift.</li> </ol> <p>C. Balled and Burlapped Plants</p> <ol style="list-style-type: none"> <li>1. Excavate plant holes to twice the diameter and the same depth of the rootball.</li> <li>2. Gently place the plant in the prepared hole with burlap securely intact.</li> <li>3. Do not mishandle or break root balls.</li> <li>4. Carefully remove any wire baskets and the top half of the burlap without disturbing the root ball.</li> </ol> <p>D. Tubeling Plants</p> <ol style="list-style-type: none"> <li>1. Auger a hole the same size as the tube.</li> <li>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.</li> <li>3. Compress the soil at the base of the tubeling to eliminate voids between the rootball and existing soil.</li> </ol>	02932 Trees, Shrubs, and Groundcovers 3.2 Installation	Construction
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
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



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Safety, Fire Protection, Emergency Preparedness	<p>A. Perform work with minimal obstruction to traffic.</p> <p>B. Follow the safety provisions of all applicable laws, rules, codes, and regulations to protect the safety and convenience of the public and property.</p> <p>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.</p> <ol style="list-style-type: none"> <li>1. Use barriers and barricades to delineate highway sections closed to traffic.</li> <li>2. Illuminate obstructions during darkness and provide warning signs to control and direct traffic.</li> </ol> <p>D. Erect warning signs for work that may interfere with traffic, or where new work crosses or coincides with an existing road.</p> <ol style="list-style-type: none"> <li>1. Place and maintain warning signs according to the authorized Traffic Control Plan.</li> <li>2. Obtain approval before dismantling or removing traffic control devices.</li> </ol> <p>E. Pedestrians</p> <ol style="list-style-type: none"> <li>1. Place and maintain warning signs according to the authorized Traffic Control Plan.</li> <li>2. Provide ADA-compliant access in areas where construction interferes with existing access.</li> </ol>	00820 Legal Relations and Responsibility to the Public 1.11 Public Convenience and Safety	Design, Construction
Safety, Fire Protection, Emergency Preparedness	<p>A. Stop Work Order:</p> <ol style="list-style-type: none"> <li>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:               <ol style="list-style-type: none"> <li>a. Correct conditions unsafe for the project personnel or the public.</li> <li>b. Perform work properly or comply with contract provisions.</li> <li>c. Comply with the Engineer's orders.</li> </ol> </li> <li>2. Contract time will continue to accrue during a stop work order. Do not resume work until notification is received from Engineer.</li> <li>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.</li> <li>4. The Engineer will notify the Contractor when to resume work.</li> <li>5. Time charges will continue to accrue during periods of stopped work.</li> </ol> <p>B. Work may be stopped for any of the following reasons:</p> <ol style="list-style-type: none"> <li>1. Contractor's failure to comply with the contract.</li> <li>2. Contractor's failure to keep insurance coverage according to 00820.</li> <li>3. Contractor's failure to provide workers or equipment.</li> <li>4. Work is being performed when unsuitable weather or soil conditions exist that are detrimental to the quality of the finished product.</li> <li>5. Conditions exist that threaten the safety of the workers, public or nearby property.</li> </ol>	00555 Prosecution and Progress 1.14 Stop Work Orders	Construction
Safety, Fire Protection, Emergency Preparedness	<p>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.</p> <p>B. Prevent and assist with the suppression of forest fires.</p> <p>C. Cooperate with responsible forestry officials.</p>	00820 Legal Relations and Responsibility to the Public 1.7 Protecting Forests	Construction, Operations and Maintenance



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Safety, Fire Protection, Emergency Preparedness	<p>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.</p> <ol style="list-style-type: none"> <li>1. Maintain established working hours and days.</li> <li>2. Provide a telephone or cell phone with voice mail capability dedicated to project public information services.</li> </ol> <p>B. Maintain daily communication with the Engineer.</p> <p>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.</p>	01540 Public Information Services 1.7 PIC Responsibilities	Construction
Safety, Fire Protection, Emergency Preparedness	<p>G. Maintain and document weekly communication and project updates with the following:</p> <ol style="list-style-type: none"> <li>1. Department, Region, and Public Involvement Manager</li> <li>2. Affected local public agencies               <ol style="list-style-type: none"> <li>a. Emergency Service Agencies                   <ol style="list-style-type: none"> <li>1) Fire Departments</li> <li>2) Police Departments and Highway Patrol</li> <li>3) Ambulance Services</li> </ol> </li> <li>b. Local city offices</li> <li>c. Public works departments</li> <li>d. Local transit authorities</li> <li>e. Local school districts</li> <li>f. Local U.S. Post Office</li> </ol> </li> <li>3. Affected businesses</li> <li>4. Affected trucking and carrier associations</li> <li>5. Local organizations interested in the project</li> <li>6. Private citizens when requested</li> <li>7. Engineer and Region Public Involvement Manager, providing copies of logbook documentation</li> <li>8. Other stakeholders as required</li> </ol>	01540 Public Information Services 3.1 Establish Local Public Information Services	Construction
Safety, Fire Protection, Emergency Preparedness	<p>D. Responsibilities and Duties</p> <ol style="list-style-type: none"> <li>7. Coordinate project traffic control with emergency services and local law enforcement agencies.</li> </ol>	01554 Traffic Control 1.9 Traffic Control Maintainer	Construction
Safety, Fire Protection, Emergency Preparedness	<p>B. Provide emergency maintenance on a 7-day per week, 24-hour basis until substantial completion of the project.</p> <ol style="list-style-type: none"> <li>1. Respond within 15 minutes and be on-site within 30 minutes plus travel time when contacted by the dispatcher.</li> <li>2. Provide contacts and telephone numbers to the Engineer for the emergency service.</li> </ol>	02892 Traffic Signal 3.24 Traffic Signal Maintenance During Construction	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
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
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
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 ft 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
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
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
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
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
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



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Soils and Erosion Control	<p>A. Backfill all stump holes, cuts, depressions, and other holes resulting from clearing and grubbing within areas to receive embankment.</p> <ol style="list-style-type: none"> <li>1. Compact backfilled areas to the density of the surrounding ground.</li> </ol> <p>B. Measure and pay separately for materials used for backfilling under Roadway Excavation or Borrow.</p> <p>C. Consider Roadway Excavation and Borrow as incidental to the work when these items are not included in the bid proposal.</p> <ol style="list-style-type: none"> <li>1. No separate measurement or payment made in this case.</li> </ol>	02231 Site Clearing and Grubbing 3.3 Backfilling	Construction
Soils and Erosion Control	<p>A. Dispose of material. Refer to Section 01355.</p> <p>B. Do not dispose of material within the designated roadbed.</p> <p>C. Outside of the Right-of-Way</p> <ol style="list-style-type: none"> <li>1. Acceptable when done according to prevailing laws including environmental laws, ordinances, regulations, and rules.</li> </ol> <p>D. Inside the Right-of-Way</p> <ol style="list-style-type: none"> <li>1. Bury material at locations specified by or acceptable to the Engineer.</li> <li>2. Use material to widen embankments and flatten embankment side slopes as approved by the Engineer.</li> <li>3. Cover disposed material with at least 2 ft of earth and grade to drain properly.</li> <li>4. Reduce wood to chips a maximum of ½ inch thick for mulching cut and fill slopes.               <ol style="list-style-type: none"> <li>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.</li> </ol> </li> </ol>	02231 Site Clearing and Grubbing 3.4 Disposal	Construction
Soils and Erosion Control	<p>A. Strip the topsoil:</p> <ol style="list-style-type: none"> <li>1. Only from areas shown or determined by Engineer.</li> <li>2. To a depth determined by the Engineer.</li> </ol> <p>B. Remove and dispose of any roots larger than 2 inches in diameter or 12 inches in length.</p> <p>C. Stockpile stripped topsoil:</p> <ol style="list-style-type: none"> <li>1. At locations acceptable to the Engineer.</li> <li>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.</li> </ol> <p>D. Grade to minimize erosion on and around the stockpiles.</p>	02912 Topsoil 3.2 Strip and Stockpile Topsoil	Design, Construction
Soils and Erosion Control	<p>D. Topsoil free of:</p> <ol style="list-style-type: none"> <li>1. Subsoils (no B or C horizon soils)</li> <li>2. Coarse sand and gravel</li> <li>3. Stiff clay, hard clods, or hard pan soils</li> <li>4. Rock larger than 3 inches in any dimension</li> <li>5. Trash, litter, or refuse</li> <li>6. Noxious weeds and weed seeds</li> </ol>	02912 Topsoil 2.1 Contractor Furnished Topsoil	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Special Status Species: BLM Sensitive Species	<p>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.</p> <p>1. Comply with the Endangered Species Act.</p>	<p>01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor</p>	Construction
Special Status Species: Federally Listed Species	<p>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.</p> <p>1. Comply with the Endangered Species Act.</p>	<p>01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor</p>	Construction
Special Status Species: Federally Listed Species	<p>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 United States Fish and Wildlife Service (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.</p>	Not Applicable	Design, Construction, Operations and Maintenance



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Special Status Species: Federally Listed Species	<p>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:</p> <ul style="list-style-type: none"> <li>• Creating passages of sufficient size, based on the best available information at the time, to promote usage by desert tortoise.</li> <li>• 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.</li> <li>• 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.</li> <li>• Focusing on fill areas and natural drainages to maximize the size of openings where consistent with natural topography.</li> </ul> <p>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.</p>	Not Applicable	Design, Construction, Operations and Maintenance
Special Status Species: Federally Listed Species	<p>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 HCP partners (i.e., BLM, USFWS, Utah Department of Natural Resources, etc.).</p>	Not Applicable	Design, Operations and Maintenance
Special Status Species: Federally Listed Species	<p>Survey and Monitoring</p> <ol style="list-style-type: none"> <li>1. Pre-project distribution surveys would be performed within 1 year prior to construction of the highway.</li> <li>2. Pre-construction clearance surveys would be conducted prior to the initiation of construction. Areas that have been cleared and fenced with permanent fencing would ensure regular monitoring and maintenance of the fenceline (at least annually).</li> <li>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.</li> </ol>	Not Applicable	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
<p>Special Status Species: Federally Listed Species</p>	<p>UDOT would hire individuals to conduct the surveys and monitoring with the following qualification requirements:</p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. Desert Tortoise Monitor – Desert tortoise monitors are individuals who are approved by the USFWS to:               <ol style="list-style-type: none"> <li>a. assess habitat suitability;</li> <li>b. conduct presence/absence and abundance surveys for desert tortoises;</li> <li>c. monitor project activities within desert tortoise habitat;</li> <li>d. ensure proper implementation of conservation measures outlined in this document; and</li> <li>e. 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.</li> </ol> <p>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).</p> </li> <li>3. Field Contact Representative – Field contact representatives (FCR) are individuals who are approved by the USFWS to:               <ol style="list-style-type: none"> <li>a. monitor some project activities within desert tortoise habitat (i.e., for this project, unsuitable habitat)</li> <li>b. assist with daily clearance sweeps as detailed in the text below;</li> <li>c. assist with proper implementation of protective measures; and</li> <li>d. call the desert tortoise monitor, biologist, BLM, UDWR, or USFWS, with any questions or concerns.</li> </ol> <p>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:</p> <ol style="list-style-type: none"> <li>a. can recognize signs of desert tortoises;</li> <li>b. understand monitoring protocols; and</li> <li>c. have a minimum of one field day under the supervision of a desert tortoise monitor in each activity season and habitat type.</li> </ol> <p>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.</p> </li> </ol>	<p>Not Applicable</p>	<p>Construction</p>



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
<p>Special Status Species: Federally Listed Species</p>	<p>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):</p> <ol style="list-style-type: none"> <li>1. A desert tortoise biologist would be onsite 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.</li> <li>2. 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 cold enough that desert tortoise activity is not expected, the proponent may coordinate with the USFWS to reduce the monitoring requirements.</li> <li>3. 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.</li> <li>4. 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.</li> <li>5. 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.</li> <li>6. 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.</li> <li>7. 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).</li> <li>8. 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.</li> <li>9. 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.</li> <li>10. The storing and handling of bulk hazardous waste materials would be excluded from the project areas within 600 meters of active tortoise burrows.</li> </ol>	<p>Not applicable</p>	<p>Construction</p>



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Special Status Species: Federally Listed Species	<p>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:</p> <ol style="list-style-type: none"> <li>1. A desert tortoise biologist is not required onsite daily. A monitor would remain onsite 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 pre-construction 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.</li> <li>2. The fenceline would be checked once per day by the biologist or monitor.</li> <li>3. An FCR would be assigned to each grouping of equipment as described above.</li> </ol>	Not applicable	Construction
Special Status Species: Federally Listed Species	<p>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):</p> <ol style="list-style-type: none"> <li>1. A desert tortoise biologist would conduct an initial pre-construction clearance survey and identify any occupied burrows or other hibernacula adjacent to the desert tortoise exclusion fence.</li> <li>2. 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.</li> <li>3. A monitor would stay onsite and perform a clearance sweep out to 100 meters and check any open trench and any other open excavations at least three times daily.</li> <li>4. 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.</li> <li>5. 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.</li> <li>6. 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.</li> </ol>	Not applicable	Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
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): 1. The onsite desert tortoise monitor does not need to remain onsite during all project activities. 2. A monitor would perform a sweep of any open trench and any other open excavations once daily. 3. The desert tortoise biologist would visit the site once a week to review field notes and assess any hazards. 4. 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
Special Status Species: Federally Listed Species	All individuals working onsite 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
Special Status Species: Federally Listed Species	Before project activities begin, a pre-project meeting would be held between UDOT, all onsite workers, and the desert tortoise monitor and biologist to review all conservation measures. A handout of the conservation measures would be provided to all onsite workers.	Not applicable	Construction
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
Special Status Species: Federally Listed Species	Contractor personnel would not bring domestic dogs to the project site.	Not applicable	Construction
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
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
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: 1. The desert tortoise survey and monitoring activity that was completed; 2. 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



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
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
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
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
Survey, Flagging, Fencing, and Signage	<ul style="list-style-type: none"> <li>A. Preserve public and private property during the work.</li> <li>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.</li> <li>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.</li> <li>D. Restore damaged property and items removed temporarily during construction to a condition similar or equal to that existing before the damage.</li> <li>E. Temporarily discontinue work if remains of prehistoric dwelling sites or artifacts of historical or archeological significance are encountered. Refer to Section 01355.</li> </ul>	00820 Legal Relations and Responsibility to the Public 1.12 Protecting and Restoring Property and Landscape	Design, Construction
Survey, Flagging, Fencing, and Signage	<ul style="list-style-type: none"> <li>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.</li> </ul>	01721 Survey 3.15 Cleanup	Construction
Transportation Management	<ul style="list-style-type: none"> <li>A. Minimize interference with traffic during performance of the work.</li> <li>B. Sunday and Category I Holiday Work <ul style="list-style-type: none"> <li>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.</li> </ul> </li> <li>C. Category II Holiday Work <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul> </li> <li>D. Nighttime Construction Work <ul style="list-style-type: none"> <li>1. Notify the Engineer at least five calendar days before starting nighttime construction work.</li> <li>2. Provide adequate lighting for safely performing satisfactory inspection and construction operations.</li> <li>3. Minimize noise during Nighttime Construction Work.</li> </ul> </li> </ul>	00555 Prosecution and Progress 1.9 Limitation of Operations	Design, Construction



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Transportation Management	<p>A. Keep roads open to traffic during the work and work suspensions or provide and maintain detour roads as specified or directed.</p> <ol style="list-style-type: none"> <li>1. Maintain all necessary accesses to areas such as parking lots, garages, businesses, residences, and farms.</li> <li>2. Exclude snow removal.</li> </ol> <p>B. The Department does not provide additional compensation for maintenance.</p> <p>C. Failure to maintain traffic is cause for the Department to take action to meet the requirements of this specification.</p> <ol style="list-style-type: none"> <li>1. The Department deducts its costs incurred in such actions from money due.</li> </ol>	00725 Scope of Work 1.8 Maintaining Traffic	Design, Construction
Transportation Management	<p>A. Maintain work included in the contract during construction until physical completion.</p> <ol style="list-style-type: none"> <li>1. Maintain traffic detour routes and project travel ways according to the Traffic Control Plan.</li> </ol> <p>B. The Engineer immediately notifies the Contractor of failure to meet these provisions.</p> <ol style="list-style-type: none"> <li>1. The Department maintains the project if unsatisfactory maintenance is not remedied within 24 hours after receiving notice.</li> <li>2. The Department deducts the entire cost to maintain the work from the money due or to become due the Contractor.</li> </ol>	00727 Control of Work 1.16 Maintain the Work During Construction	Construction
Transportation Management	Follow the authorized Traffic Control Plan	01554 Traffic Control	Design, Construction
Vegetation (excluding listed species)	<p>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.</p> <p>B. Prevent and assist with the suppression of forest fires.</p> <p>C. Cooperate with responsible forestry officials.</p>	00820 Legal Relations and Responsibility to the Public 1.7 Protecting Forests	Construction
Vegetation (excluding listed species)	<p>A. Grub the areas 2 ft below natural ground, within the limits of clearing, of all stumps, roots, buried logs, and all other underground obstructions.</p> <p>B. Stumps, roots, and non-perishable solid objects may remain in cleared areas where the embankment is:</p> <ol style="list-style-type: none"> <li>1. 2 ft or more above the natural ground.</li> <li>2. At least 2 ft away outside the slope stake lines.</li> </ol> <p>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.</p>	02231 Site Clearing and Grubbing 3.2 Vegetation Removal	Construction
Vegetation (excluding listed species)	Prepare a Noxious Weed Management Plan.	Not Applicable	Construction
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
Visual Resources	<p>D. Nighttime Construction Work</p> <ol style="list-style-type: none"> <li>1. Notify the Engineer at least five calendar days before starting nighttime construction work.</li> <li>2. Provide adequate lighting for safely performing satisfactory inspection and construction operations.</li> <li>3. Minimize noise during Nighttime Construction Work.</li> </ol>	00555 Prosecution and Progress 1.9 Limitation of Operations	Construction
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



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Water Resources: Federal Emergency Management Agency (FEMA) 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
Water Resources: Stormwater Pollution Prevention Methodology	A. Stormwater Pollution Prevention Plan (SWPPP) for approval before construction on projects with one or more acres of soil disturbance.	01355 Environmental Compliance 1.5 Submittals	Construction
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
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
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 (SFHA), as defined by the Federal Emergency Management Agency (FEMA).	01355 Environmental Compliance 1.9 Water Resource Permits	Design, Construction, Operations and Maintenance
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

*[The Applicant will develop / adopt standards and specifications throughout the NEPA and design process. This information will be included in the Final POD as it is developed.]*



Resource or Issue Applicability	Design Feature	UDOT Construction Specification (UDOT 2020)	Applicability
Wetlands, Riparian Resources, Waters of the U.S.	A. Obtain authorization before starting any ground disturbing activity not previously cleared by the Department such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds. 3. Federal or State regulated waters – Provide documentation as determined by the Engineer to verify no Waters of the U.S. and State of Utah waters are impacted by the activity.	01355 Environmental Compliance 1.12 Environmental Compliance by the Contractor	Construction

*[The Applicant will develop / adopt standards and specifications throughout the NEPA and design process. This information will be included in the Final POD as it is developed.]*



## 7 Definitions

Definitions of terms used in this POD from UDOT's Standard Specifications (UDOT 2020) 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, but are not limited to, traffic volumes, speed, throughput and density.

**Construction Limits:** The established boundaries within the highway right-of-way 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, apparatus, 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 right-of-way.

**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).

**Level of Service (LOS):** A qualitative measure describing a range of traffic operating conditions such as travel speed and time, freedom to maneuver, traffic interruptions, and comfort and convenience as experienced and perceived by motorists and passengers. Six levels of service are defined from A to F, with A representing the free flow travel conditions and F representing extreme traffic congestion. LOS shall be evaluated according to the procedures and conditions defined in the most recent edition of AASHTO's *A Policy on Geometric Design of Highways and Streets*.



**Median Island:** A curbed island that prevents egress traffic from encroaching upon the side of the drive used by ingress traffic. The island ensures that ingress traffic has the necessary maneuvering space.

**New Development:** Any construction resulting in new impervious surfaces on undeveloped land causing land disturbance.

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

**Notice to Proceed (UDOT):** Written notice to the contractor to begin the contract.

**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.

**Plans:** Contract drawings showing the location, type, dimensions, and details of the specified work.

- a. **Standard Drawings** – Detailed drawings approved for repetitive use.
- b. **Supplemental Drawings** – Approved additions and revisions to the standard drawings.

**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.

**Stormwater BMP:** Long-term stormwater features and measures that prevent, reduce, or remove pollution to Waters of the State.

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



## 8 References

Bureau of Land Management (BLM) 2008. *BLM National Environmental Policy Act Handbook* (H-1790-1). 184p. Available online at:

[https://www.ntc.blm.gov/krc/uploads/366/NEPAHandbook\\_H-1790\\_508.pdf](https://www.ntc.blm.gov/krc/uploads/366/NEPAHandbook_H-1790_508.pdf)

Dixie Metropolitan Planning Organization (DMPO). 2019. *2019–2050 Regional Transportation Plan*. Approved October 2019.

Federal Highway Administration 2016. *Transportation Asset Management Case Studies. Managing and Maintaining Roadway Assets, The Utah Journey*. Available online at:

<https://www.fhwa.dot.gov/asset/hif12016/hif12016.pdf>

Utah Department of Transportation (UDOT) 2013. R930. Transportation, Preconstruction. R930-6. Access Management. August 2013.

UDOT 2018a. Statewide Transportation Improvement Program. Final STIP 2019–2024. UDOT Electronic Program Management. Report run on: October 12, 2018.

UDOT 2018b. Development Standards for Washington Parkway from Red Hills Parkway to I-15 Exit 13.

UDOT 2020. Utah Department of Transportation 2020 Standard Specifications for Road and Bridge Construction. July 9, 2020.



# Appendix A

## Legal Description of Right-of-Way and List of Landowners

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



# Appendix B

## Detailed Maps of Proposed Right-of-Way

*[Appendix B will be updated as the POD is revised.]*



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

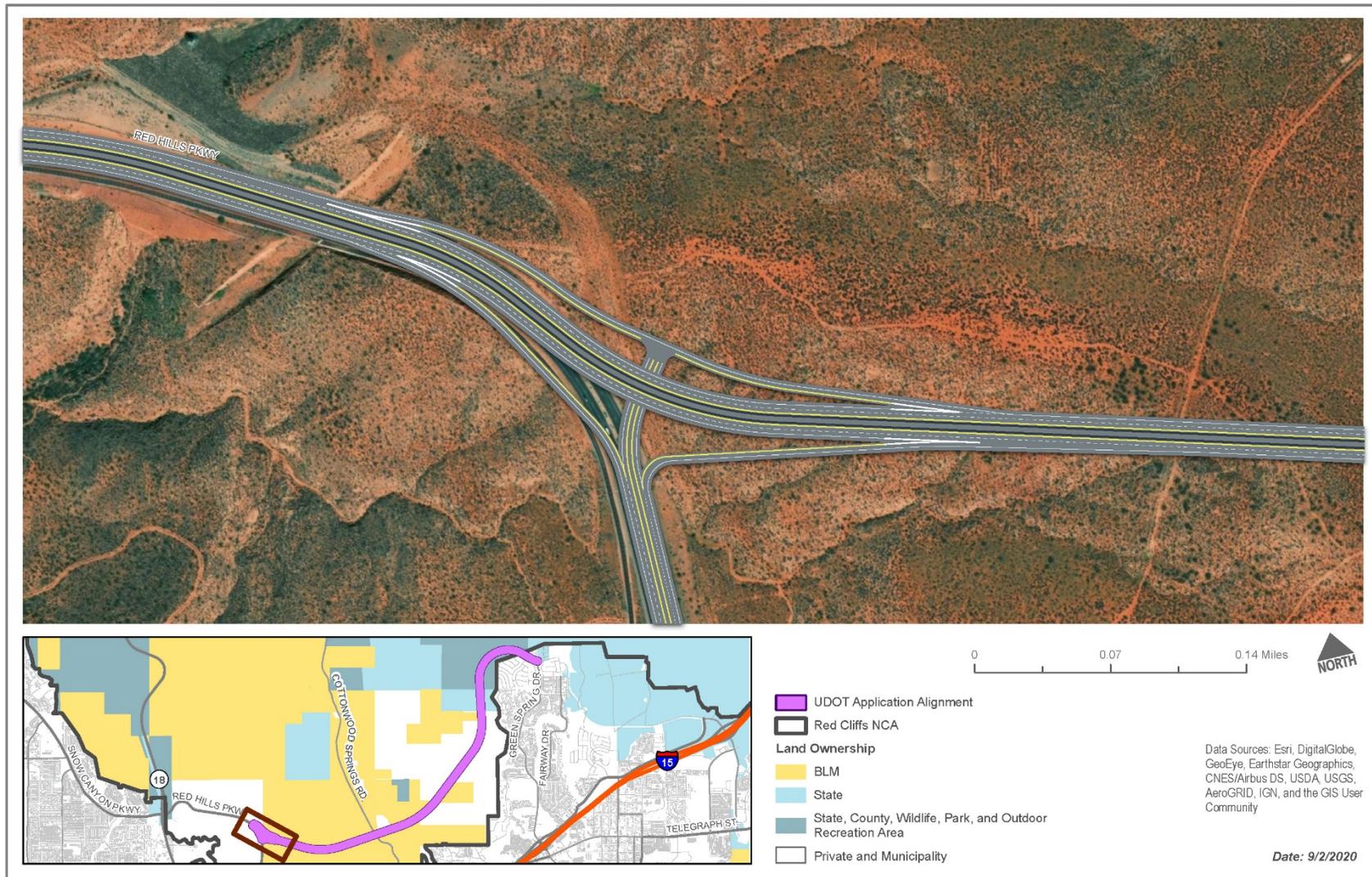


Figure B-1: Proposed Alignment Plan View (1 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

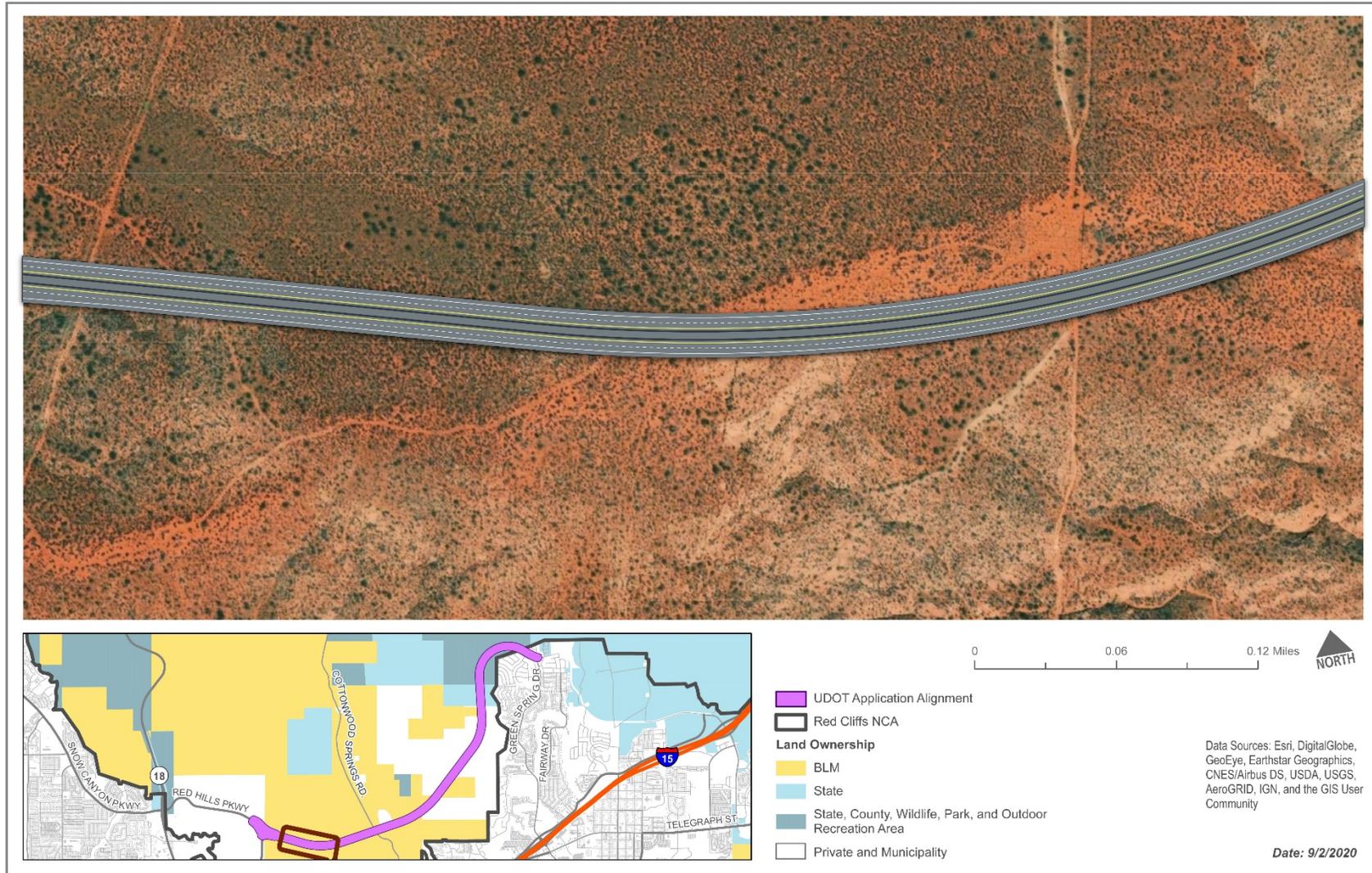


Figure B-2: Proposed Alignment Plan View (2 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

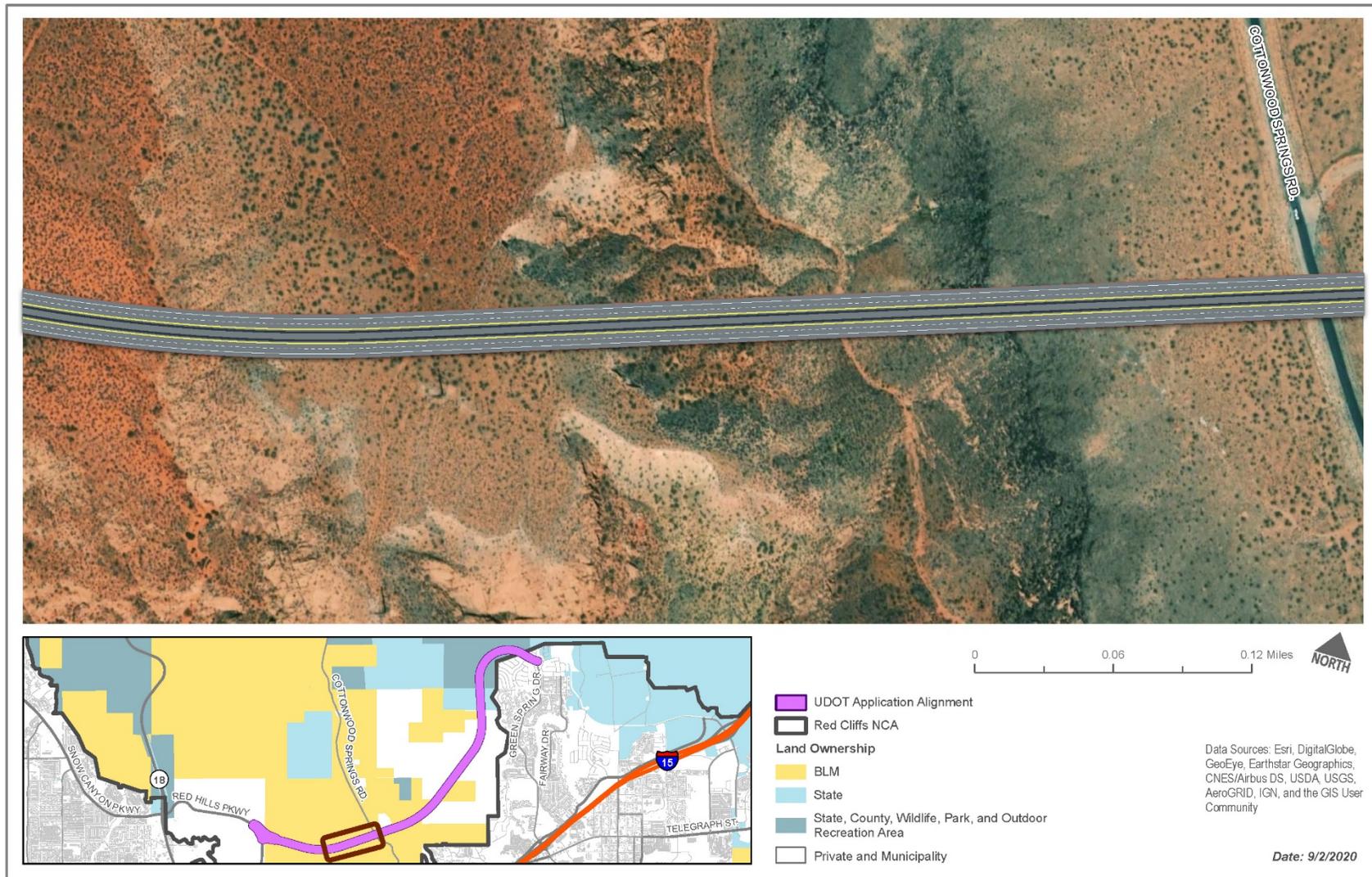


Figure B-3: Proposed Alignment Plan View (3 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

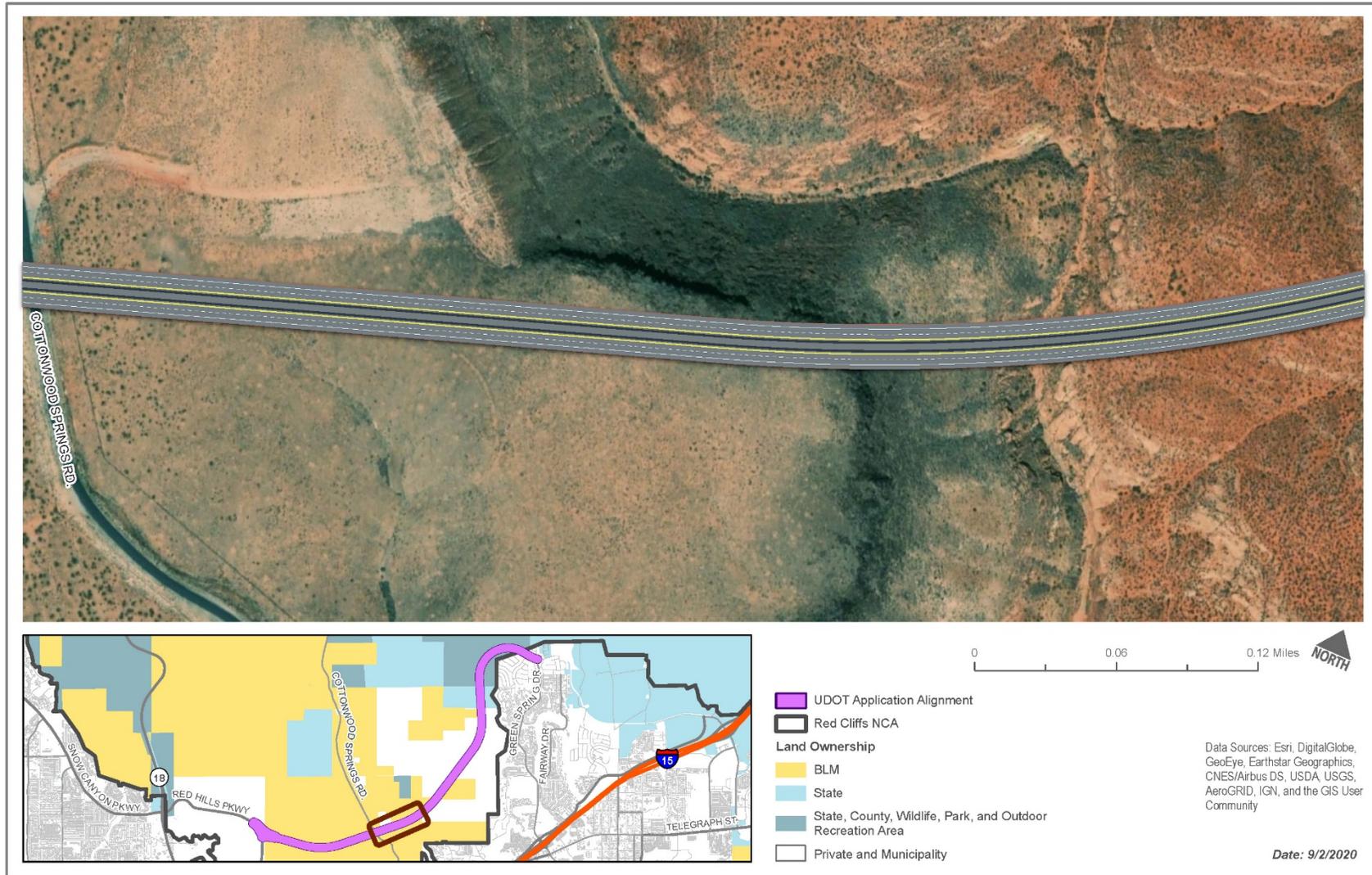


Figure B-4: Proposed Alignment Plan View (4 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

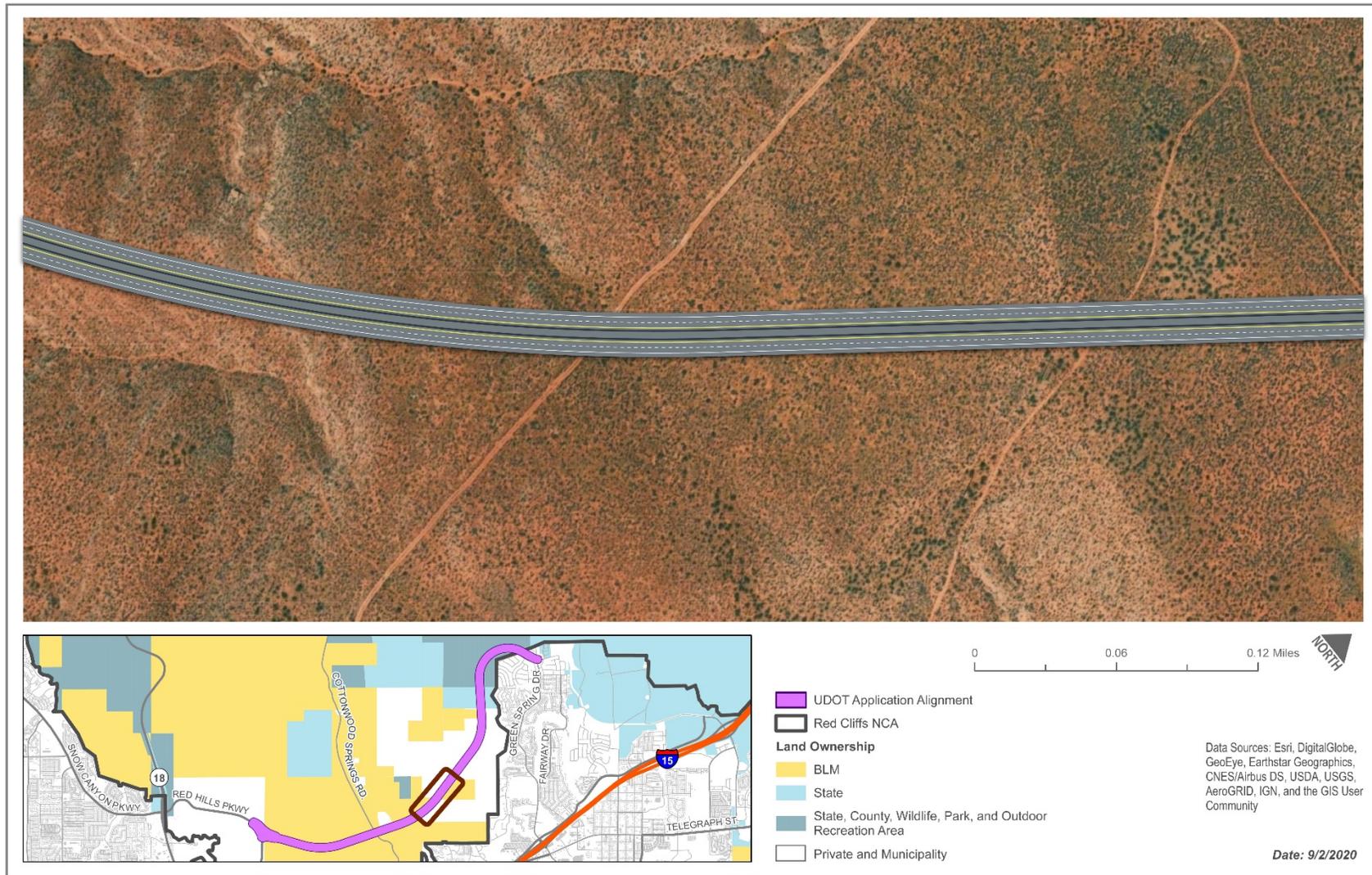


Figure B-5: Proposed Alignment Plan View (5 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development



Figure B-6: Proposed Alignment Plan View (6 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

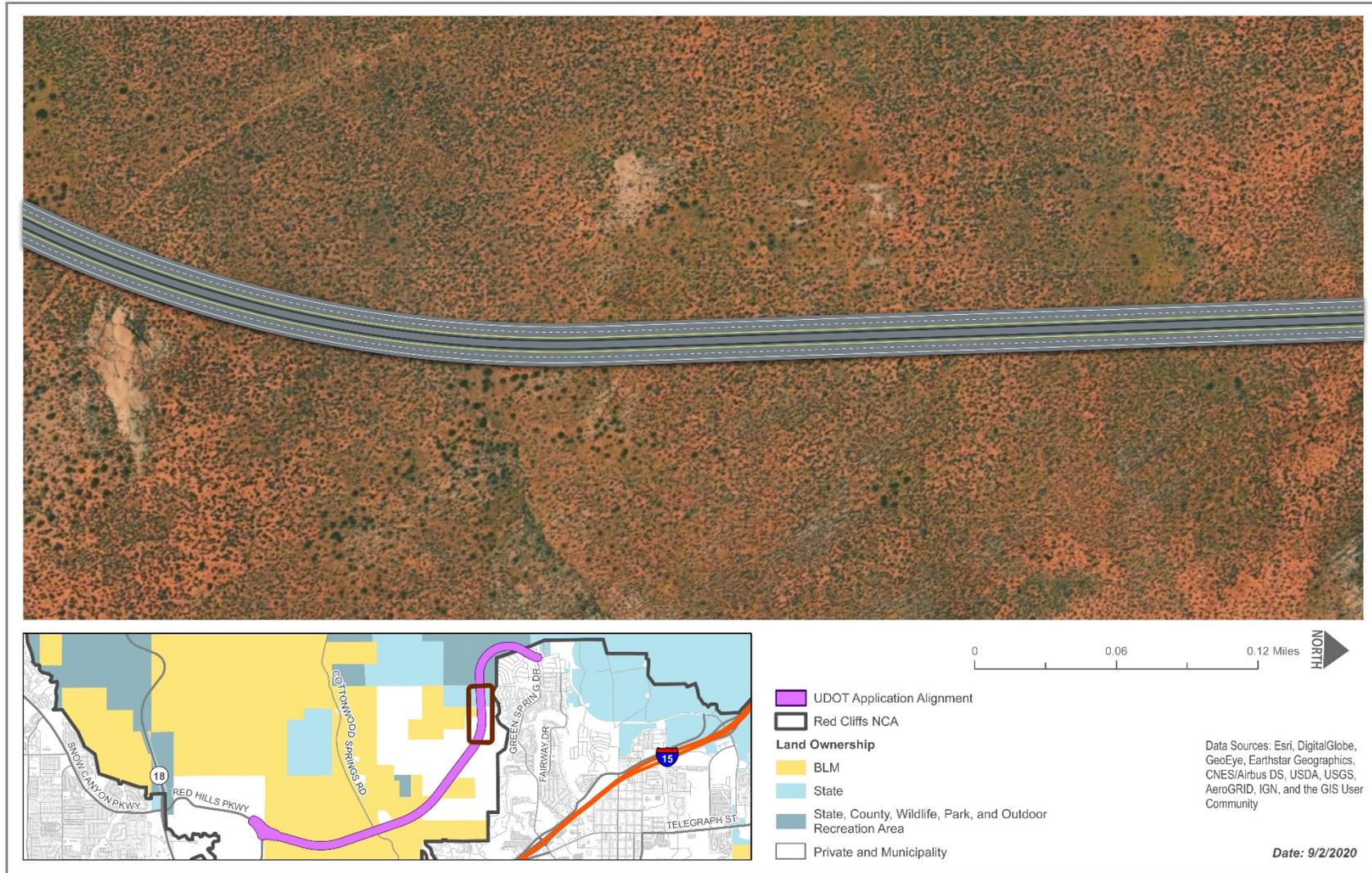


Figure B-7: Proposed Alignment Plan View (7 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

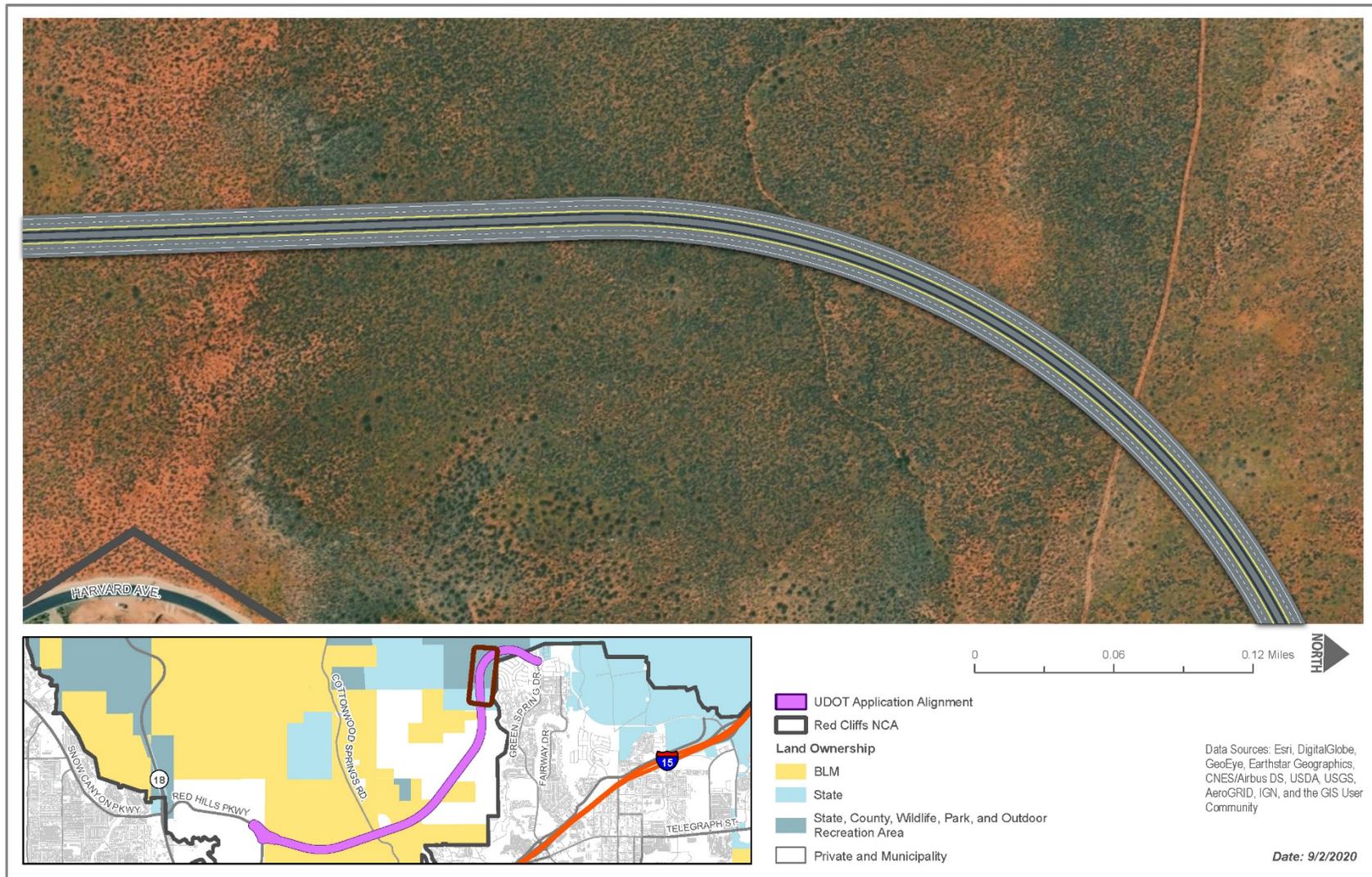


Figure B-8: Proposed Alignment Plan View (8 of 9)



# Northern Corridor – Red Hills Parkway to Green Spring Drive Project

Draft Plan of Development

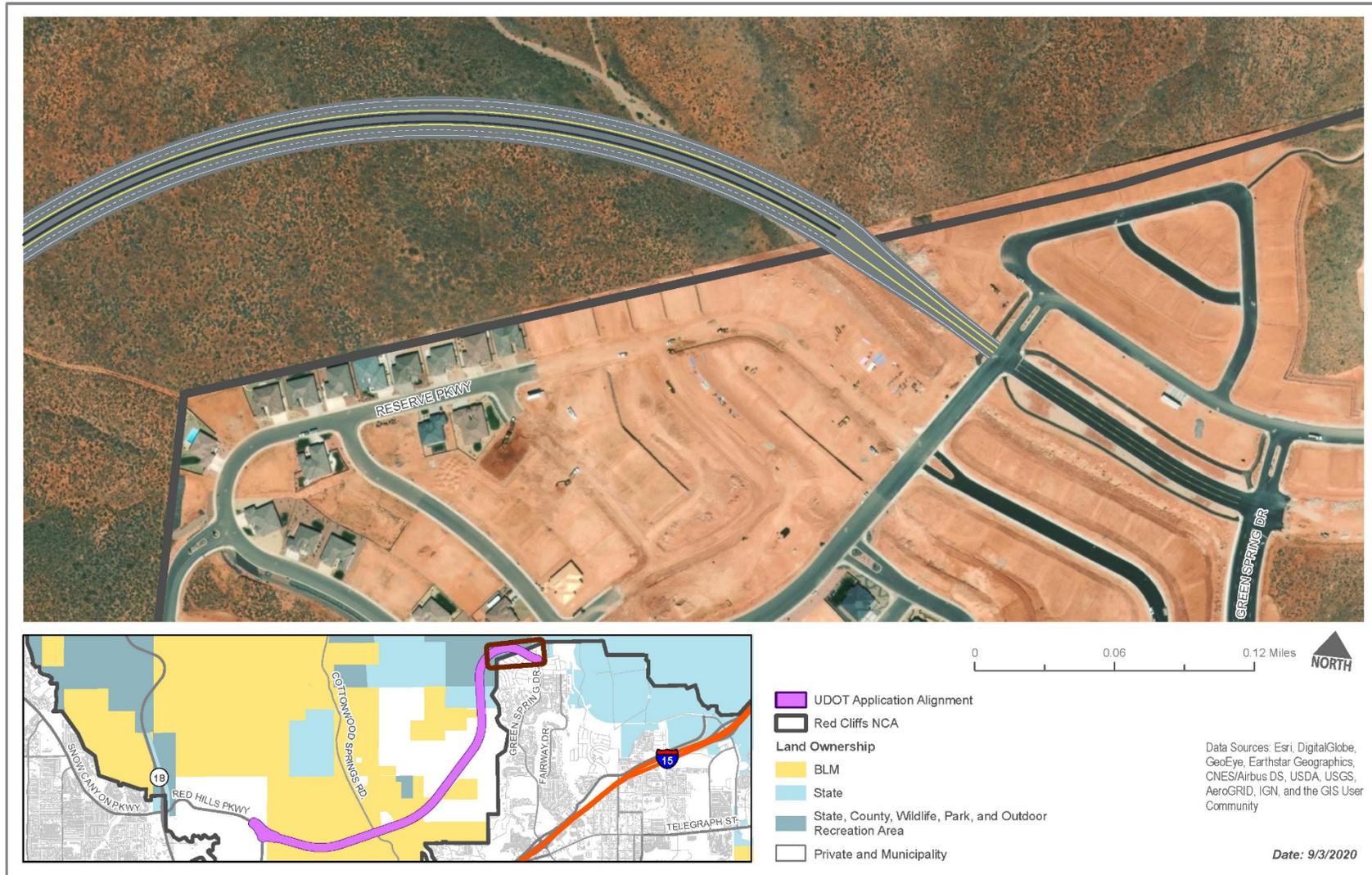


Figure B-9: Proposed Alignment Plan View (9 of 9)