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Via BLM NEPA ePlanning portal and email

November 3, 2025

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RE: Northern Corridor Highway Right-of-Way Environmental Assessment (DOI-BLM-UT-C030-2025-0041-EA); Applicant: Utah Department of Transportation; Case Number: UTU-93260

Dear Ms. Chiasson and Ms. Tibbetts,

The Desert Tortoise Council (Council) is a non-profit organization comprising hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and northern Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be

delivered. Email is an "environmentally friendlier way" of receiving correspondence and documents rather than "snail mail."

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats potentially occupied by the Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities that may be authorized by the Bureau of Land Management (BLM), which we recommend be added to project terms and conditions in the authorizing documents [e.g., issuance of right-of-way (ROW) grants, management plan and decision document, etc.] as appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed action.

The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), "… based on population reduction (decreasing density), habitat loss of over 80% over three generations (90 years), including past reductions and predicted future declines, as well as the effects of disease (upper respiratory tract disease/mycoplasmosis). *Gopherus agassizii* (sensu stricto) comprises tortoises in the most well-studied 30% of the larger range; this portion of the original range has seen the most human impacts and is where the largest past population losses have been documented. A recent rigorous rangewide population reassessment of *G. agassizii* (sensu stricto) has demonstrated continued adult population and density declines of about 90% over three generations (two in the past and one ongoing) in four of the five *G. agassizii* recovery units and inadequate recruitment with decreasing percentages of juveniles in all five recovery units."

This status, in part, prompted the DTC to join Defenders of Wildlife and the Desert Tortoise Preserve Committee (DTPC) to petition the California Fish and Game Commission (Commission) in March 2020 to elevate the listing of the Mojave desert tortoise from Threatened to Endangered under the California Endangered Species Act (CESA) (Defenders of Wildlife et al. 2020). Importantly, following California Department of Fish and Wildlife's (CDFW) (2024a) status review, in their April 2024 meeting the California Fish and Game Commission voted unanimously to accept the CDFW's petition evaluation and recommendation to uplist the tortoise from threatened to endangered under the CESA based on the scientific data provided on the species' status, declining trend, numerous threats, and lack of effective recovery implementation and land management (CDFW 2024b). On July 15, 2025, the tortoise was officially uplisted to endangered status under the CESA (Commission 2025).

Description of the Proposed Project and Alternatives

BLM has received a right-of-way (ROW) application for the Utah Department of Transportation (UDOT) to construct and maintain the Northern Corridor highway (NCH). The proposed Northern Corridor ROW alignment (referred to as the UDOT ROW Alignment) would connect Washington Parkway on the east to Red Hills Parkway on the west just north of the Pioneer Hills trailhead parking area. The proposed Northern Corridor would be approximately 4.5 miles long,

approximately 1.9 miles of which would be on BLM-administered lands in the Red Cliffs National Conservation Area (RCNCA). The proposed Northern Corridor would be within Zone 3 of the Red Cliffs Reserve (Reserve) and RCNCA.

In addition to the No Action alternative, BLM is considering 4 alternative routes – Northern Corridor Alignment, T-Bone Mesa Alignment, Southern Alignment, and St. George Boulevard/100 South One-way Couplet (Figure 1).

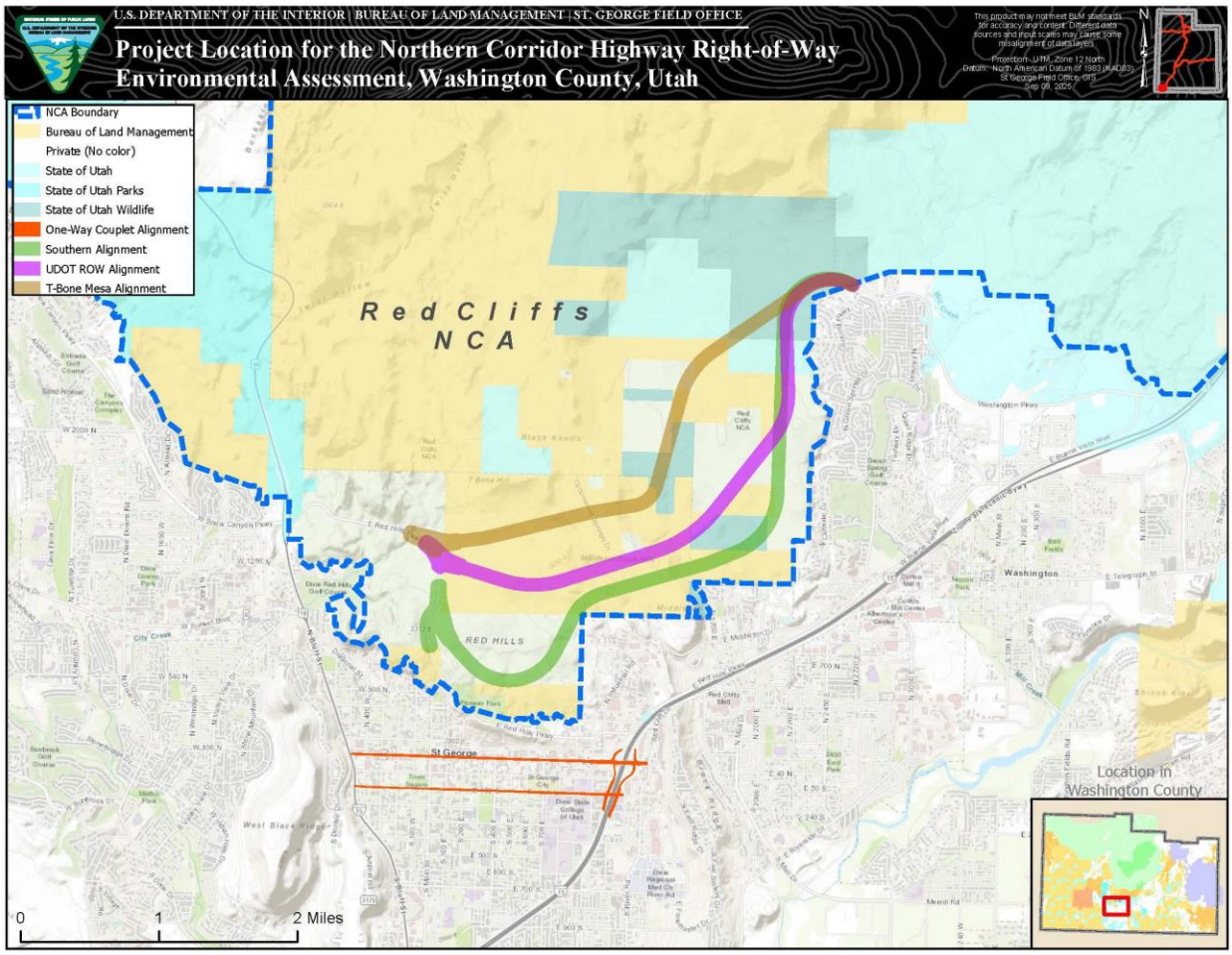


Figure 1. Proposed Northern Corridor highway Alternatives.

The proposed project is located in Washington County, Utah on the north side of St. George and in designated tortoise critical habitat.

Comments on the Proposed Project

Despite our persistent requests for Utah offices of the BLM to identify the Council as an affected interest (i.e., a certified letter sent on November 7, 2019 to Ahmed Mohsen, District Manager Color Country District, Bureau of Land Management, Cedar City, UT, subsequent comment letters on BLM projects in Washington County, UT, requesting/reiterating that the Council be identified

as an affected interest), it was a third party, not the BLM, that contacted the Council about this proposed project on October 7, 2025. According to the BLM National Environmental Policy (NEPA) Handbook, "In addition to public involvement in the preparation of EAs, you must notify the public of the availability of a completed EA and FONSI" (BLM 2008). Apparently BLM has staff that can move forward with establishing a public review period for NEPA projects but these staff are unable to notify affected interests via email, such as the Council, and as BLM has in the past, to comply with BLM's NEPA Handbook. Please explain how BLM complied with NEPA, its implementing regulations, and BLM's NEPA Handbook when it did not involve the public in the preparation of the Northern Corridor Highway Right-of-Way Environmental Assessment (NCH EA) and did not notify the public of the availability of the NCH EA. Herein we request that the Council be contacted directly when any subsequent environmental documents on this proposed project or other projects in the range of the tortoise are released to the public.

Below are our comment on the Proposed Northern Corridor Right-Of-Way Biological Assessment (Avenue Consultants 2025; BA) and the Northern Corridor Highway Right-of-Way Environmental Assessment (BLM 2025; EA). Because the EA provided little new information of analysis on the proposed project, the Council is resubmitting its comments on the 2020 Environmental Impact Statement (EIS) and 2024 Supplemental EIS (SEIS). We are resubmitting these comments because they remain relevant to the proposed project and the NCH EA. BLM included EIS, and SEIS as appendices to the EA and has reversed its identification/selection of the preferred alternative for the NCH project three times – in 2021 selecting the Northern Corridor Highway alternative, in 2024 selecting the Red Hills Parkway alternative, and in 2025 identifying the Northern Corridor Highway alternative as the preferred alternative.

Comments on the Proposed Northern Corridor Right-Of-Way Biological Assessment (Avenue Consultants 2025)

General Comments

In parts of the Proposed Northern Corridor Right-Of-Way Biological Assessment (BA) the terminology is inconsistent. This inconsistency makes it unclear as to what the BA is requiring and by whom. For example," training, "program," and "presentation" are used in one paragraph when describing one conservation measure. Please revise the BA so it is clear to the USFWS and the public who is required to do what, and when, where, and how. In addition, all conservation measures should be implemented in advance of or concurrent with the action that result in impacts.

From the information presented in the BA, there appears to be little or no scientific support for many of the conservation measures. For example, when distances are listed for certain activities, we found no citations from the scientific literature or scientific reports that studied this activity to ensure that the distances are adequate to avoid or minimize direct and indirect impacts to the tortoise.

Construction, Conservation Measures

In this section the BA BLM lists the conservation measures that would be implemented on BLM land with UDOT as the responsible party for their implementation. We ask what enforcement authority and actions BLM would implement to ensure that the entire list of conservation measures for the proposed project are implemented effectively and timely. We ask this because we find it

unlikely that BLM would rescind the ROW to UDOT when the construction of the highway is partially completed or in use and would require UDOT to remove the road and associated facilities and return it to its pre-project condition. This information should be included in the BA and the final NEPA document.

Page 1: "The Congressionally defined purpose of the 45,600-acre RCNCA [Red Cliffs National Conservation Area] is to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the RCNCA and to protect each species that is located in it and listed as a threatened or endangered species under the Endangered Species."

The Council contends that the construction, use, and maintenance of the proposed NCH would violate this purpose. Rather than conserving protecting and enhancing the ecological, wildlife, natural, and scientific resources of the RCNCA and protecting the federally threatened desert tortoise, the NCH would do two thing – destroy and degrade a large area of tortoise habitat in the RCNCA and fragment the tortoise population into two populations in the RCNCA with the smaller population extirpated because of genetic, demographic and environmental stochastic events.

We address the impacts to tortoise habitat in our September 2020 and 2024 comment letters to BLM (attached).

With respect to impacts to the survival and recovery of the tortoise population in the RCNCA, we provide the following information. The NCH would result in the long-term (likely permanent) bisection of the largest population of tortoises in the RCNCA into a northern population and a southern population. The highway would create a permanent barrier to tortoise movement between the northern and southern populations based on the currently available data on maximum distances that tortoises will move using culverts (please see information on page 25 of this letter), resulting in the loss over time of the southern population of tortoises because of its small size and ineffective population connectivity (i.e., creating a very small, isolated population – "the population south of the highway is too small to be considered viable on its own" (Avenue Consultants 2025), and likely reduce the size of the remaining tortoise population in the RCNCA to a size that foregoes long-term survival. This statement is supported by the effects of genetic, demographic, and environmental stochasticity on small population sizes for the tortoise.

> Genetic stochasticity: "In small populations, short-term genetic deterioration occurs from inbreeding and loss of genetic heterozygosity (Frankel and Soule 1981, Rails and Ballou 1983, as cited in USFWS 1994). This genetic deterioration can cause problems in individual fitness and in the population's ability to increase. In the longer-term, inbreeding depression and loss of heterozygosity can limit the ability of the population to respond adaptively to changes in environment. Both of these problems can contribute to the probability of population extinction" (USFWS 1994). "a minimally viable population of desert tortoises from genetic considerations [only] should probably contain at least 2,000 to 5,000 adult animals" (USFWS 1994).

Demographic stochasticity: "Numerous negative demographic effects can occur when population sizes are small or when their densities are low. "Random variations in sex ratios, age distributions, and birth and death rates among individuals (called demographic stochasticity) can cause the population to fluctuate widely and potentially go extinct (Richter-Dyn and Goel 1972, as cited in USFWS 1994).

The most recent estimated size of the tortoise population in the RCNCA is about 2,784 adult tortoises (UDWR 2024). This estimate has shown a gradual decline overall since data were initially collected in 1998. The construction, use, and maintenance of the highway and the numerous directed, indirect, and cumulative impacts associated with it would reduce the size of the larger northern population causing the size of the tortoise population in the RCNCA to decline further. These would be permanent impacts to the tortoise and therefore permanent reductions to tortoise numbers and densities. We presume the impacts would be permanent because it is unlikely that once the highway is constructed, it will be removed.

Environmental stochasticity: This is the effects to the environment from events such as floods, droughts, fires, and other catastrophes that may affect population spatial distribution. For the tortoise, population growth rates are variable and highly influenced by environmental parameters such as drought and fire. "With variable growth rates comes the possibility of stochastic extinction . . . a population could have a run of years with stochastic drops in population size until its density drops below a recovery threshold and it subsequently goes extinct (USFWS 1994).

Unfortunately, the tortoise in the RCNCA has experienced both droughts and fires. Following these events the data collected on adult tortoise densities in the RCNCA also declined (McLuckie et al. 2024). Recent information from the UDWR showed an increase in tortoise mortality in 2025 – 60 (27 males, 25 females, 8 juveniles) were individuals that had died within the past year. The cause or contributing factor to this high death rate was drought (McLuckie et al. 2025). The annualized mortality was 26 percent (McLuckie et al. 2025).

"Because desert tortoises occupy large home ranges, the long-term persistence of extensive, unfragmented habitats is essential for the survival of the species. The loss or degradation of these habitats to urbanization, habitat conversion from frequent wildfire, or other landscape modifying activities place the desert tortoise at increased risk of extirpation" (USFWS 2011). "Splitting a species into inappropriate subunits for conservation can result in artificial fragmentation and further loss of variability, increase extinction risk, and compromise future resiliency" and "result in loss of variability within the species that is vital for recovery" (USFWS 2011). To achieve recovery, many benchmarks must be met including conserving "intact desert tortoise habitat. Land disturbances should be precluded within tortoise conservation areas. Disturbances to be avoided include those caused by development, off-highway-vehicle use, overgrazing by domestic livestock, construction of roads or other linear facilities, increased fire frequency, and other surface disturbing activities" (USFWS 2011).

Requirements under the Federal Endangered Species Act: "Preserving viable populations of desert tortoises within each recovery unit is "essential to the long-term recovery, viability, and genetic diversity of the species" (USFWS 1994). Each of the five recovery units is individually necessary

to conserve the genetic, behavioral, morphological, and ecological diversity necessary for long-term sustainability of the entire listed population" (USFWS 2011). "Enough habitat must be protected within a recovery unit, or the habitat and desert tortoise populations must be managed intensively enough to ensure long-term viability" (USFWS 1994).

We remind BLM and USFWS that tortoise populations in all five desert tortoise recovery units must meet recovery goals for the Mojave desert tortoise to be delisted. If the tortoise in the Upper Virgin River Recovery Unit does not meet the recovery goals, this would preclude recovering the species. The numerous direct, indirect, and cumulative impacts to the tortoise and its habitat from the highway coupled with other ongoing and increasing impacts that are not being effectively managed are such that this is a likely possibility. The tortoise population in the Upper Virgin River Recovery Unit is the smallest recovery unit in area and in tortoise numbers making it more vulnerable to genetic, demographic, and environmental changes than other tortoise populations.

Page 10: "Final POD [Plan of Development] will also identify the site-specific application of design features and mitigation measures." With this statement BLM is saying that they are unable to describe or analyze the effects of the mitigation that would be implemented because BLM does not know what the mitigation measures would be. We ask how BLM is able to analyze the direct, indirect, and cumulative effects to the tortoise/tortoise critical habitat/tortoise habitat in the BA or how the USFWS is able to analyze the direct, indirect, and cumulative effects to the tortoise/tortoise critical habitat/tortoise habitat in the biological opinion. We ask how BLM is able to analyze the direct, indirect, and cumulative impacts to the tortoise/tortoise critical habitat/tortoise habitat in the Red Cliffs NCA or the Reserve in the NEPA document. For both BLM and the USFWS we ask how they are able to analyze and determine whether the unknown mitigation measures would fully and effectively offset these effects/impacts.

Page 10: General Construction (Responsible Entity: UDOT): "Design any lighting proposed for the roadway to reduce impacts to dark night skies." Light poles would provide new nesting and perching/hunting substrates for common ravens. The impacts to the tortoise population in the NCA and nearby areas from these light structures and other structures that provide vertical relief (e.g., signs, etc.) should be analyzed in the BA.

Page 10: General Construction (Responsible Entity: UDOT): "Revegetate site according to BLM and UDOT specifications, including reseeding with BLM approved seed mixes and planting requirements established by the County and/or St. George City."

The proposed project is located in critical habitat for the tortoise. The USFWS should be included in the agencies that need to approve a vegetation restoration plan.

Page 10, General Construction (Responsible Entity: UDOT): "Prepare and enforce a Stormwater Pollution Prevention Plan (SWPPP); Noxious Weed Management Plan; Blasting Plan; Fugitive Dust Control Plan; and Hazard Materials, Hazardous Waste, and Spill Prevention Plan."

No non-native invasive weed management plan is identified. According to a BLM website (https://www.blm.gov/programs/weeds-and-invasives/about#faqs), invasive plants are not the same as noxious weeds. Because invasive plant species are a serious threat to the tortoise and

tortoise habitat (Drake et al. 2016) (they have poor nutritional components for the tortoise and "outcompete" native annual and perennial forbs that contain the nutrition tortoises need), an Invasive Plan Management Plan should be included during the construction phase as well as the operations and maintenance phases of the proposed project.

We reiterate that it is not possible to accurately analyze the effects of the proposed project in a biological opinion until a complete description of the proposed project is provided including the conservation measures and plans that would be implemented. Because of the absence of this information, the USFWS should presume the conservation measures and plans do not exist/would not be implemented and should make its determination about the survival and recovery of the tortoise based on the known written information provided by BLM in the BA.

There is no indication that any plan would be designed, implemented, and maintained to ensure that the tortoise is not adversely affected or that take does not result from the construction, implementation, maintenance, or lack thereof.

Page 11, General Construction (Responsible Entity: UDOT): "A qualified biologist, through coordination with the BLM and USFWS biologists and managers, must perform a pre-project clearance survey to verify no threatened or endangered or other sensitive species are affected by the activity. "

There is no mention that the USFWS methodology for the clearance survey protocol for the tortoise (USFWS 2009) would be implemented or that the qualified biologists would be recommended by BLM to USFWS with USFWS accepting or dismissing this recommendation.

Page 11, General Construction (Responsible Entity: UDOT): "Use wildlife escape ramps, as appropriate, through coordination with BLM and USFWS." We recommend that this language be modified to include coordination and approval by the Desert Tortoise Recovery Office (DTRO).

Page 11, Red Cliffs NCA RMP BMPs (Responsible Entity: UDOT), Noxious and invasive weed prevention: "a) Minimize soil disturbance. To the extent practical, native vegetation will be retained in and around project activity areas and soil disturbance will be kept to a minimum."

We are not sure what "to the extent practical" means. If we are not sure, then BLM, UDOT. And USFWS are also probably unsure. Vague descriptions are not conducive to a likely accurate effects analysis of effects in section 7 consultation under the Federal Endangered Species Act or impacts analysis under NEPA.

A standard minimization measure to prevent invasive weed establishment and spread is for all vehicles and equipment used in the construction to be thoroughly cleaned before entering the project area. We did not find this minimization measure in the BA.

Page 11, Red Cliffs NCA RMP BMPs (Responsible Entity: UDOT), Fish and Wildlife Management and Special Status Species: "Prepare and enforce a Stormwater Pollution Prevention Plan (SWPPP); Noxious Weed Management Plan; Blasting Plan; Fugitive Dust Control Plan; and Hazard Materials, Hazardous Waste, and Spill Prevention Plan.

Page 12, Red Cliffs NCA RMP BMPs (Responsible Entity: UDOT), Transportation and access: "a) All highway ROWs and other road authorizations will contain noxious and invasive weed stipulations that include prevention, inventory, treatment, and revegetation or rehabilitation."

This statement should be clarified to ensure that revegetation is for native plant species and not revegetation of noxious and invasive weeds.

Page 12, Under-road Passages for Mojave Desert Tortoise: This entire section is written from the perspective of the UDOT engineers and maintenance personnel in designing and maintaining these underpassages. The underpassages should be located, designed, and maintained foremost so that they may be safely accessed and used by tortoises of all age classes. This would include the substrate of approaches and underpassages, locations, opening size and shape, length, etc. Monitoring should be included to determine after construction whether each underpasses has been successful in its purpose, If not, each underpass needs to be modified until it is successful in implementing its intended purpose.

BLM and UDOT should not presume that any underpassage designed for the tortoise will be able to be used by the tortoise, other factors such as the human activity may preclude the tortoise from using underpassages.

In addition, the USFWS's DTRO should be consulted on the design, location, and maintenance of these underpassages as they are the agency that has studied this method of assisting tortoise population connectivity, not BLM.

Page 13, New hike and bike path: Are we looking at e-bikes that travel at fast speeds and will have similar impacts as vehicles on roads? Please describe and analyze this impact in the NEPA document.

Page 14, Desert Tortoise Biologist: This position is usually referred to as an authorized desert tortoise biologist. Please add that all authorized desert tortoise biologists must have their qualifications reviewed by the BLM and based on their qualifications BLM determine which biologists to recommend to the USFWS for approval. The USFWS then reviews their credentials and experience to determine whether they are qualified to be an authorized tortoise biologist. We suggest a similar procedure for UDWR.

"Authorized biologists must maintain up-to-date Federal and State desert tortoise handling permits when they are conducting any handling activities."

This information should be revised to indicate that authorization for take of tortoises including handling or moving them must first be authorized for the authorized biologist through a biological opinion issued by the USFWS for the specific project.

"All desert tortoise biologists must report to and coordinate with the BLM, UDWR, and the County HCP Biologist. The biologist will keep detailed field notes that will be submitted to the BLM, the USFWS, and the Utah Ecological Services Field Office every three months."

Please amend this information to say that al desert tortoise authorized biologists will comply with the terms and conditions of the biological opinion issued by the USFWS for this project, including monitoring requirements.

Page 14 and 15, Desert Tortoise Monitor: "Desert tortoise monitors should have enough desert tortoise field experience (a minimum of 480 hours searching for tortoises and tortoise signs)." We remind BLM that given the low density of tortoises throughout their range, a person can have 480 hours or more of field experience searching for tortoises or tortoise sign and never have located a tortoise or tortoise sign. Please explain how BLM determined that these qualifications would be adequate as meeting the minimum qualifications needed for a person to be desert tortoise monitor.

This section should specify that desert tortoise monitors work under the onsite supervision of an authorized desert tortoise biologist.

Page 15, Field Contact Representative: "FCRs will meet the following qualifications:

- can recognize signs of desert tortoises;
- understand monitoring protocols; and
- have a minimum of one field day under the supervision of a desert tortoise monitor in each activity season and habitat type."

For example, recognizing signs of desert tortoise presented in a classroom is not the same as identifying tortoise sign in the field. Having one day in the field may have resulted in seeing no desert tortoises or all of the types of tortoise sign (scat; tracks; carcass;, shell fragments; burrows, pallets, and other cover sites; drinking depressions; courtship rings, etc.).

Page 16, "A desert tortoise monitor will be assigned to each grouping of equipment." "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"

Please explain how BLM determined that one desert tortoise monitor would be able to successfully monitor the use of heavy equipment spaced up to 1,000 linear feet apart to ensure that tortoises are not injured or killed in this area. When working under section 10(a) recovery permits the USFWS requires "on-site supervision of activities that may result in take. "On-site supervision" is defined as a supervised individual conducting activities within 3 meters (9.8 feet) of an independently authorized individual.

Page 17, "No standing water caused by highway project operations will be permitted in desert tortoise habitat, as this can attract desert tortoises and predators." Because common ravens and coyotes are mobile animals and predators of tortoises, standing water near tortoise habitat would attract them to locations near tortoise habitat from which they would be able to hunt tortoises in nearby areas. Therefore, the standing water should not be permitted in or near desert tortoise habitat to minimize the likelihood of increased predator activity.

Page 16, “Blasting will 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 will conduct 10-meter belt transect protocol desert tortoise surveys.”

Page 22: Washington County proposes to implement beginning the compensation part of the mitigation (acquisition of lands in Zone 6) after the highway is completed. This is unacceptable as it results in additional temporal impacts that were not analyzed in the BA or NEPA document. In addition, if the highway is completed before the mitigation is completed, there is no incentive for the parties that committed to implement the mitigation to fully implement it. We doubt that BLM would close the highway until the mitigation lands had been acquired and protected in perpetuity from future surface disturbance. In addition, we are unaware of an existing legal mechanism that allows BLM to designate mitigation lands to be managed in perpetuity for the specified purpose.

Pages 58 and 60: “The USFWS (2020a) has identified five potential habitat connectivity corridors linking the Upper Virgin River Recovery Unit (UVRRU) and the Northeastern Mojave Recovery Unit (Figure 15). Connecting the UVRRU and the Northeastern Mojave Recovery Unit could benefit tortoise access to larger habitats and maintain genetic and demographic connectivity (USFWS 2020a).”

The UVRRU is the smallest and most at-risk recovery unit within the range of the tortoise (USFWS 1994a, 2011). Therefore, more intensive management of the tortoise and tortoise habitat in the UVRRU is necessary to ensure the survival and recovery of the tortoise in this recovery unit and for the species. As presented in the BA, this management includes effectively managing connectivity corridors between the UVRRU and the Northeastern Mojave Recovery Unit (USFWS 2020).

We agree that management of this linkage habitat is crucial to the survival and recovery of the tortoise; also crucial is managing linkage habitat that provides connectivity among populations of tortoises within the UVRRU. Without this functioning connectivity within the UVRRU, the tortoise is a collection of small populations isolated by human development and activities. These small isolated populations would be subject to ongoing genetic, demographic, and environmental stochastic events, and would be extirpated. (Please see our comments on page 93 about the geographic isolation of Zone 6, stochasticity and extinction.) Consequently, it is important for the long-term survival and recovery of the tortoise in the UVRRU to ensure that functioning linkage habitats that provides population connectivity between the RCNCA and other tortoise populations such as the Zone 6 population are effectively managed and maintained if present, and if not, management actions are modified to ensure this population connectivity.

The USFWS (2020) identified one potential connectivity corridor between the RCNCA and Zone 6 tortoise populations, we were unable to find a discussion of the current and future land ownership and management of the lands in these areas identified as “potential corridors” that would ensure that they are and would remain into the future functioning to corridors for the movement of tortoise between these two populations and the exchange of genetic material.

In addition, we found no analysis of the current and planned human uses/developments in, adjacent to, and near these potential connectivity corridors. Averill-Murray et al. (2021) reported that

"habitat linkages among TCAs [Tortoise Conservation Areas] must be wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier and others, 2008; Morafka, 1994), while accounting for edge effects, in order to sustain regional tortoise populations." Tortoises have been classified as corridor-dwellers that primarily rely on overlapping home ranges within an area for gene flow through a corridor (Hromada 2022). The lifetime home range for the Mojave desert tortoise is more than 1.5 square miles (3.9 square kilometers) of habitat (Berry 1986). Consequently, effective linkage habitats are not long narrow corridors. They must be wide enough to support multiple lifetime home ranges of tortoises because tortoises reside in these linkage habitats.

However, identifying potential corridors as linkage habitats on a map because there is no visible development in that corridor is not sufficient. There are likely to be edge effects to this potential corridor. Any development within them or adjacent to/near them has an edge effect (i.e., indirect impact) that extends into the linkage habitat. This narrows or impedes the use/effectiveness of the linkage habitat, depending on the extent of the edge effect.

The ongoing decline of the tortoise is an example of how edge effects from human development and activities impacts the tortoise. There appears to be sufficient open space and suitable habitat for the tortoise, but the indirect impacts from human development and activities extend well beyond the perceived footprint of human development (e.g., urban development) and activities (e.g., OHV use) to adversely affect the survival of the tortoise (Tuma et al. 2016). Thus, having open space that appears to be suitable connectivity corridor for the tortoise may provide no connectivity between tortoise populations. Therefore, the BA should analyze the edge effects of current and planned uses of the identified potential tortoise corridors to determine whether they would likely be able to meet the requirements of the tortoise to provide functioning linkage habitat and connectivity between the Zone 6 tortoise population and the RCNCA tortoise population.

Page 93: In the BA, BLM says "Habitat in proposed Reserve Zone 6 . . . is separated from the other zones geographically." This statement indicates that Zone 6 and the RCNCA have no suitable linkage habitat that tortoises occupy that connect RCNCA with Zone 6. As previously stated, Averill-Murray et al. (2021) reported that "habitat linkages among TCAs [tortoise conservation areas] must be wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier and others, 2008; Morafka, 1994), while accounting for edge effects, in order to sustain regional tortoise populations." Thus, the linkage habitat that connects Zone 6 with the tortoise habitat in RCNCA likely does not meet this requirement because of existing and planned development in the St. George area. This absence of a functioning geographic connection for the tortoise between Zone 6 and tortoise habitat in the RCNCA leaves the tortoise population in Zone 6 (with its much smaller area than the tortoise habitat in the RCNCA) more susceptible to the impacts of genetic, demographic, and environmental stochasticity and extinction unless it is more intensively managed (USFWS 1994) than the tortoise population and habitat in the RCNCA. In addition, we understand that there recently was a fire in Moe's Valley (i.e., Zone 6), albeit small. The BA does not indicate this level of management. Rather it indicates that certain human activities that are not compatible with the conservation of the tortoise would be allowed in Zone 6.

One such human activity is the presence and use of roads (paved and unpaved routes used by vehicles). Averill-Murray and Allison (2023) reported that "road-related threats contributed ~22%

of the total impacts to the Mojave desert tortoise in an aspatial conceptual model of risk to the species, not including effects of population fragmentation." "Reducing the density of unpaved roads would also improve the habitat used by desert tortoises to move between locations, because even though they are not completely averse to crossing dirt roads, desert tortoises generally avoid moving through areas close to roads." Applying their findings, Averill-Murray and Allison (2023) recommended that the density of all roads (paved, unpaved, authorized, unauthorized, ROWs, etc.) in areas managed for the conservation of the tortoise be reduced to 0.6 km per km^2 or less. These areas include TCAs and critical habitat for the desert tortoise.

In the RCNCA, the density of roads and trails (not for pedestrian use) is 1.03 km per km^2. With the construction of the Northern Corridor highway, this density would increase to 1.06 km per km^2. The densities of existing and proposed roadways in the entire RCNCA is almost twice the maximum density that Averill-Murray and Allison (2023) reported as maximum density for areas managed for the conservation of the tortoise. Not only should the Northern Corridor highway not be approved but many of the existing roads and trails in the RCNCA in tortoise habitat should be closed and the habitat restored.

"The County, BLM, and the other HCP Partners agree to reduce the total mileage of designated recreation access routes within proposed Reserve Zone 6 to approximately 105 kms (65 miles) of primarily nonmotorized trails, a reduction in approximately one half of the total mileage of existing trails." There is no commitment to reduce the mileage of motorized trails and roads. Also, there is no commitment of when this reduction would occur — again the issue of a temporal impact with highway construction occurring prior to the implementation of the highway mitigation — to effectively enforce the reduction in recreation access routes. According to the BA, there are 197 kms of travel routes in Zone 6. With a total area of 27.6 km^2 in Zone 6, that means the density of routes in Zone 6 is about 7.1 km/km^2. Thus, more than 90% of the routes in Zone 6 would need to be closed and the habitat restored for Zone 6 to meet the management needs for the tortoise as determined by Averill-Murray and Allison (2023), not the approximately 50 % of designated access routes as proposed by BLM and the County. In addition, BLM and the County did not commit to providing effective enforcement of any closures or of restoration of the habitat to discourage future human use or reduce the impacts caused by the presence of roads on tortoises.

As stated by the USFWS (2011), "Paved highways, unpaved and paved roads, trails, and tracks have significant impacts on desert tortoise populations and habitat. In addition to providing many opportunities for accidental mortality, they also provide access to remote areas for collectors, vandals, poachers, and people who do not follow vehicle-use regulations. Substantial numbers of desert tortoises are killed on paved roads. Roads also fragment habitat and facilitate invasion of non-native vegetation."

Roads change the behavior of tortoises resulting in increased energy expenditure. Harju et al. (2024) reported that when female tortoises were nearer to a roadway, they were more likely to switch to and stay within a more energy demanding movement state. Further, when in this state, they moved even greater distances than when in the traveling state and far from the roadway. Although exclusionary fencing can reduce direct mortality of tortoises on roads, indirect negative road impacts remain (Harju et al. 2024). Other research that tracked free-moving Mojave desert tortoise behavior found that tortoises would avoid roads or alter movement near roads (Hromada

et al. 2020, Hromada et al. 2023, Peaden et al. 2017). Harju et al. (2024) reported that "the negative impact of the highway on female movement can reduce connectivity by expanding the road effect

beyond the fence, depressing local populations and thus functioning as a wider fragmentation barrier."

The USFWS (2011) stated that the "establishment of new roads should be avoided within tortoise conservation areas (TCAs)." The RCNCA is a TCA and much of it is designated critical habitat for the tortoise. Because there are viable alternatives to establishing a new road in the RCNCA, if BLM is to comply with the Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*), it should follow the Revised Recovery Plan and select an alternative that is not in the RCNCA or in designated critical habitat.

Regarding Zone 6, the BLM and County propose to add Zone 6 to the Reserve which is managed for the conservation of the tortoise. Consequently, the sustained presence of a high density of authorized and unauthorized routes in Zone 6 and the addition of the Northern Corridor highway in the RCNCA would add these indirect impacts to these two tortoise populations by adversely affecting behavior, physiology, energy expenditure, and genetic exchange within each population despite their stated purpose of being managed to conserve the tortoise.

Consequently, the future survival of the tortoise population in Zone 6 under BLM and the County's proposed management is not in agreement with the current information reported in the scientific literature on what is needed for the tortoise to survive and persist.

The impacts of vehicle routes on the survival of the tortoise can be substantial. With the addition of fragmentation as an impact from the presence of roads in Zone 6, the amount of impacts that roads contribute to the tortoise in Zone 6 would be much greater. This is a substantial level of impact from just one type of human activity.

As with Zone 6, for the RCNCA, BLM should analyze the impacts of the road network in tortoise habitat in this NCA. Averill-Murray and Allison (2023) state that "most strategies for minimizing or mitigating the effects of roads are focused on the actual roads themselves rather than on the collective travel network across entire landscapes." This appears to be the approach that BLM used when analyzing the impacts to the tortoise/tortoise habitat from the construction, operations, and maintenance of the Northern Corridor highway and its alternatives in the three NEPA documents and in the BA. "Higher densities of roads reduce the probability that any given area will escape detrimental effects of human access, and higher road density will also fragment habitat more severely (Averill-Murray and Allison 2023)." "The demographic and movement traits of tortoises place them in the company of grizzly bears and gray wolves as fauna for which road networks may be an important limiting factor to population recovery" (Averill-Murray and Allison 2023). Consequently, BLM should revise its analysis of impacts from the proposed implementation of the Northern Corridor highway to include of the entire road network in Zone 6 and in tortoise habitat in the RCNCA. Failure to do so does not provide an adequate analysis of the direct, indirect, and cumulative impacts to the tortoise/tortoise habitat from implementation of the Northern Corridor

highway and its alternatives, and is therefore not adequate in identifying mitigation to offset these unidentified impacts.

Page 98, Analysis and Determination of Effects: Proposed Northern Corridor: "This analysis includes both quantitative and qualitative assessments of direct and indirect impacts to the desert tortoise and its suitable (i.e., occupied and potential) habitat due to the construction and operation of the proposed Northern Corridor." Please see our two comments under page 100.

Page 98: "For these [tortoise exclusion] fences to be effective they must be maintained through routine inspection and repair of any breach." The BA does not state here who would maintain the fences and what "routine inspection" means. "Routine inspection" might mean inspection once a year or every few years. This is inadequate and would not be an effective mitigation measure to prevent mortality of the tortoise from vehicle strikes. Rather the typical conservation measure in a biological opinion or incidental take permit is:

> "Fence Inspections. Following installation of the Mojave desert tortoise exclusion fencing, the fencing shall be regularly inspected during construction, operations, and decommissioning. If tortoise were moved out of harm's way during fence construction, fencing shall be inspected daily for the first 7 days to ensure a recently moved tortoise has not been trapped within the fence. Thereafter, fencing shall be inspected quarterly and during and within 24 hours following major rainfall events. A major rainfall event is defined as one for which flow is detectable within the fenced drainage. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within 48 hours of observing damage. Inspections of site fencing shall occur for the life of the Project" (BLM 2019).

Please update this section of the BA.

Page 98: BLM says, "As habitat is fragmented and lost, habitat patches become smaller, patch populations (e.g., clusters of tortoises) have fewer tortoises and become more disjunct, extinction probabilities within patches increase, and the number of occupied patches decreases (Fahrig 2002; Ovaskainen et al. 2002; USFWS 2022a)." This is what will occur from the construction, use and maintenance of the Northern Corridor highway in the RCNCA. One of the densest areas of tortoises in the RCNCA and areas not impacted directly by fire in the RCNCA would be bisected by the Northern Corridor highway. This highway would further fragment tortoise habitat and populations in the RCNCA thus increasing the likelihood of extirpation of the tortoise in the RCNCA.

Page 99: "To assist UDOT in compensating for the loss of 275 acres of occupied tortoise habitat . . . the County has offered to designate Reserve Zone 6 for the conservation of Mojave desert tortoise, including the non-Federal lands in Reserve Zone 6, and to manage this area consistent with the rest of the Reserve."

We question under what authority the County would act to implement this in perpetuity when much of the land in Zone 6 is federal land under the management of BLM and much is State Trust Land. Our understanding is that BLM has agreed to reduce the types of some human activities in Zone 6 but would continue to allow others that are not compatible with the conservation of

tortoises. We presume this change in land management would occur though amendments to the current resource management plan. However, we are unsure how long the completion of that process would take, and we are concerned that BLM could amend this RMP again to change the management and allow activities that are not compatible with tortoise conservation and recovery. In summary, we are not aware of a regulatory method that would assure that BLM would manage Zone 6 for the tortoise in perpetuity to offset the permanent direct impacts to the tortoise and tortoise habitat in the RCNCA from the construction and operation of the Northern Corridor highway.

In addition, the decline of the tortoise throughout its range is attributed to indirect impacts (i.e., degradation of habitat from human activities) which would be long-term or permanent. Consequently, mitigating the direct impacts from the construction and operations of the Northern Corridor highway would not result in effective mitigation to begin to offset the indirect impacts to the tortoise/tortoise habitat from the highway that adversely impacts many more tortoises and acres of tortoise habitat than the direct impacts. We remind BLM of their obligation under FLPMA "to take any action necessary to prevent unnecessary or undue degradation of the lands." This proposed mitigation in establishing Zone 6 would not comply with this mandate under FLPMA for the tortoise.

Page 100: "Tortoises within 508 meters (1,667 feet) to the north of the ROW and all lands south to the Reserve boundary (the Alignment Action Area excluding the ROW) may be subject to indirect effects from construction and operations of the proposed Northern Corridor. This potential indirect effects area is based on the annual home range size of an adult male tortoise, which is considered to be 508 meters (1,667 feet) in diameter (approximately 50 acres), even though the cumulative home range over the life of a Mojave desert tortoise may be 2.4 km^2 (1.5 square miles; 960 acres)."

The activity, movements, and home range of the tortoise are dependent on the availability of nutritional forage. Tortoises acquire sufficient energy, protein and amino acids, minerals, vitamins, water, and other components from *selected* food plants and plant parts *when available*, with the majority of energy coming from carbohydrates and through fermentation. Tortoises modify their activity and feeding behavior relative to periods of plant growth, climatic and environmental conditions (Drake et al. 2016). In dry years when there is little native nutritious forage available, tortoises have smaller home ranges. With drought and climate change, these dry years have become more frequent and concurrent such as the current extreme drought in Washington County.

Drought adversely affects growth rates, reproductive effort, activity, metabolic rates, and hematologic and plasma biochemical values of Mojave desert tortoises. (Berry et al. 2002). Desert tortoises can tolerate large imbalances in their water and energy budgets (Nagy and Medica 1986) but only for a limited time. This ability enables them to exploit resources that are periodically available during years with average or above average precipitation and native herbaceous forage production. During these years, desert tortoises can balance their water budgets and have a positive energy balance, providing an opportunity for growth and reproduction (Nagy and Medica 1986). In drought years, activity, growth, and reproduction are reduced substantially.

During wet years when forage is more abundant, tortoises are actively foraging to consume the nutrients they need to survive the dry years. Their home ranges increase substantially in area during these wet years. However, these wet years are occurring less frequently in the Mojave Desert because of climate change. There are more "dry years" resulting in small tortoise home ranges and fewer "wet years" with substantially larger home ranges. This skews the average home range size to a smaller size and does not capture the large area needed by tortoises during the few wet years when tortoises are actively moving and foraging to replenish the nutrients needed to survive and reproduce. Consequently, using the average annual home range size of a tortoise to determine the areal extent of indirect impacts of the proposed project skews the areal extent of where tortoise occur to a smaller area and does not include the tortoise movements in wet years which are crucial to its survival. We assert that when looking at the needs of the tortoise for survival and where it occurs, BLM should have looked at the home range sizes during wet years as these years and home range sizes are crucial to tortoise survival.

Page 100: "A total of 2,333 acres of occupied tortoise habitat and 275 individual tortoises that are associated with this habitat would be indirectly impacted through disturbance based on estimates from the kernel density model (USFWS 2020b)."

We found no analysis of how the displacement of 275 tortoises, which we estimate to be more than 10 percent of the population and some of which are likely to have their survival substantially reduced because of displacement, would impact the long-tern survival and recovery of this population. Tortoises have demonstrated homing behavior when moved up to 1.3 miles (2 kilometers) from their home range (Hinderle et al. 2015). Thus, tortoises know their home ranges and will attempt to return to them resulting in increased above ground movements and exposure to predation (Mack and Berry 2023) and overheating (Peaden et al. 2017, Fairbank et al. 2023). The life history strategy of the tortoise is to take a long time to reach sexual maturity, live a long time, have a large home range that it needs during its lifetime to utilize the available nutritious forage in wet years, and produce few young that survive to sexual maturity (low recruitment). The impacts created by the construction, use, and maintenance of the NCH, when combined with a 26 percent annualize mortality in 2025 would adversely impact the long term-survival and recovery of the small tortoise population in the RCNCA and its habitat, make it more susceptible to genetic, demographic and environmental stochastic events, and contribute to its extirpation.

Section 7(b)(4) of the FESA directs the Secretary (delegated to the USFWS) to "provide the Federal agency and the applicant concerned, if any, with a written statement that—

> (i) specifies the impact of such incidental taking on the species,
> (ii) specifies those reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize such impact, . . . and
> (iv) sets forth the terms and conditions (including, but not limited to, reporting requirements) that must be complied with by the Federal agency or applicant (if any), or both, to implement the measures specified under clauses (ii) and (iii)."

However, the BA contains an analysis of the direct and indirect impacts to the tortoise from implementation of the NCH EA and presented it in a quantitative manner (e.g., A total of 2,333 acres of occupied tortoise habitat and 275 individual tortoises that are associated with this habitat would be indirectly impacted through disturbance). Rather, the BA should have analyzed the

"impacts of the taking" on the tortoise for the life of the project from direct and indirect/short-term and long-term impacts. The BA should have included conservation measures to offset the impacts of the taking. For example, the direct and indirect impacts to a listed species may result in the loss of a few animals from one small population when there are other populations with several individuals in each population that occur throughout the species' range. However, the loss of these few animals from this one small population is likely to result in the loss of this population and this population is needed for recovery of the species. The impacts to the species from this loss may appear minor, but the impacts of the taking of these individuals on this species would prevent the species from recovering. Thus, the impacts of the taking on the species would be substantially different than the impacts to the species.

We recommend that the BA be revised to reflect the directive in the FESA which differs from the information provided in the BA. The USFWS should make this request to BLM.

With respect to analysis of impacts to the tortoise/tortoise habitat in NEPA documents on the NCH, the Council offers the following information:

Impacts of the NCH on the Mojave Desert Tortoise
The proposed Northern Corridor Highway (NCH) is located in the southern portion of Zone 3 of the Red Cliffs Desert Reserve (Reserve). Part is located on non-federal land and part on land administered by the BLM.

Construction, use, and maintenance of this highway will have direct, indirect, and cumulative impacts on the Mojave desert tortoise.

Direct Impacts to the Tortoise: Direct impacts include mortality and injury of tortoises being crushed or buried during operation of vehicles and equipment during construction and maintenance of the highway and adjacent ROW areas. Collecting tortoises by humans performing construction and maintenance may also occur.

Tortoise mortality would also occur where tortoise exclusion fencing is not installed along the NCH. The FEIS is unclear whether tortoise exclusion fencing would be installed and maintained along the entire length of the NCH or only areas where BLM would approve the ROW. "UDOT would install and maintain Mojave desert tortoise exclusion fencing and shade structures along the approved ROW" (BLM & USFWS 2020). About 2.5 miles of UDOT's proposed 4.5-mile NCH route would not be on BLM-managed lands but would be within the Reserve boundary. If the entire ROW is not fenced, and regularly monitored, and promptly maintained with tortoise exclusion fencing, tortoise mortality from vehicles colliding with tortoises on the roadway would occur and the rate of tortoise mortality would increase. Interstate (i.e., high traffic volume) and county (i.e., low traffic volume) roads both contribute to removing tortoises via mortality from collisions with vehicles (Peaden et al. 2015).

Tortoise mortality would occur when a breach in tortoise exclusion fencing occurs. A breach may be caused by vandalism, ineffective construction to exclude tortoises (e.g., in rocky substrates), a rainfall event, or failure of materials because of environmental extremes. Breaches have been reported along the Cottonwood Springs Road in the Reserve so breaches in tortoise exclusion

fencing are likely to occur along the NCH. Tortoises walk along fences (i.e., "fence walking") and with greater velocity than when away from fences (Peaden et al. 2017). This behavior would direct them to a breach in exclusion fencing and access to the NCH where they would be killed by vehicle collisions. In addition, tortoises respond to barriers by traveling along them until they find a way to go around (Ruby et al. 1994a). Human-made barriers with no openings large enough to permit passage stimulate tortoises to investigate and attempt to escape, often persistently for periods of hours (up to 18 hours in the experimental study by Ruby et al (1994). This response declined with time, but did not disappear completely.

Use of the NCH would provide the public with enhanced access to areas of the Reserve previously not accessible by vehicle. Any tortoises seen near the roadway could be collected resulting in permanent removal from the wild population (Lovich and Bainbridge 1999).

The NEPA documents are unclear whether non-roadway related utilities would be allowed to use the NCH ROW for their facilities. As with NCH construction and maintenance, utility construction and maintenance may crush or bury tortoises and facilitate collecting tortoises by workers. This would result in their permanent loss from the wild population.

Information is lacking on the estimated number of tortoises that would be lost from these respective activities during the 30-year NCH ROW permit term. The USFWS's recovery program for the Mojave desert tortoise requires range-wide, long-term monitoring of tortoise populations (i.e., density, abundance, etc.) to determine whether recovery goals are being met (USFWS 2015). The USFWS analyzes changes in estimated adult Mojave desert tortoise densities and abundance (numbers) to measure the effectiveness of recovery actions (USFWS 2015). Information is also lacking on who would be responsible for implementing mitigation for the tortoise when the BLM ROW expires and the Washington County HCP expires.

Between 1999 and 2019, the density of adult tortoises in Zone 3 and Zones 2, 3, and 5 in the Reserve declined from 33.4 to 12.3 per square mile (a 63 percent decline) and 29.1 to 17.2 per square mile (a 41 percent decline), respectively. The estimated abundance of adult tortoises in Zone 3 and Zones 2, 3, and 5 declined from 3,199 to 1,181 (a 63 percent decline) and 3,404 to 2,011 (a 41 percent decline), respectively (UDWR 2020). Zones 1 and 4 in the Reserve are not included in this analysis as Zone 1 contains a narrow strip of tortoise habitat at the south side of the zone and south of the Red Mountains with a low-density housing development (private property) that prevents sampling. Because of its configuration and impacts from human development and activities in Zone 1 as well as edge effects from impacts adjacent to/near Zone 4 is a translocation area for displaced tortoises from incidental take areas within the Washington County incidental take permit area (UDWR 2020). Zone 3 is considered the core zone of the Red Cliffs Desert Reserve. Zone 3 supports 73 percent of the Red Cliffs Desert Reserve population of the Mojave desert tortoise (USFWS 2020). However, in 2025 UDWR reported an annualized mortality of 26 percent for the tortoise in RCNCA (McLuckie et al. 2025). Thus, the tortoise population in the RCNCA continues to decline.

The areas east of Cottonwood Road burned in the 1990s and 2005. These areas of recurring fires appear to be transitioning vegetation from native desert shrublands to a monoculture of non-native invasive annual grasses (*Bromus* spp.) that increases the probability of future and recurring

wildfires (USFWS 2020). This area burned again in 2020. The location of these recurring fires and the location of the avoidance ROW corridor created a wide north-south barrier of substantially degenerated or destroyed tortoise habitat that impedes tortoise movement from the central area of Zone 3 to the southwestern area of Zone 3.

Given the reduction in tortoise numbers and densities in the Reserve between 1999 and 2025 (UDWR 2020, McLuckie et al. 2025) and additional ongoing reductions likely from construction, use, and maintenance of the NCH ROW into the future, it is imperative that the impacts of the NCH to tortoise densities and abundance be provided to determine whether ongoing management will be effective in providing for the survival and contributing to the recovery of the tortoise in the Reserve/NCA. Even without the NCH, if trends in tortoise densities and abundance continue downward as they have since 2001, and they are likely to because the BLM and Washington County describes few changes to past and ongoing management of the tortoise in the Reserve/NCA, tortoises in the Reserve/NCA will not be able to survive this negative population growth (recruitment) rate.

Indirect Impacts to the Tortoise: Indirect impacts to the tortoise from construction, use, and maintenance of the NCH include increased predation, the road effect zone, noise affecting hearing and behavior, increased occurrence of mortality from disease caused by environmental stress from the NCH, and increased population fragmentation (=reduced population connectivity).

As a new highway, the NCH will increase food subsidies for the common raven, a predator of the Mojave desert tortoise. Human subsidies appear to be responsible for recent increases (1000% over 24 years) in raven populations in the Mojave Desert (Boarman and Berry 1995). Populations of animals preyed on by ravens, including the tortoise, face greater predation pressure near human developments due to artificially high raven densities (Kristan and Boarman 2003). A new road in the Reserve/NCA would result in road-kill of wildlife that is not excluded from the NCH by the tortoise exclusion fence. Road-kill in/near the Reserve/NCA provides an enhanced food source for ravens enabling them to increase their numbers and elevate predation pressure on the tortoise in the Reserve/NCA (Kristan and Boarman 2003, Kristan et al. 2004). Loss of tortoises from increased predation reduces the population growth rates for the tortoise (Nafus et al. 2013).

A new highway in the Reserve/NCA would create another road effect zone. The effect of roads and highways on natural systems is defined geographically as the road effect zone. For the Mojave desert tortoise, roads and highways reduce the abundance of tortoises and tortoise sign along both county roads and busy highways. Reductions extended farther from the large, high-traffic highways (about 1,000 feet) than from the smaller, lower-traffic county roads (Peaden et al. 2015) with adult tortoises located farther from roads than juveniles (Nafus et al. 2013). In addition, reduced tortoise abundances near roads may result from behavioral avoidance (Nafus et al. 2013, Peaden et al. 2015). Additional indirect impacts to the tortoise from roads were presented earlier in this letter.

Loud noise and vibrations from construction, use, and maintenance of the NCH would have adverse impacts to the Mojave desert tortoise. The tortoise has a well-developed middle and inner ear (Miles 1953, Bowles et al. 1999). The middle ear conducts sound vibrations to the inner ear where sounds are converted into nerve impulses that travel through the auditory nerve to the brain.

Desert tortoises have responded to the sound of a vehicle's horn at 50 meters (Coombs 1977a) and to ground vibrations (Miles 1953). Tortoises worldwide including the desert tortoise are infamous for the loud grunts and moans that occur when they mate, sounds that do not occur during other high activity states, such as during fights. This suggests a communicative function for the behavior (Bowles et al. 1999).

Auditory thresholds averaged 34 dB SPL (sound pressure level) at best frequency, making the tortoises approximately 10 dB more sensitive than expected to sound pressure. Hearing sensitivity for the tortoise declined rapidly above 750 Hz and below 125 Hz (Bowles et al. 1999). Sensitivity to vibration would become the dominant sensory modality at very low frequencies (below ~ 100 Hz) for desert tortoises (Bowles et al. 1999).

There is limited information of the impacts of noise and/or vibration from numerous sources of sounds to the Mojave desert tortoise. Bowles et al. (1999) conducted a study on the effects of aircraft noise and sonic booms on tortoises. Exposures to simulated jet overflights produced a typical reptilian defensive response, freezing. The behavioral change was abrupt during initial exposures. During or shortly after exposure onset, tortoises frequently became immobile for periods of up to 113 minutes, interrupting activities such as walking or eating (Bowles et al. 1999). Such a response may make tortoises more susceptible to predation or thermal stress.

A sonic boom with a 0.4 millisecond rise time contains substantial energy in the range from 125 to 1000 Hz, the range within which auditory injury in desert tortoises could occur (Bowles et al. 1999). Results of exposure to sonic booms incidents indicate desert tortoises could develop hearing deficits because of frequent exposure to focused sonic booms and other high-amplitude impulses over a lifetime (e.g., off-road vehicle noise, blasts from construction). Because the peak level of the test booms was close to the damage risk threshold adopted for humans and animals (140 dB peak SPL), the critical level for damage to tortoises is the same as for humans despite their less sensitive hearing (Bowles et al. 1999). Thus, the impacts that would occur to human hearing when living outside near a busy highway would occur to the tortoise from the NCH.

For the gopher tortoise (*Gopherus polyphemus*) in southeastern U.S., individuals fled into burrows even when it was not possible for them to see an approaching researcher, suggesting the tortoises use vibrations (aerial/ground) to detect potential predators as a possible antipredator function (Radzio and O'Conner 2017). When applied to the Mojave desert tortoise, if these aerial/ground vibrations are masked by nearby sounds from roads such as the NCH, tortoises would not be able to detect approaching predators.

For other species in the Mojave Desert, noise from dune buggies and motorcycles caused Mohave fringe-toed lizard and Couch's spadefoot toad to go deaf with little or no recovery, interfered with their detection of predators, and caused unnatural behavior, which may jeopardize their survival (Brattstrom and Bondello 1983).

Surface disturbances, vibrations, or noise from vehicle traffic may contribute to road-effect zones by discouraging desert species including desert tortoises from settling close to highways or other roads (Baepler et al. 1994, cited in Peaden et al. 2015). This was supported by research using captive desert tortoises (Ruby et al. 1994). Tortoises placed near a busy highway behind a concrete

barrier were “clearly disturbed by visual, vibrational, and noise stimuli from highway traffic on the other side of the concrete barrier. A tortoise's response to shadows or heavy vibration from trucks was to stop moving and, in most cases, withdraw the head into the shell. When several trucks passed in a convoy, a tortoise would withdraw completely into its shell. However, vibration or noise alone without the visual stimuli of a shadow also provoked defensive responses. Tortoises, when close to the barrier, were shaded and could not see the traffic or the shadow it cast, but still responded when large trucks passed by the barrier (Ruby et al. 1994). Continual traffic on a busy highway would cause these defensive behaviors in tortoises throughout the day. Thus, the short-term and long-term effects of noise produced from road construction, use, and maintenance adversely impact the desert tortoise with respect to behavior and short-term auditory damage and likely has more severe long-term impacts.

Outbreaks of upper respiratory tract disease (URTD) and associated tortoise mortality and morbidity are expected to increase because of the increased levels of environmental stress associated with the NCH that have indirect impacts on the tortoise (e.g., increased frequency, duration, and volume of noise) and indirect impacts to tortoise habitat (e.g., habitat fragmentation, decreased occurrence of native vegetation from increased dust deposition, increased occurrence of invasive non-native annual plants affecting the availability of nutritional forage, for tortoises and increasing the likelihood of fires – please see below under “Impacts to Tortoise Habitat”). As previously reported, tortoises with severe clinical signs of URTD failed to reproduce; thus, reproduction and recruitment would be reduced.

Linear structures such as roads/fenced roads cause fragmentation of a tortoise population (and habitat). The tortoise population in the Reserve/NCA is already separated into smaller units (i.e., five zones with two subdivisions or analytical units in Zone 3) because of human-created roads and other development that serve as total or semi-permeable barriers to tortoise movements. Currently within the Reserve, tortoises in Zone 1 (westernmost zone) are not well connected to tortoises in Zone 2 (adjacent and east of Zone 1) or tortoises that may be west of the Reserve, because of development in the foothills and the narrowness of tortoise habitat (USFWS 2020).

Tortoises within Zone 2 are fragmented by Tuacahn Drive and Snow Canyon Drive. The former has tortoise exclusion fencing on both sides that prevents tortoises from entering the road and being crushed by vehicles. The exclusion fencing also eliminates the connectivity of tortoises by preventing tortoises on one side of the road from accessing tortoises on the other side. Three culverts were installed to provide for population connectivity in the late 1990s. However, one culvert is where the only documented tortoise crossing has occurred in the Reserve (USFWS 2020). Consequently, the design, location, and number of these culverts is likely insufficient for genetic and demographic flow or population recovery needs because of the small size of the two populations created by the road and fencing (USFWS 2020). Snow Canyon Drive is mostly unfenced and was/is the location of most tortoise road-kills within the Reserve (Kessler 2020a). It may function as a “population sink” (USFWS 2020), a location with local mortality that is greater than the growth rate of the population, thus contributing to a negative growth rate for tortoises in the Reserve. It also is a semi-permeable barrier to tortoises in Zone 2 with associated impacts of population fragmentation.

Tortoises in Zone 3 are separated from tortoises in Zone 2 by State Route-18 (SR-18). SR-18 is fenced on both sides with tortoise exclusion fencing. It has one culvert that is not designed or maintained for desert tortoise passage. No desert tortoises have been documented to use it. This highway boundary effectively eliminates functional connectivity between Zones 2 and 3 of the Reserve population (USFWS 2020) and fragments the tortoise population in the Reserve.

Tortoises within Zone 3 are further fragmented by Cottonwood Springs Road creating the West Cottonwood and East Cottonwood Analytical Units (AUs). Cottonwood Springs Road is fenced with tortoise exclusion fencing and has no culverts to provide tortoise passage between the two AUs. The 1994 Recovery Plan specifically identified installing culverts at Cottonwood Springs Road to provide connectivity/tortoise movement throughout Zone 3. Breaches in the exclusion fencing have occurred. The southwestern corner of this AU is crossed by Red Hills Parkway (constructed after 2007). Of five culverts under this Parkway, two are concrete boxes to facilitate tortoise movement and three are corrugated steel. However, there has been no documented use of these culverts by tortoises (USFWS 2020).

Tortoises between Zone 3 and Zone 4 (= Babylon AU) are permanently separated by Interstate-15. The west side of I-15 is fenced with tortoise exclusion fencing and there are no passageways for tortoises to move between the two zones. This highway effectively eliminates functional connectivity between Zone 3 on the west side of I-15 and Zones 4 and 5 of the Reserve on the east side of I-15.

There is no connectivity between tortoises in Zones 4 and 5 (= Cinder Knolls AU). The Virgin River forms an effective barrier between these two zones even in drought years (USFWS 2020).

Thus, tortoises in Zones 4 and 5 are isolated from each other and isolated from tortoises in Zone 3. This highly fragmented habitat and absence of connectivity to populations immediately adjacent to each other means that the RCNCA is currently composed of small isolated populations that are likely to experience extinction from genetic, demographic and stochastic events unless there is an intensive level of management for their conservation.

Currently the tortoise population is fragmented by SR-18, Tuacahn and Snow Canyon Drives, Cottonwood Springs Road, and Interstate-15. This Reserve with a population far less than the minimum 100,000 tortoises needed for a DWMA (USFWS 1994) is fragmented into at least six smaller populations. Their very small sizes make each subject to the deleterious effects of genetic and demographic stochasticity because of the small size of each population.

The NCH will further fragment the tortoise population in Zone 3 of the Reserve/NCA resulting in a very small population south of the NCH. The proposed NCH ROW is located in the only high-density cluster of adult desert tortoises in the Reserve and in two moderate-high density clusters (BLM & USFWS 2020) (Figure 2). This high-density desert tortoise cluster previously extended farther north in Zone 3, and the current restriction in cluster size is likely a result of the wildfires (USFWS 2020). The northwestern part of Zone 3 burned prior to 2020 resulting in a substantial reduction in tortoise numbers and loss of tortoise habitat. In April 2020, the USFWS (2020a) determined that preserving connectivity between tortoises in the burned, but recovering, northwestern area of Zone 3 and the cluster of dense tortoises further south (where the NCH ROW

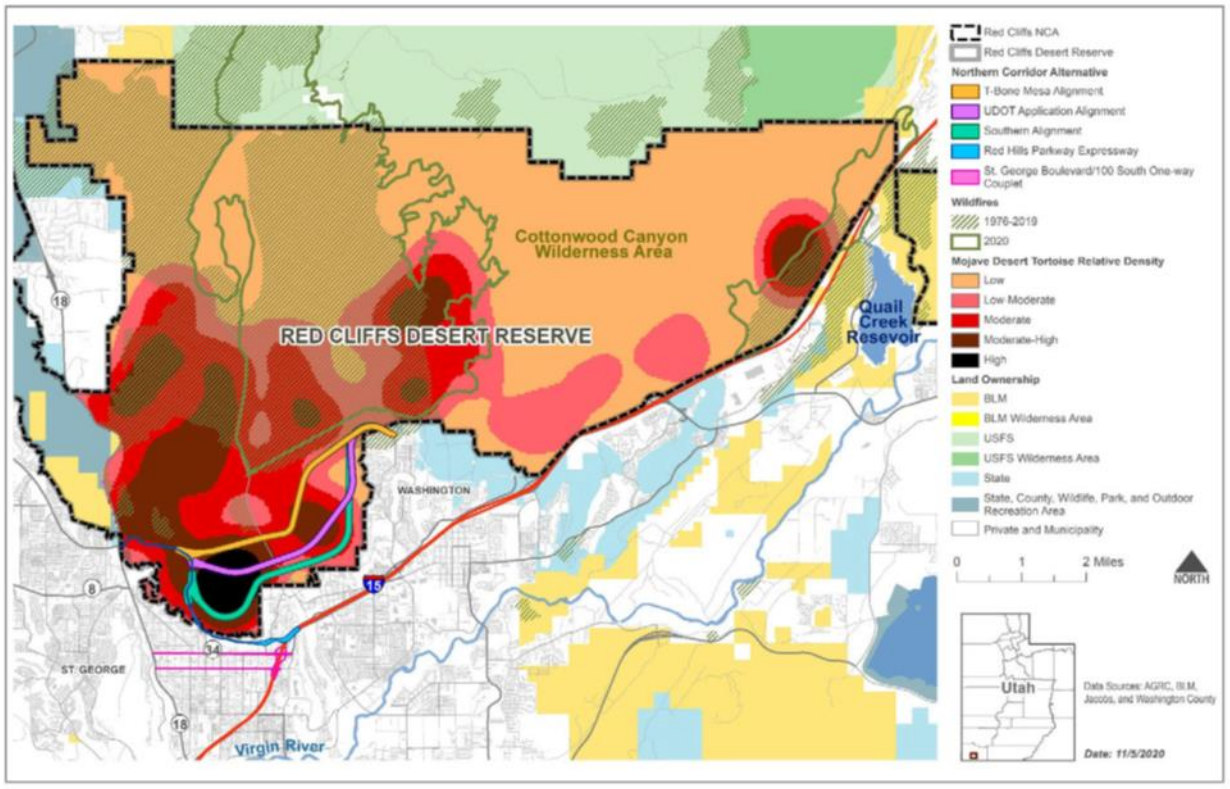


Figure 2. Northern Corridor alignments and relative densities of Mojave desert tortoises in the Red Cliffs Reserve/National Conservation Area.

would be located) will be key to repopulating the burned area with desert tortoises (i.e., demographic recovery).

If the NCH ROW is approved in the NCA, the high and moderate-high density clusters of tortoises would be impacted and numerous tortoises would be displaced. Additionally, the NCH would create a complete or possibly semi-permeable barrier that would fragment these clusters of tortoises and isolate/semi-isolate them as a small tortoise population south of the NCH from tortoises in the rest of the Reserve. The small size of this population would substantially reduce or eliminate the likelihood of it surviving long-term because of genetic, demographic, and environmental (e.g., fire, drought, etc.) stochastic events. The NCH barrier would make it unlikely that tortoises south of the NCH would repopulate the northwestern burned area of Zone 3.

"To maintain population connectivity and reduce the effects of habitat fragmentation from the 500-foot-wide proposed NCH, the roadway design would incorporate "passageways underneath the highway that could be used by Mojave desert tortoises where exclusion fencing has been placed along the highway" (BLM & USFWS 2020). The size, structure, and placement of under-road passageways "would be made based on current monitoring data" (BLM & USFWS 2020).

UDWR monitors tortoises in Zones 2, 3, and 5 every other year. Their monitoring consists of walking transects to determine population abundance and densities of tortoises (UDWR 2020). They do not include data from monitoring the movements of tortoises in their posted reports.

However, data on tortoise movements are vital to determine where under-road passages should be located to maximize their use by tortoises at a linear barrier such as a road. Recent research on tortoise interactions with roads and culvert use indicates that GPS-loggers are an effective tool to determine where and how frequently tortoises cross unfenced low vehicle-use roadways (Peaden et al. 2017). This technology provides real-time data on tortoise movements and locations. UDWR monitors tortoise in Zone 3 using radio-transmitters (UDWR 2020); this technology does not provide data on where and how frequently tortoises are moving across the proposed NCH ROW. Consequently, UDOT would be guessing where to place under-road passageways rather than locating them where tortoises cross the proposed NCH ROW. Recalling that tortoises know their home ranges, with no or limited data on tortoise movements within/near the proposed NCH ROW, it is unlikely that under-road passageways will provide effective connectivity between tortoises south and north of the NCH ROW.

In addition to data on tortoise movements, other data are needed to assure use by tortoises of under-road passageways because of other factors and constraints. The culverts for the NCH would need to begin and end near/outside the 300- to 500-ft wide ROW. During studies conducted by the USFWS on culvert use by tortoises, the longest culvert navigated by a desert tortoise is 240 feet (K. Holcomb, USFWS 2020 pers. comm. Palm Springs, CA 2020-12-14 email). Culverts spanning the 300- to 500-ft wide ROW would be about 60 to 260 feet (25 percent to 108 percent) longer than the maximum length of a culvert known to be used by a tortoise. Consequently, it is unlikely that culverts would provide connectivity between the tortoises south and north of the NCH.

The remaining structural options mentioned in the FEIS are bridges and viaducts. “The size, structure, design, and location of each structure would influence its effectiveness in facilitating passage of tortoises.” “Determination of the appropriate type of structure, sizing, and placement of under-road passages would incorporate data, construction techniques, and the availability of new technology or equipment, and reasonable feasibility to incorporate such technology into the project design. UDOT would select the final structure type for the passages” (BLM & USFWS 2020). Thus, the effectiveness of this mitigation measure to provide connectivity between tortoises south of the NCH to tortoises north of the NCH is unknown, monitoring its effectiveness is not part of the proposed project, and if the under-road passages are ineffective, relocating/redesigning a viaduct or bridge is unlikely to happen because of the costs and temporary disruption to the flow of traffic.

Without guaranteed connectivity for tortoises south of the NCH to the population north of the NCH, the NCH will further fragment the tortoise population in Zone 3 and the Reserve. It will create and isolate a small population and a small area of habitat on the south side of the NCH. This small isolated tortoise population will be susceptible to the deleterious impacts from genetic and demographic stochasticity, environmental stochasticity (e.g., catastrophes such as fires, severe or more frequent droughts, etc.), and extrinsic forces causing elevated mortality (i.e., additional direct and indirect human-provided/subsidized sources of mortality from the construction, use, and maintenance of the NCH). Thus, it is unlikely this small, isolated population south of the NCH will survive long-term.

Indirect Impacts to Tortoise Habitat: The indirect impacts to tortoise habitat are numerous. They affect the quality, quantity, and spatial arrangement of tortoise habitat. Surface disturbance from

construction and maintenance activities cause soil compaction that reduces seedling survivorship of native perennial and annual plants (Lovich and Bainbridge 1999). Construction, use, and maintenance of the NCH creates dust that is deposited on nearby vegetation. Dust deposition impacts some Mojave Desert plants by increasing leaf temperatures and subsequent photosynthetic rates during early spring and may require an increased amount of water for growth and successful reproduction. If this increased amount of water is not available, these plant species may respond by reducing plant vigor and by reducing flower and seed production or abandoning reproduction for the year (Sharifi et al. 1997). Subsequent years of dust may result in no recruitment of plants or plant mortality. Thus, dust production and deposition may result in reduced availability of vegetation needed by tortoises for food and for cover from predators and temperature extremes. The FEIS presumed the impacts from dust deposition to extend up to 0.6 mile (1 kilometer) from the edge of the ROW boundaries for some of the NCH alternatives. Quantifying this impact, dust deposition from the NCH would impact 3,579 acres in Zone 3, or 13.4 percent of the area of Zone 3 in addition to the 273 acres of the NCH footprint.

Construction, maintenance, and transportation vehicles unintentionally transport plant propagules (e.g., seeds) from non-native invasive annual plants along roadways (Brooks and Esque 2002, Brooks and Berry 2006). These activities promote the establishment and facilitate the distribution of non-native invasive annual plants that outcompete native herbaceous plant species. This reduces the availability of native forage that provides the nutrients and water balance tortoises need for survival, growth, and reproduction. Non-native invasive annual plants provide inadequate nutrition and negative water balance for tortoises. In some areas in the eastern Mojave Desert, this reduction is substantial with non-native annual grasses comprising more than 90 percent of the biomass (Brooks and Esque 2002). In the Reserve, invasive *Bromus* spp. have increased exponentially in the West Cottonwood AU (USFWS 2020).

Motorized vehicles emit pollution in the forms of oxidized and reduced forms of nitrogen. This deposits on surface soils and promotes the growth of non-native invasive annual grasses along roadways (e.g., *Bromus* spp.) (Allen and others 2009). Construction and use of the NCH will provide new and ongoing nitrogen sources to nearby surface soils and promote the growth of non-native invasive annual plants in the Reserve. As previously stated, this reduces the availability of native herbaceous vegetation needed by tortoises for survival, growth, and reproduction. Non-native invasive annual plants provide inadequate nutrition and negative water balance for tortoises.

The NCH will promote the occurrence of more fires. Fire has been historically infrequent in the Mojave Desert. Native vegetation did not evolve with fire so it is not adapted to fire as are chaparral and some forest vegetation communities. The recent increased prevalence of fire in the Mojave Desert is caused by the invasion of non-native annual grasses (Brooks and Matchett 2006) providing the fuel to carry fires. Non-native invasive annual grasses (e.g., *Bromus* spp.) provides the fine fuel necessary for the initiation and spread of fire, which in turn increases the frequency, area, and intensity of fire. Following a fire, native plant species diversity and cover decreased, whereas non-native annual plant species diversity and cover increased after burning (Brooks and Matchett 2003 – USGS). This sets up a recurring grass-fire cycle (D'Antonio and Vitousek 1992, Brooks 1999) and conversion of vegetation from native desert shrub to non-native annual grassland.

An invasive plant/fire regime cycle is currently establishing in the middle elevation shrublands of the Mojave Desert (Brooks and Matchett 2006) including Washington County.

For a fire to start there must be an ignition source. Most human-caused ignition points for fires in the Mojave Desert occurred along well-traveled roads (Brooks and Matchett 2006). In summer and fall of 2020, there were three large human-caused fires in the Reserve. The Turkey Farm Road, fire burned 6,688 acres, the Cottonwood Trail fire burned 1,369 acres, and the Lava Ridge fire burned 348 acres in tortoise habitat. One fire was caused by people using fireworks in the Reserve. All three fires "burned very hot, decimating native trees, shrubs, forbs and grasses to ash" (pers. com. Kellam 2020 cited in BLM 2020 FEIS). "Based on the severity, it is unknown how long, if ever, the vegetation will take to return to pre-burn conditions." For blackbrush shrublands, "regrowth can take centuries" (Hood and Miller 2007, cited in BLM 2020). In 2020, an additional 18 human-caused fires in/near the Red Cliffs NCA, Red Cliffs Desert Reserve, and Snow Canyon State Park burned acreage that ranged from less than 1 acre to 234 acres (Utah Fire Info accessed 2020-12-1). All 21 fires were human-caused and had ignition points at roads.

With respect to the tortoise, the three large fires in 2020 burned 27 percent of designated critical habitat and 29 percent of tortoise habitat within Zone 3 and 19 percent of critical habitat in the Reserve. Fire results in the long-term loss of habitat needed by tortoises for forage and cover and population fragmentation (McLuckie et al. 2021).

As previously mentioned, fires kill tortoises. Results from a limited survey of 618 acres of the Cottonwood Trail fire revealed mortality of 14 tortoises directly attributed to the fire (BLM 2020). The actual number of tortoises that died from this one fire is unknown at this time but presumed to be substantially greater. The Cottonwood Trail Fire resulted in the direct mortality of a" significant amount of tortoises, including adults, immatures and juveniles," Kellam reported (BLM biologist). Surveys have not been completed for the Turkey Farm Road fire or the Lava Ridge fire as of the release of the FEIS. However, Mike Schijf, a biologist with the Washington County Habitat Conservation Advisory Committee, previously stated there could have been between 500 and 800 tortoises residing in the torched portions of the reserve from the Turkey Farm Road and Cottonwood Trail fires (Kessler 2020 - Post–Fire Desert Tortoise Mortality Surveys, St. George News Written by Mori Kessler September 24, 2020).

The addition of another road in the Reserve/NCA will promote the spread of non-native invasive annual plants, provide access of vehicles and people that are ignition sources, start more fires, kill more tortoises, and destroy more critical habitat/tortoise habitat.

Analysis of impacts to the tortoise from NCH was developed using two criteria: suitable habitat and fragmentation (BLM & USFWS 2020- Appendix J). Habitat quality and habitat fragmentation were not determined as a baseline nor were the impacts analyzed from implementation of the proposed actions.

Habitat quality likely contributes to habitat-specific demographic rates. It can affect reproductive success and survival of individuals occupying the habitat (Pulliam 1996, cited in USFWS 2011). Thus, high quality habitat would support the survival of a larger number of individuals than lower quality habitat. Because the NCH ROW dissects the only identified area of high density tortoises

in the Reserve/NCA, the quality of this habitat is likely greater than habitat elsewhere in the Reserve/NCA. Thus, the loss of this high quality habitat from construction of the NCH and its higher value than other areas of tortoise habitat should be included when analyzing the impacts of the NCH to the Mojave desert tortoise, the cumulative impacts to the Reserve population, and developing appropriate mitigation to fully comply with USFWS regulations and policies for issuing incidental take permits in this NEPA analysis.

For habitat fragmentation, the NCH ROW will further fragment tortoise habitat in the Reserve by creating an isolated patch of habitat (estimated to be about 1,500 acres) south of the NCH and bordered mostly by human development. Because desert tortoises in the Reserve depend on different habitat types for feeding, breeding, and shelter and they have large lifetime home ranges, the long-term persistence of extensive, unfragmented habitats is essential for the survival of the tortoise (USFWS 2011). New habitat fragmentation impacts from ongoing development would pose significant risks to the UVRRU population (USFWS 2020). "Small reserves in a highly fragmented habitat are a recipe for extinction of the desert tortoise" (USFWS 1994). Thus, it is unlikely that the habitat in this small area would be sufficient to provide for the long-term survival of tortoise south of the NCH.

Mitigation: Mitigation for the quantitative, qualitative, and temporal impacts to the tortoise/tortoise habitat were not addressed in the FEIS for the NCH (BLM & USFWS 2020). The NCH would result in the destruction and fragmentation of high-quality tortoise habitat and fragmentation of the highest density of tortoises in the Reserve/RCNCA among other impacts, but the value of the tortoises and habitat impacted is not provided with respect to its value toward the survival and recovery of the tortoise in the Reserve. This analysis is required according to USFWS policy (USFWS & NMFS 2016) and should be presented in the FEIS to demonstrate compliance with USFWS policy and regulations.

In summary, the construction, use, and maintenance of the NCH would result in numerous direct and indirect impacts to the Mojave desert tortoise and tortoise habitat in the Reserve/RCNCA. The proposed on-site mitigation to construct and maintain tortoise exclusion fencing would substantially reduce a few of these impacts (e.g., vehicle collisions with tortoises), but mitigation is not proposed or would be ineffective for the other impacts to tortoises/tortoise habitat from the construction, use, and maintenance of the NCH. These include increased raven predation from subsidized food (road-kill); increased human access to collect tortoises; increased noise levels that impact tortoise behavior and increase susceptibility to predation; increased outbreaks of disease with reduced reproduction and increased mortality; surface disturbance to a large area that removes native plants (i.e., habitat loss); population fragmentation/isolation of the highest density of tortoises in the Reserve/RCNCA; transport and establishment of non-native invasive plants that outcompete native plants; ongoing nitrogen deposition from vehicles that promotes the growth of non-native invasive plants and other road effect zone impacts; reduction in availability of nutritious native herbaceous forage needed for growth and reproduction; increased fuel load by non-native invasive plants in spaces between woody shrubs that carry wildfire; increased human sources of wildfire (e.g., vehicles, etc.); increased size, frequency and intensity of wildfires; and recurring wildfires that result in vegetation type conversion from native shrubs and herbaceous plants to annual grasses, and noise impacts. BLM and USFWS are focusing on individual threats they view as most tractable rather than recognizing the importance of addressing the multiplicity of threats

impacting tortoises in the Reserve/RCNCA and implementing effective management action that respond effectively to current population trend demographics and habitat conditions and trends in the Reserve.

Cumulative Impacts: The NEPA documents did not adequately analyze for the tortoise the accumulation of similar impacts or the synergistic interaction of different impacts, the duration of cumulative impacts that would last for years beyond the term of the right-or-way (ROW), the additional planned projects and activities that would directly and indirectly impacts the tortoise in the RCNCA/Reserve and the Zone 6, and the ability of the tortoise to survive and persist for the long term given these additional impacts to existing adverse impacts to the tortoise/tortoise habitat based on its biological needs and life history strategy.

Between 2004 and 2014, the Mojave desert tortoise in the Reserve/RCNCA had a declining growth rate of 3.2 percent per year (Allison and McLuckie 2018). This increased to 26 percent in 2025. The FEIS (BLM & USFWS 2020) indicated that future management of the tortoise in the Reserve/NCA will change little from current management. Thus, we can expect the sources and amounts of mortality to tortoises to continue or increase resulting in a continued negative annual growth rate. When the new impacts from the construction, use, and maintenance of the NCH are added to the existing impacts to the tortoises/tortoise habitat in the Reserve/NCA, the likely result would be an increase in the mortality to tortoises and a larger negative annual growth rate. Thus, we can expect the tortoise population in the Reserve/RCNCA to continue to decline in numbers.

For the Mojave desert tortoise to survive and recover, it must survive and recover in all the recovery units (USFWS 1994, 2011). The UVRRU does not directly adjoin another recovery unit (BLM & USFWS 2020) because of human development and topography. Although a few potential connectivity corridors between the UVRRU and the Northeastern Mojave Recovery Unit have been identified on a map by the USFWS, we are unaware of any information that demonstrates the use of these potential corridors by the tortoise. Thus, whether these corridors function as connectivity corridors is unknown. The UVRRU is the smallest Recovery Unit in size and number of tortoises, and has only one reserve/DWMA that is required to be managed as a reserve. Zone 6 as proposed would not receive reserve level management.

With these limitations, for the Mojave desert tortoise to be able to survive and recover in the UVRRU, this Reserve/RCNCA must be intensively managed to assure that tortoise numbers and densities are as large as possible, with a minimum growth rate approaching or equaling 1.0 (mortality equaling recruitment), or greater than 1.0 if the tortoise population is to increase in abundance, and tortoises/habitats are effectively connected. When tortoise numbers drop substantially, the probability of long-term survival is reduced because of genetic, demographic, and environmental stochastic events and extrinsic sources of mortality.

Since the Red Cliffs Desert Reserve was identified as a DWMA in 1994, several development projects have been completed and human activities/uses increased (=stressors) that adversely impact the tortoise in the Reserve/RCNCA. These stressors include the increased use of roads and trails for motorized and non-motorized recreation, off-leash dogs. illegal trails, proliferation of invasive non-native annual plants, wildfires/recurring wildfires (most with human ignition sources

and fueled by non-native invasive annual plants), increased common raven predation, and construction and use of Red Cliffs Parkway (USFWS 2020).

Wildfires have likely impacted the largest area of tortoise habitat and have directly impacts Zones 3 through 5. Wildfires of substantial size and intensity occurred in 2005 and 2020 in Zone 3. In 2020, three fires burned 27 percent of tortoise habitat in Zone 3's tortoise habitat - 6,688 acres for Turkey Farm Road, 1,369 acres for Cottonwood Trail, and 348 acres for Lava Ridge Fire, or 8,405 acres (BLM & USFWS 2020). About 42 percent of tortoise habitat in Zone 3 has burned in the past few decades with 40 percent of tortoise critical habitat burned in Zone 3 (BLM & USFWS 2020) since its designation. The 2020 fires destroyed vegetation along a wide north-south area creating a wide semi-permeable barrier between the east and west sides of Zone 3. Recently, large fires "have become a common occurrence on this landscape" (BLM & USFWS 2020). Because Mojave Desert plant species did not evolve in a fire environment, they are not fire-adapted. It may take several decades for the vegetation to return to pre-burn conditions, if ever (BLM & USFWS 2020).

Zone 3 is the core of the Reserve/RCNCA and UVRRU tortoise population. It contains the highest densities and numbers of tortoises in the Reserve/RCNCA. It comprises 70 percent (29,260 acres) of the 41,524 acres of tortoise habitat in the Reserve/RCNCA and connects to Zones 2 and 1 to the west. Of this habitat, 42 percent has been lost to wildfires, 7 percent to the Red Cliffs Parkway, and an estimated 15 percent would be lost to the NCH ROW and the tortoise habitat south of the NCH. There have been additional losses from other authorized and unauthorized human activities in the Reserve/RCNCA. At least 49 percent of tortoise habitat in Zone 3 has been lost since its establishment. This loss is estimated to increase to 64 percent with the construction, use, and maintenance of the NCH.

Recall that the population viability analysis (PVA) and reserve size and architecture from the 1994 Recovery Plan specified a minimum of 1,000 contiguous square miles (640,000 acres) for the reserve, 10,000 adult tortoises within the reserve, and each reserve should contain contiguous rather than fragmented habitat and should be roadless. The Red Cliffs Desert Reserve/RCNCA falls short of this minimum size for tortoise numbers, acres, and absence of roads. In 2019, there were an estimated 2,401 adult tortoises (McLuckie et al. 2020) and 38,787 acres (Washington County Commission 1995) of tortoise habitat in the Reserve or 24 percent of the minimum number of adult tortoises and 6 percent of the minimum size for a reserve. Currently several roads cross the Reserve/RCNCA and another, the NCH, is proposed to be added to the Reserve/RCNCA.

The impacts of the 2020 fires on tortoise numbers and densities were not reported until 2023. "Five human-caused wildfires burned approximately 12,439 acres within the Red Cliffs NCA and Reserve, including the 1,414-acre Cottonwood Trail Fire, negatively impacting local tortoise populations (Kellam et al. 2022). Annualized mortality following the 2020 wildfires reflect the high number of shell remains observed relative to previous years (11%) McLuckie et al. 2024). After the 2005 fires, tortoise numbers and densities dropped significantly (i.e., 37 percent) (McLuckie et al. 2020) and it is logical to expect a decline in tortoise numbers and densities following the fires in the future. Regarding Zone 3's configuration/architecture, tortoise exclusion fencing has been constructed along roads in the Reserve including Zone 3 with no effective means of providing access for tortoise across the fenced roads.

The RMP for the RCNCA and the 2020 HCP proposed few changes to the management of the Reserve/RCNCA to "correct" for the increasing loss of tortoise habitat and 3.2 percent negative annual growth rate from 2004 to 2014 (4 percent in 2019 – McLuckie et al. 2020) that has occurred since the Reserve/RCNCA were created. The proposed changes include a "target total acreage of approximately 2,600 acres of successfully restored habitat over the 25-year term of the HCP" (BLM & USFWS 2020). Considering that 8,405 acres burned in 2020 alone and more acres are likely to burn in the Reserve/RCNCA in the future because large fires "have become a common occurrence on this landscape" (BLM & USFWS 2020), having a restoration target acreage of 2,600 acres during the next 25 years is unlikely to provide a substantial benefit to the tortoise/tortoise habitat, but it is a start. Unfortunately, for the tortoise, vegetation restoration in the Mojave Desert takes decades (Abella 2010, Vamstad and Rotenberry 2010) even with human assistance. The fuel and the ignition sources for fires in the Reserve/RCNCA should be substantially reduced along during the growing season along with effective restoration of tortoise habitat. Without effective reduction of the fuel load from non-native invasive annual plants, burned acres will continue to outpace restored acres in the range of the tortoise in the Reserve/RCNCA in both area and time.

The number of tortoises that have been lost from these stressors is not available but the area of habitat within the Reserve/RCNCA is estimated to be more than 40 percent of Zone 3. Besides fires, the next largest single new threat to the tortoise in the Reserve is Red Hills Parkway. Its construction and use resulted in the loss of tortoise habitat from the project footprint, adverse impacts from the road effect zone, isolation of about 450 acres (7 percent) of the West Cottonwood AU and tortoises on its south side. These stressors contribute to the annual negative growth rate of 3.2 percent, loss of tortoise habitat, annual mortality in the Reserve/RCNCA, small size of the tortoise population in the Reserve/RCNCA.

Cumulative effects that may result from the accumulation of similar effects or the synergistic interaction of different effects, Tortoise numbers and densities have been declining in the Reserve/RCNCA since the Reserve boundary was establish (1996) and continues to decline after Congress designated the RCNCA in 2009. Adult tortoise densities in Zone 3 have declined from 86.5 per square mile (33.4 per square kilometer) in 1998 to 31.8 per square mile (12.3 per square kilometer) in 2019 ,and in Zones 2, 3, and 5 from 75.3 per square mile (29.1 per square kilometer) in 1999 to 44.5 per square mile (17.2 per square kilometer) in 2019. These number will likely decline substantially in the next population survey because of the loss of tortoises and tortoise habitat from the three large fires in the Reserve/NCA in summer and fall 2020. Previous fires in the Reserve resulted in such declines.

These data indicate that BLM's management of the Reserve/NCA has been ineffective with respect to protecting the Mojave desert tortoise and conserving, protecting, and enhancing the ecological and wildlife resources of the Red Cliffs NCA as directed in the Omnibus Public Land Management Act of 2009 (OPLMA). The proposed mitigation for the NCH would contribute little to the future management of the tortoise in the RCNCA and BLM would continue its current management of the NCA for the tortoise. With no substantial changes to improve management for the tortoise in the RCNCA, tortoise densities and numbers would likely continue to decline in the NCA.

The rate of population decline in the UVRRU has been greater than the rate used in the 1994 Recovery Plan to model the minimum numbers, densities, and reserve architecture needed to recover the tortoise. The ongoing negative growth rate is caused/contributed to by mortality from vehicle collisions with tortoises, increased predation, and mortality from fires. Indirect impacts from management of the Reserve/RCNCA include the road effect zone along the several roads that remain open in the Reserve/RCNCA, including noise affecting tortoise hearing and behavior, and reduced/no population connectivity from fenced roads with no effective under-road passages. Much tortoise habitat/critical habitat has been destroyed because of fire, and it will take several decades or longer to return to pre-fire conditions. However, with the uncontrolled presence of invasive non-native annual grasses, much of the tortoise habitat has re-burned and is being converted permanently to a non-native annual grassland that does not provide the nutritional needs of tortoises (Drake et al. 2016) or cover from predators and temperature extremes. The FEIS proposed little to change the trend of declining tortoise numbers and densities and loss, degeneration, and fragmentation of tortoise habitat in the Reserve/RCNCA. Consequently, it is reasonable to expect this negative trend in tortoise abundance and density to continue in the future.

To add to the stressors/threats to the tortoise that have resulted in substantial declines in densities and numbers in the Reserve/RCNCA and loss, fragmentation, and degeneration of tortoise habitat, BLM is proposing the placement of the NCH in the Reserve/RCNCA with permanent impacts to the tortoise/tortoise habitat in the Reserve/RCNCA. This would be the second highway allowed in the Reserve/RCNCA since the creation of the Reserve in 1996. The alignment would go through the highest remaining density of tortoises in the Reserve/RCNCA and adjacent areas with population densities that are moderately high. It would fragment this dense cluster of tortoises and create a permanent barrier that would fragment the population effectively isolating the tortoises and tortoise habitat south of the NCH.

The 1994 Recovery Plan said that Desert Wildlife Management Areas (DWMAs) should be roadless. The proposed mitigation to offset the impacts of the NCH in the Reserve/RCNCA is to "create" an additional area that is isolated from the Reserve; this is Zone 6. Zone 6 is much smaller than the Reserve/RCNCA (1 percent of the minimum size of a 100 square mile DWMA and 38 percent the size of the Reserve for the tortoise). It would be managed in a less intensive manner for the tortoise than the rest of the Reserve. It would be, managed under multiple use requirements of the Federal Land Policy Management Act (FLPMA) and not as a national conservation area, and with no assurance that the management would benefit the tortoise in perpetuity. Future management of Zone 6 could be changed by amending the RMP. Because of these limitations, it does not provide assurance that tortoises in Zone 6 would contribute to the survival and recovery of the tortoise for the long-term. Rather, it creates a situation that the 1994 Recovery Plan warned about, the creation of small, unconnected DWMAs that do not have a reserve level of management.

Creation of the Zone 6 does nothing to reverse the negative the trend of tortoise numbers and densities and to improve the habitat in the Reserve/RCNCA. Thus, these negative trends are expected to continue. The baseline condition for tortoises/tortoise habitat in the Reserve has declined substantially since 1996 and more so since 1994 when the City Creek one square mile permanent tortoise study plot was surveyed and resulted in an estimated tortoise density of 100.5 tortoises per square mile. The 1994 Recovery Plan stressed that "because this DWMA will not contain 1,000 square miles (640,000 acres) of contiguous desert tortoise habitat, "intensive

management, even after recovery, will be necessary to ensure a reasonable probability of long-term population persistence. In reviewing the data on tortoise demographics and changes in habitat quantity since the creation of the Reserve/RCNCA, it is apparent that the current management of the Reserve/RCNCA, absent the NCH, has not been effective in assuring the long-term survival and recovery of the tortoise in the Reserve/RCNCA. When the additional impacts of the NCH are added to the existing, ongoing threats to the NCA, the probability of long-term persistence of the tortoise in the NCH is further reduced. Although offsite mitigation, Zone 6, is proposed for the NCH, its isolation, small size, and lack of intensive or reserve management would not contribute to the long-term survival and recovery of the tortoise in the RCNCA or the UVRRU. Consequently, the mitigation is ineffective and the NCH should not be constructed in the Reserve/RCNCA. If the NCA, as the only location in the UVRRU that best fit the 1994 Recovery Plan requirements for a DWMA (i.e., population density, numbers, and reserve size and architecture), is not providing for the survival and recovery of the tortoise, it is unlikely that the desert tortoise will be able to survive and recover in the UVRRU. Each of the five recovery units of the Mojave desert tortoises is individually necessary to conserve the genetic, behavioral, morphological, and ecological diversity necessary for long-term sustainability of the listed entity (USFWS 2011), now the entire species. Thus, if the Mojave desert tortoise is unable to survive and recovery in one recovery unit, the tortoise as a species is prevented from achieving recovery.

We remind BLM that under FLPMA, BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." Approving an alternative that would result in the construction, use, and maintenance of a highway in the RCNCA with significant direct, indirect, and cumulative impacts to the tortoise/tortoise habitat when a viable alternative exists that is outside of the NCA is not taking any action necessary to prevent unnecessary or undue degradation the lands.

Zone 6 as Mitigation

BLM's proposed management of Zone 6 as mitigation land for the NCH in the Reserve/RCNCA does not address several problems/concerns. First, BLM only has management authority for about half the land in the proposed Zone 6. Most of the remaining land in Zone 6 is owned/managed by the State of Utah. Before BLM would be able to implement its proposed management of Zone 6, it would need to acquire the remainder of Zone 6. Between now and the time of acquisition there is no assurance that Zone 6 as described in the FEIS would have the same or better values for the survival and recovery of the tortoise/tortoise habitat in the future at the time of BLM acquisition as it does today. If Washington County proposes to manage Zone 6, it does not have management authority for the BLM land in Zone 6.

BLM's proposed management of Zone 6 is not consistent with the management of the Reserve/RCNCA lands for which it is mitigating. It is at reduced conservation level. BLM's management of Zone 6 is under the authority of FLPMA, not the Omnibus Public Land Management Act of 2009. Thus, BLM land in Zone 6 is managed for multiple use, not for the tortoise. BLM would allow land uses and activities in Zone 6 that are not allowed in the Red Cliffs Desert Reserve/RCNCA, along with land uses and activities in the Red Cliffs Desert Reserve, but with greater intensity. These included utility development, public access roads/ROWs, high density of recreation trails, competitive non-motorized recreation events (including spectator areas – parking and staging areas would occur just outside Zone 6 resulting in additional impacts

isolating the Zone 6 tortoise population), non-competitive motorized recreation events, modification of existing travel routes to meet user groups' needs, grazing, and mining for fluid minerals (BLM & USFWS 2020). In addition, unless BLM explicitly excludes an activity from an area in its RMP, it is allowed, with appropriate stipulations. Thus, BLM's proposed management of Zone 6 would allow more extrinsic sources of mortality to the tortoise than currently allowed in the NCA. We found no analysis of how this level of management would offset the impacts to the tortoise from the construction, use, and maintenance of the NCH.

There is no assurance that Zone 6 would be managed in perpetuity for the tortoise. The impacts from construction and use of the NCH – loss of tortoises, loss/degradation of tortoise habitat from numerous extrinsic sources of mortality, increased subsidies for ravens /increased tortoise predation, and fragmentation of the Red Cliffs Reserve/RCNCA population and habitat – these impacts are permanent and long-term because the NCH and its use are permanent. However, BLM's creation and management of Zone 6 as mitigation for these impacts is not guaranteed to be permanent. There is no assurance that Zone 6 will be managed permanently or "in perpetuity" for the tortoise. BLM can amend its RMP at any time to allow new and/or more intensive land uses/activities that have greater extrinsic sources of mortality for the tortoise. This likelihood is demonstrated by the current EA, in which BLM is proposing to amend the resource management plan to issue a ROW for construction, use, and of the NCH in an area previously identified and managed for the survival and recovery of the tortoise. In addition, the RCNCA has greater legal/regulatory protections afforded it because of the Omnibus Public Lands Management Act of 2009, whereas Zone 6 is managed under FLPMA. This established pattern of amending resource management plans (RMPs) to allow new and/or more intensive uses on BLM lands managed under FLPMA is demonstrated especially in the California Desert Conservation Area where BLM has amended its RMP to allow increased use of vehicles recreation in DWMAs/TCAs (BLM 2018) including in ACECs.

Habitat quality is not considered in the analysis of whether Zone 6 would fully offset the impacts of the NCH. About 640 acres or 10 percent of proposed Zone 6 is classified as ruderal scrub, ruderal shrub, or exotic annual grassland, with exotic species-dominated understory as well as exotic-dominated herbaceous stands (BLM & USFWS 2020). The quality of tortoise habitat lost from the construction, use, and maintenance of the NCH and fragmentation of habitat is not reported, but it is likely quite high. This is because the highest densities of tortoises in the entire Reserve/RCNCA are in the NCH alignment (BLM & USFWS 2020). The presence of an exotic species understory in Zone 6 indicates that with the allowed human uses, the likelihood of fire in Zone 6 is elevated and without management to remove this invasive non-native annual grassland and the increased human use, fire will occur. Thus, the likelihood of Zone 6 to retain its current value as tortoise habitat and a high-density tortoise population in the future is reduced.

Current management of Utah State lands portion of Zone 6 has numerous designated motorized routes (Figure 3). These routes form a net pattern covering much of the State land in the southern portion of Zone 6 with some routes continuing onto BLM land and through Zone 6. The density of designated motorized routes is lower on BLM land (BLM & USFWS 2020). The current density of designated motorized routes and their associated road effect zone indicates that there is little opportunity for tortoises to survive and recover in the southern and eastern portions of Zone 6. In addition, it is likely that there are additional motorized routes that the public has created and use

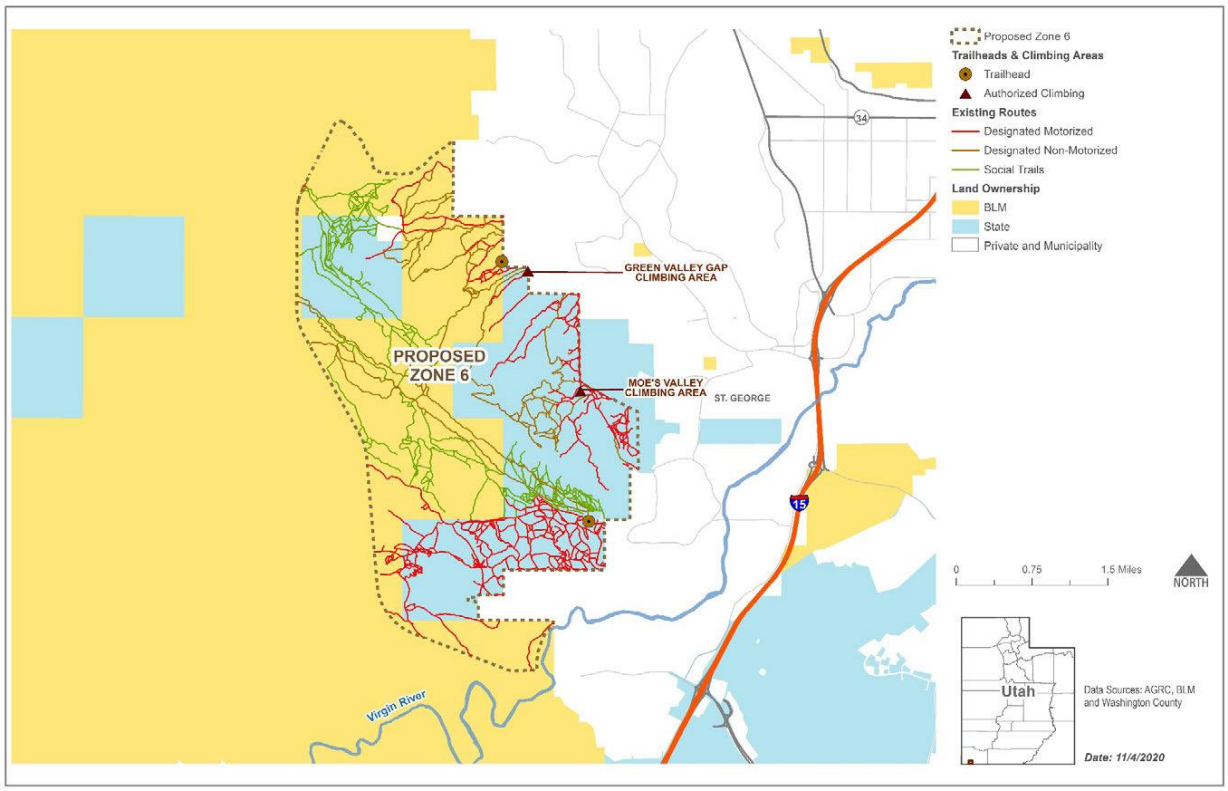


Figure 3. Recreation use and services in Zone 6. Designated motorized routes are shown in red, designated non-motorized routes in brown, and social trails in green.

that are not shown on this map because they are unauthorized routes. Consequently, the impacts from all motorized routes and their associated road effect zones is not provided and analyzed with respect to fully offsetting the value of the impacts of the NCH to tortoises/tortoise habitat. Please see our earlier comments on the maximum density of all road/routes in areas managed for tortoises reported by Averill-Murray and Allison (2023). The impacts from the use of these routes should be analyzed with respect to how they affect the survival and recovery of the tortoise in the Reserve/RCNCA. In addition, if most of the designated and all unauthorized motorized routes in Zone 6 were closed to vehicle use, there is no commitment to effectively enforce these closures and to restore this habitat or manage Zone 6 to eliminate the road effect zone for tortoise in the future.

There would likely be a temporal loss of mitigation. The intent of the acquisition of non-federal lands within proposed Zone 6 is to complete this acquisition "during the Amended ITP 25-year permit term." It could take from 1 to 25 years for acquisition of this mitigation land. According to the HCP Handbook (USFWS & NMFS 2016), "the HCP must provide a clear timeline for implementing the mitigation. The timing of implementing mitigation should prevent any lag time between the occurrence of the impacts of the taking and the realization of the mitigation benefits to offset the impacts." For example, the implementation of the mitigation for the loss of tortoise habitat should precede or occur concurrently with the fencing of the Project Site that removes access by tortoises to this habitat. Before construction of the NCH could be completed, the acquisition of non-federal lands within Zone 6 would need to be completed. This should also occur

under NEPA. Because the NEPA documents do not provide a clear time when this acquisition would be completed and BLM and Washington County have no control over the management of SITLA, private, and UDOT lands within Zone 6's boundary, there is no or limited assurance that these lands would be managed in a manner that contributes to the survival and recovery of the tortoise until BLM acquires them.

There is no commitment of funding for the management and enhancement of tortoise/tortoise habitat in perpetuity in Zone 6. Zone 6 would be managed under FLPMA. BLM's funding to manage Zone 6 for the tortoise is not guaranteed.

Washington County's funding for the management of Zone 6 is not guaranteed in perpetuity. The ITP has an expiration date and the funds coming in to the Washington County for tortoise management depend on fees paid for development. Thus, if development slows down, funding is reduced.

Because the proposed management of Zone 6 lacks these future management guarantees, Zone 6 provides, at best, only a short-term assurance of the tortoise's persistence in exchange for the permanent, long-term impacts from the Northern Corridor Highway to the tortoise and tortoise habitat. Because of its isolation, limited size, limited tortoise abundance, management for multiple use under FLPMA, and likely occurrence of fie because of this multiple use management, tortoises in Zone 6 will likely not survive long-term.

Compliance with Federal Statutes and Other Requirements
For the following statutes, we remind BLM that as they step down from federal statute to regulation to resource management plan, they should always refer to the statute to determine what is required, and not someone's interpretation of it in the resource management plan. Reliance solely on the RMP may result in a change in the purpose and intent of the implementing statute, thus potentially violating that statute.

Omnibus Public Lands Management Act: Section 1974 of the Omnibus Public Land Management Act of 2009 (Public Law 111-11; OPLMA) created the Red Cliffs National Conservation Area. This approximately 44,725 acres of public land is located in Washington County, Utah north of the city of St. George. In this legislation, Congress stated the purposes of section 1974 are to:

> "(1) to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and
> (2) to protect each species that is
>
> (A) located in the National Conservation Area; and
>
> (B) listed as a threatened or endangered species on the list of threatened species or the list of endangered species published under section 4(c)(1) of the Endangered Species Act of 1973." This would include the Mojave desert tortoise." This would include the Mojave desert tortoise.

Regarding the management of the RCNCA, Congress directed the Secretary of the Interior to "manage the National Conservation Area " in a manner that conserves, protects, and enhances the

resources of the National Conservation Area," and in accordance with the FLPMA and Management Act, the OPLMA of 2009, and any other applicable law (including regulations). "The Secretary shall only allow uses of the National Conservation Area that the Secretary determines would further a purpose described under the Purposes section.

Section 1977 of the OPLMA Congress directed the Secretary of the Interior to prepare a Washington County Comprehensive Travel And Transportation Management Plan by 2012. This completed Comprehensive Plan would be prepared in accordance with the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) and other applicable laws (including regulations), the Secretary, in consultation with appropriate Federal agencies and State, tribal, and local governmental entities, and after an opportunity for public comment, shall develop a comprehensive travel management plan for the land managed by the Bureau of Land Management. One of the purposes of the travel management plan is to help reduce in the County growing conflicts arising from interactions between (i) motorized recreation; and (ii) the important resource values of public land. In developing the travel management plan, the Secretary shall in consultation with appropriate Federal agencies, State, tribal, and local governmental entities (including the County and St. George City, Utah), and the public, identify 1 or more alternatives for a northern transportation route in the County.

To comply with the OPLMA of 2009, BLM must comply with sections 1974 and 1977. It identified several alternatives for a northern transportation route in Washington County with one alternative avoiding the NCA. This should be the alternative selected. Approval of a ROW that allows for the construction, use, and maintenance of a highway in the NCA would substantially impact the survival and recovery of the Mojave desert tortoise and would not conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, wildlife, and natural resources of this NCA.

In addition, please see the Council's comments in our July 2024 letter (attached) regarding pages 66 and 67 of the Supplemental Draft Environmental Impact Statement (SDEIS).

Federal and Policy and Management Act

As stated earlier, FLPMA directs BLM to manage public lands that consider the long-term needs of future generations for renewable and non-renewable resources, and to take any action necessary to prevent unnecessary or undue degradation of the lands. Our comments on the status of the tortoise in the RCNCA demonstrate that BLM is not complying with this mandate with respect to managing for the survival and recovery of the tortoise and needed tortoise habitat for current and future generations of Americans, especially in the RCNCA which is a TCA and an NCA. Approval of a ROW that allows for the construction, use, and maintenance of a highway in the NCA would substantially impact the survival and recovery of the Mojave desert tortoise and would not demonstrate that BLM is taking any action necessary to prevent unnecessary or undue degradation of the lands.

Please explain in the NEPA document how BLM is complying with FLPMA with the selection of the NCH alignment through the RCNCA.

Federal Endangered Species Act
In addition to complying with section 7(b)(4)(B) of the FESA, Section 7(a)(1) of the Endangered Species Act states that all federal agencies "…shall… utilize their authorities in furtherance of the

purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act." The purposes of FESA are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species." In Section 3 of the FESA, "conserve," "conserving," and "conservation" mean "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition…"

We do not believe that in the NEPA and BA documents, BLM analyzed the impacts/effects to the tortoise/tortoise habitat from the implementation of the NCH along with existing impacts. We do not believe BLM used scientifically supported information to show that the implementation of the mitigation proposed in the RCNCA for the NCH would provide for the conservation of the tortoise and the ecosystem upon which it depends in the UVRRU.

Special Status Species Management – Manual 6840
After reviewing the EA, it appears that it would not comply with BLM's Special Status Species Management – Manual 6840 (BLM 2024). This policy establishes an agency-wide emphasis on proactive, landscape- and ecosystem-level, scientifically informed conservation and recovery of special status species and their habitats. It directs BLM to incorporate proactive recovery efforts into proposed actions; promote healthy species populations and biodiversity through landscape- and ecosystem-level management; and use science and adaptive management to advance conservation and recovery. When a viable alternative is available that would avoid the RCNCA, it appears that BLM is purposely selecting an alternative that UDOT wants but would likely have a devastating impact on the tortoise population in the RCNCA and from which the population may likely never recover, especially when combined with the other ongoing impacts to the tortoise in the RCNCA (e.g., small population size, density of roads, habitat fragmentation, road mortality, subsidized raven predation, invasive plant species, drought, fire, and climate change to name a few).

We request that BLM describe the proactive conservation efforts it is requiring of UDOT to contribute to the recovery of the tortoise, in addition to the mitigation BLM is requiring to replace the loss of tortoise habitat, including the temporal loss of habitat, demonstrate how it is promoting healthy populations of tortoises in the RCNCA and Upper Virgin River Recovery Unit, and using science to advance the conservation and recovery of the tortoise in this recovery unit. From the data presented in the BA, BLM has demonstrated that the tortoise population in the RCNCA continues to decline (in 1998 = 33.3 adults/km^2; in 2023 = 17.5 adults/km^2) with recent information from UDWR that the annualized mortality of adult tortoise in 2025 was 26 percent (McLuckie et al. 2025) indicating further declines.

Comments on EIS and SEIS for the Northern Corridor Highway

In addition to the comments presented above, we are including the Council's earlier comment letters/information regarding the NCH:

(1) "Comments on the Draft Environmental Impact Statement and Draft Habitat Conservation Plan Amendments addressing actions related to the Northern Corridor Highway in Washington County, Utah," September 2020;

(2) "Scoping Comments on the Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah," December 2023, thar include comments on the Final EIS; and

(3) comments on the "Draft Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah; Construction Costs Assumptions; and Traffic Analysis," July 2024.

We are including these comment letters as attachments because these earlier comments remain relevant to the tortoise/tortoise habitat for the NCH EA.

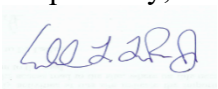
In addition, we found no information in the EA on the substantial mortality to the tortoise population in the RCNCA 2025 reported by UDWR. This omission and the lack of analysis on its impact, combined with the potential impacts of the NCH and the ongoing impacts to the tortoise from other sources, some of which are mentioned in this comment letter, is a serious omission in BLM's NEPA document. This new information and analysis should have been included and likely as a supplemental EIS because of its significance on the survival and recovery of the tortoise in the RCNCA.

Regarding the cost analysis of the proposed project, please include the cost of all monitoring, maintenance, and mitigation for the tortoise and other special status species. This would include acquisition, mitigation, management, maintenance, and monitoring costs for Zone 6 and the NCH for the direct, indirect, and cumulative impacts to the tortoise and other special status species.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM that may affect desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you notify the Council at eac@deserttortoise.org of any proposed projects that BLM may authorize, fund, or carry out in the range of *any* species of desert tortoise in the southwestern United States (i.e., *Gopherus agassizii*, *G. morafkai*, *G. berlandieri*, *G. flavomarginatus*) so we may comment on them to ensure that BLM fully considers and implements actions to conserve these tortoises as part of its directive to conserve biodiversity on lands managed by the BLM.

Please respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this Project.

Respectfully,



Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

Attachments:

- Comments on the Draft Environmental Impact Statement and Draft Habitat Conservation Plan Amendments addressing actions related to the Northern Corridor Highway in Washington County, Utah, September 2020
- Scoping Comments on the Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah, December 2023
- Draft Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah; Construction Costs Assumptions; and Traffic Analysis," dated July 2024.
- Appendix C – Mojave Desert Tortoises in the Red Cliffs NCA and Upper Virgin River Recovery Unit: Population Trends, Threats to Persistence, and Conservation Significance

Cc: George Weekley, Field Supervisor, Utah Ecological Services Field Office, U.S. Fish and Wildlife Service, West Valley Circle, UT; george_weekley@fws.gov; https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=utahfieldoffice_esa@fws.gov

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Comments on the Draft Environmental Impact Statement and Draft Habitat Conservation Plan Amendments addressing actions related to the Northern Corridor Highway in Washington County, Utah, September 2020

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Via email only

8 September 2020

Bureau of Land Management
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BLM_UT_NorthernCorridor@blm.gov

U.S. Fish and Wildlife Service
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RE: Comments on the Draft Environmental Impact Statement and Draft Habitat Conservation Plan Amendments addressing actions related to the Northern Corridor Highway in Washington County, Utah

Dear Bureau of Land Management and U.S. Fish and Wildlife Service,

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Please understand that these first six pages serve to summarize a myriad of concerns that we have. This is a cover letter prefacing a set of tables and attachments where 255 of our substantive comments are documented. We fully expect that the agencies will address each of our comments, and in many places, correct deficiencies and errors that we have identified in the Draft Environmental Impact Statement (Draft EIS) and May 2020 Amended Habitat Conservation Plan (Amended HCP). We have rigorously avoided questions and statements that warrant a response of "comment noted" from the agencies. With a very few exceptions (see Comment 23), we have asked questions that require substantive answers from the agencies and subsequent modifications to the documents.

We have used a consistent approach in our tabulated comments (and Attachment C) including use of colored fonts that will help the agencies understand our concerns and facilitate substantive responses. As an approach, we have cut-and-pasted specific wording from the referenced documents into numbered comments (e.g., Comment 1 through 255) and indicated from which document and portion thereof the text is extracted. Each of the 255 comments is prefaced by "Text," shown in red, and immediately followed by our "Comment," shown in regular font. It is within our regular-font "Comment" text that we have identified specific issues and questions that we expect to be addressed as changes in the Final EIS and newly-revised HCP. Additional instructions as they relate to the tables appear on page 7, with the preface "Dear Agency Reviewers."

By no means an exhaustive list of our concerns (the tabulated comments are intended to document those), a few of our programmatic concerns follow.

1. The DEIS (see Attachment A for a list of acronyms used in our letter) has failed to substantiate or demonstrate a clear nexus between Washington County pursuing the HCP/ITP and UDOT's proposal for the Northern Corridor. The ITP has functioned for 24 years, between 1996 and 2020, and only provisionally since 2016. Since the USFWS would issue the 10a permit, not the BLM, the documents have failed to convince us that the BLM's No Action Alternative (a NEPA requirement) necessarily precludes USFWS from issuing the ITP (a FESA requirement).

2. The trigger to revise the HCP and reissue the ITP is the 2016 expiration date, not UDOT's desire to develop the Northern Corridor. In the absence of UDOT's proposal, the HCP could have been revised and the ITP reissued in response to the expiration date, and 66,301 acres of occupied and potential tortoise habitats could have been identified as available for development. Linking the reissuance of the ITP to the Northern Corridor is contrived to create a fatally flawed relationship between two unrelated actions, where ostensibly one action cannot occur but for the other, which is neither explained nor clearly supported in the DEIS' analyses.

3. The Council does not recognize Alternatives 2 (T-Bone), 3 (UDOT's original Northern Corridor), or 4 (Southern Alignment) as being substantially different, as all three "alternatives" violate the precept of the original HCP, Omnibus Public Land Management Act of 2009, and other agreements predicated on protecting the Red Cliffs Desert Reserve in exchange for developing tortoise habitats since 1996. Those agreements still require that the Reserve be managed in perpetuity, which would be violated by constructing the new freeway.

4. There is no way to reverse the development that has been authorized throughout Washington County since 1996, so conservation of the Reserve cannot now be compromised by allowing development of the Northern Corridor. The 22,822 acres of tortoise habitats developed since 1996 have been offset by the conservation of the Red Cliffs Desert Reserve, and more than 500 tortoises (excluding those that were tested positive for Upper Respiratory Tract Disease, which were not translocated) have been displaced in exchange for protecting tortoises within the Reserve. To now undermine that protection by running a freeway through the densest tortoise concentrations in the Reserve is a violation of the 1996 permit's function, which was to provide for conservation and recovery *in perpetuity*.

5. The Council asserts that what Washington County is calling "necessary development" should be matched by "necessary conservation" of the Reserve. Since 1996, the County has developed tortoise habitats on the promise of conservation management within the Reserve, which has been compromised by stochastic events like fire and by uncontrollable impacts like raven predation, weed proliferation, crushing tortoises along roads within the Reserve, and tortoise poaching that persist in spite of management under the 1995 HCP. We do not accept the Northern Corridor as a valid Changed Circumstance, which we construe to be factors or events that are outside the control of the Applicants. Recent fires are a good example of a Changed Circumstance, not a new freeway that can be avoided.

6. Since the 46,098 acres of critical habitat within the boundaries of the Red Cliffs NCA are deemed to be too small to promote population viability (page 3-48 of the DEIS), we assert that the addition of 6,760 acres of ostensibly occupied tortoise habitat within Zone 6, which is neither critical habitat nor contiguous to the Reserve or NCA, cannot be considered a realistic mitigation to offset the avoidable impact of bisecting the existing Reserve with the Northern Corridor. Since the BLM, USFWS, and HCP Partners are obligated to perform analyses and base prudent management decisions on the results, only increased conservation management within the Red Cliffs Desert Reserve without the new freeway is warranted. By disabling the UVRRU as a functional recovery unit, the Northern Corridor will preclude recovery across the range.

7. As proposed, Zone 6 is inadequate as mitigation for the incidental take of the tortoise and development of tortoise habitat, for the following reasons.

- Zone 6 is isolated from the actual Reserve. We found no management actions in the HCP that would provide an adequate corridor to connect and maintain this connection for the tortoise between Zone 6 and the actual Reserve.
- Because of its apparent isolation from other known areas of desert tortoises and occupied tortoise habitat, it is too small to assure the long-term persistence of its isolated tortoise population from genetic, environment, and/or stochastic events, as human-caused climate change is exacerbating environmental stochastic events such as extreme or prolonged drought and increased frequency and size of fire.
- Zone 6 has no data on the status of the tortoise throughout its boundaries or data on tortoise trend. Because tortoises are not uniform in distribution, we do not know if the sampling methods used to determine tortoise densities were statistically robust to accurately determined tortoise density throughout all lands within Zone 6.
- We found no commitment of funding for the management and enhancement of tortoise habitat in perpetuity.
- We understand there are plans for a highway (e.g., "Western Corridor") to be built through or immediately adjacent to Zone 6, which will impair its function.
- Management activities that would be allowed in Zone 6 include many that are not allowed in the Reserve and are not compatible with the long-term survival of the tortoise.
- Local, regional, and rangewide losses of tortoises throughout the listed population, the past and recent impacts of fire, and the failure of the 1995 HCP to maintain stable, much less increasing tortoise populations within the Red Cliffs Desert Reserve, all warrant that the **entire** Red Bluffs ACEC be identified as part of Zone 6, even without development of the Northern Corridor through the Red Cliffs Desert Reserve.

If the above concerns are sufficiently addressed in the 2020 HCP and Implementation Agreement, Zone 6 could be considered as part of an overall conservation plan for the Applicant's requested

incidental take of 66,301 acres of occupied and potential tortoise habitat, but not a mitigation measure to offset impacts of a new freeway through the primary Reserve.

8. Estimated tortoise densities have declined substantially in the Reserve from 1999 (Zone 3 = 33.4 tortoises per km^2; Zones 2, 3, and 5 = 29.1 tortoises per km^2) to 2019 (Zone 3 = 12.3 per km^2; Zones 2, 3, and 5 = 17.2 per km ^{2}) (this and other references appear in the tables). If the long-term declining trend of tortoise densities continues, the density will be below the amount needed for viability of 3.9 adults per km^2. Populations of Mojave desert tortoises with adult densities below this number are in danger of extinction. The amended HCP must address these declines rather than serve as a vehicle to promote the Northern Corridor.

9. We are particularly concerned that none of the environmental documents disclose that the foreseeable "Western Corridor" would bisect the Red Bluffs ACEC and border the western boundary of the proposed Zone 6 satellite reserve. Whereas, the environmental documents laud the "improved conservation status" and "beneficial management actions" in the new Zone 6 management area, they fail to identify the direct and indirect effects that would result from the planned-for Western Corridor. In planning for the Western Corridor, the agencies and HCP Partners have intentionally excluded the western half of the Red Bluffs ACEC from the Zone 6 satellite reserve to accommodate another new freeway, which is not even mentioned in the cumulative effects analysis. We are also concerned that if only the eastern half of the Red Bluffs ACEC is protected in reserve status, the excluded western half of the ACEC will be adversely impacted by human activities displaced from the newly-designated satellite reserve.

10. Recurring, ubiquitous wildfires, persisting raven predation on tortoises, proliferation of weed species, documented poaching of tortoises, the injury and death of 146 tortoises crushed on existing roads inside the Reserve, the stockpiling of plan fees documented at more than seven million dollars when needed conservation activities have remained unfunded, and now active planning for the Northern Corridor are evidence that the 1995 HCP is not functioning as intended. We contend that a 41% decline in tortoises in the Reserve since 1995 is evidence that the HCP is not functioning as intended, and in fact, needs to be bolstered without accommodating the Northern Corridor.

11. The 2020 draft Implementation Agreement for the Amended HCP says, "The regional, cooperative conservation goals were incorporated into the 1995 HCP and it was designed to promote recovery of the MDT in the Upper Virgin River Recovery Unit and meet substantially the applicable recommendations of the Desert Tortoise (Mojave Population) Recovery Plan published by the Service in 1994." Because these conservation goals were not met under the 1995 HCP, we request the 2020 HCP conservation program, which is mostly a continuation of the 1995 HCP, be substantially revised to implement a conservation program for the tortoise that uses the best available science throughout the requested 25-year Permit Term. The conservation program should have goals of substantially increasing tortoise numbers and densities above the current level for the Reserve and other areas in the UVRRU; increasing the quantity, quality, and connectivity of tortoise habitat across the Reserve, tortoise habitat outside the Reserve, tortoise habitat outside the permit area, and habitat that connects to the to the Beaver Dam Slope Recovery Unit; and provide assurances of this management in perpetuity.

12. In the 2020 HCP, the habitat that the Applicant has mapped as potential tortoise habitat is much larger than the areas mapped in the 1995 HCP and authorized by the 1996 ITP. The Applicant is

requesting additional take of 66,301 acres of occupied and potential tortoise habitat as a surrogate for take of tortoises. In the 1996 ITP, the Applicant was authorized to conduct Covered Activities on 24,096 acres. The request for an amended and renewed HCP in 2020 triggers the requirements of the USFWS' Five Point Policy, No Surprises Rule, and the HCP Handbook in addition to the requirements of the Endangered Species Act (ESA) for issuance of an incidental take permit. For issuance of a new or renewed incidental take permit, the ESA requires, among other things, the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; the applicant will ensure that adequate funding for the plan will be provided; and the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild. As given in many of our comments, the Council does not believe that the 2020 HCP satisfies the above requirements.

13. Management of the Red Cliffs Desert Reserve must be required *in perpetuity* in the absence of a new freeway because the impacts of the taking of the tortoise since 1996, primarily from development and related infrastructure, are permanent, ongoing, and affect an area greater than the footprint of these projects. In addition, in its 1996 biological opinion the USFWS stated the "Mitigation measures proposed to offset effects of the [1995 HCP's] proposed action….including conservation and management of approximately 38,753 acres of desert tortoise habitat in perpetuity or for as long as it is required under the [Endangered Species] Act." These goals should have corresponding objectives and conservation actions, a schedule for implementation, and guaranteed funding in the 2020 HCP, which as currently written, are not adequately documented.

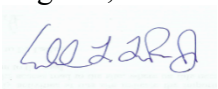
14. Given the budget presented in Section 8.1.1, Table 20 of the Amended HCP, the County is committing to pay $27,680,957 over the next 25 years to implement the plan. In response to UDOT's proposed freeway (or variation thereof), the County will pay $16,171,151 (60% of the total cost) to accommodate the freeway compared to $11,171,592 (40% of the total cost) to implement the plan without the freeway. And, this is only a fraction of the freeway-related costs, as it does not consider BLM and state agency expenditures that would not occur but for the freeway. In light of these observations, the Amended HCP seems more like a 16.2 million dollar mitigation package to accommodate UDOT's project than a proactive plan intended to recover tortoises.

15. Finally, we are dismayed to read the proponent-biased rhetoric given at the top of page 127 of the Amended HCP that "a deal is a deal," which clearly favors the HCP Partner beneficiaries at the expense of tortoise conservation and recovery in the Red Cliffs Desert Reserve, which does not seem to any longer be part of the "deal." That such a statement appears in this Amended HCP is evidence that the authors have not fully considered the significant ramifications of violating agreements pertaining to the 1995 HCP and its 1996 ITP by facilitating freeway development as part of the 2020 revised HCP.

Again, the general comments given above only summarize some of the categorical concerns we have, which are addressed in statement-specific comments in the tables that follow. We appreciate this opportunity to provide input and trust that our comments will help protect tortoises during any authorized project activities. Herein, we ask that the Desert Tortoise Council continue to be

identified as an Affected Interest for this and all other BLM projects that may affect species of desert tortoises, and that any subsequent environmental documentation for this particular project is provided to us at the contact information listed above. *Please acknowledge receipt of this cover letter and table of issues to me at eac@deserttortoise.org.*

Regards,



Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

Dear Agency Reviewer,

In the following table, please be aware that the text referenced in the cited sections in the left-hand columns has been cut-and-pasted into the right-hand part of the table, is prefaced by the word, "**Text**," is shown in "parentheses," and in red font. Our comments, **which we expect to be addressed**, follow each statement in regular font, prefaced by bold-font "**Comment**:" In the cut-and-pasted text where we use bold font, we indicate that the bold emphasis has been added to focus the reviewer on a particular phrase or clause. Please note a number of places where our comments appear in *blue-font italics*, which are intended to inform the agencies of specific issues that we identified in our scoping comments of 1/6/2020 (Desert Tortoise Council 2020) for analysis, which have not been addressed in current documents, and therefore render the DEIS deficient in its analyses of these issues. We still expect the comments and issued to be addressed in the Final EIS.

There are also five Attachments that accompany these tables, as follow:
Attachment A – List of Acronyms used in our tables, which we deemed necessary given the various documents referenced

Attachment B – McLuckie et al. 2020, which shows persisting declines of tortoises throughout the Plan Area by year between 1998 and 2019

Attachment C – Additional Council comments on the May 2020 Amended Habitat Conservation Plan for Washington County, Utah and associated Implementation Agreement

Attachment D – Status of the Mojave Desert Tortoise (*Gopherus agassizii*)

Attachment E - Abella S.R. and K.H. Berry. 2016. Enhancing and restoring habitat for the desert tortoise (*Gopherus agassizii*). Journal of Fish and Wildlife Management 7(1):xx–xx; e1944-687X. doi: 10.3996/052015-JFWM-046.

September 2020 Tabulated Comments by Desert Tortoise Council

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
General Comments Not Affiliated with a Given Section in the Documents					
1	NA	NA	NA	NA	**Comment**: The Council does not understand, recognize, or support the need to link the development of the Northern Corridor to the reissuance of the 10a permit. In our estimation, these are separate actions; the 10a permit could very well be reissued without constructing the new freeway, and by linking these two separate actions together, BLM, USFWS, and other involved agencies are promoting a fatally-flawed, Catch-22 scenario that constrains the alternatives analysis and predetermines development of the freeway through the Red Cliffs Desert Reserve. The Council asserts that the No Action Alternative could simultaneously result in denial of UDOT's application AND result in reissuance of the 10a permit; that though interrelated, these are not mutually exclusive actions as stated in the DEIS (page 2-11 of Vol 2 of the DEIS), and that they should be reconsidered in the Final EIS as two separate actions. In this scenario, the UDOT request would be denied but the 10a permit could be reissued; shackling the two separate projects together seems like a scheme rather than a necessity.
2	NA	NA	NA	NA	**Comment**: The Council does not recognize Alternatives 2 (T-Bone), 3 (UDOT's original Northern Corridor), or 4 (Southern Alignment) as being substantially different, as all three "alternatives" violate the precept of the original HCP, Omnibus Public Land Management Act of 2009, and other agreements predicated on protection of the Red Cliffs Desert Reserve in exchange for developing tortoise habitats since 1996. We believe that these three alternatives are fatally flawed as each one violates the conservation agreement established in 1996 resulting in issuance of the original ITP. Given the tortoise declines throughout the range since 2003 (Allison and McLuckie 2018; in 2003 in response to drought and in 2005 in response to wildfire) and documented impacts within the Reserve (including the Turkey Farm Road Fire and Cottonwood Trail fire in July 2020), not only should the Northern Corridor not be developed in the Reserve, we believe that Zone 6 should still be established as a satellite reserve and that it include *all* of the Red Bluffs ACEC, not just the eastern half, to accomplish the conservation balance that has not resulted since implementation of the 1995 HCP.

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
3	NA	NA	NA	NA	**Comment**: Whereas the emphasis of the three actions (UDOT proposal, HCP/ITP, and RMP amendments) is ostensibly forward-looking for future development and conservation, the analyses fail to acknowledge that management of the Red Cliffs Desert Reserve, intact, has resulted from 24 years (1996 through 2020) of ITP function, which is now being undermined and negated by developing the Northern Corridor in the very area the 1995 HCP was designed to protect. There is no way to reverse the development that has been authorized throughout Washington County since 1996, so how can conservation of the Reserve now be compromised by allowing development of the Northern Corridor? The 22,822 acres of tortoise habitats developed since 1996 have been offset by the conservation of the Red Cliffs Desert Reserve, and more than 500 tortoises (excluding those that were tested positive for Upper Respiratory Tract Disease, which were not translocated) have been displaced in exchange for protecting tortoises within the Reserve. Therefore, any development of a freeway through the Reserve violates this existing agreement, and cannot be mitigated by creating a noncontiguous, satellite reserve in Zone 6. *Please note on page 14 of our scoping comments (Desert Tortoise Council 2020), we specifically asked that "After revealing these statistics* [i.e., that 257 tortoises were displaced since 1996, which we have since learned is more than 500 animals]*, please show a frequency distribution of the numbers of tortoises taken and the numbers of acres developed on a yearly basis, beginning in 1996 and extending to 2019." The DEIS has failed to provide this information, is deficient in this respect, which must be resolved in the Final EIS.*
4	NA	NA	NA	NA	**Comment**: Development under the 1995 HCP and 1996 ITP is permanent. The mitigation for the development must also be permanent unless there is a compelling biological reason to alter it. If not, then any time a permit expires the permit conditions and mitigation can be altered. The mitigation should include adequate funding to manage the mitigation lands *in perpetuity*. As we have seen from 1996 to 2020, this has not occurred under the Washington County HCP/ITP. Human-caused fires and tortoises killed on roadways are just a few of the losses of tortoises and habitat because of inadequate management of the Reserve.
5	NA	NA	NA	NA	**Comment**: We were unable to find a table or other data that show the acreages of private versus BLM lands within the Reserve that would be affected by the three action alternatives. In our review of the maps in Appendix B, Map 3.13-2 is the first one with sufficient resolution to clearly show the extent of private versus public lands affected by the Northern Corridor alternatives 2, 3, and 4. We ask that Map 1.1-2 be added to the front of Appendix B that has similar or even greater resolution to the Visual Resource Management maps starting with Map 3.13 showing the four

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
					alternatives bisecting the Reserve relative to land ownership. It appears that as much as a quarter or a third of each alternative will occur on private lands with the balance on State and BLM lands. These acreages should be tabulated. It is also not clear anywhere in the DEIS how Northern Corridor development within the Reserve will or will not result in growth-inducing development of private lands within the Reserve, which we ask be discussed in the Final EIS.
6	NA	NA	NA	NA	**Comment**: Throughout the 2020 HCP, data are provided on numbers of tortoises, densities of tortoises, and areas of habitat. These data cross back and forth between data available in 1995 and 1996 from the HCP, NEPA document, biological opinion, ITP, and recent data presented in 2020. The 1995 and 1996 data are for total number of tortoises and English measurements are used. The more recent data are for adult tortoises only and metric measurements are used. Please present data in both English and metric measurements in the HCP to support comparison of the data, and state when the number of tortoises presented is for all size classes of tortoise or only adults. Without this information, it is impossible to compare changes between 1995 and 2020.
Draft EIS, Volume 1: Executive Summary					
7	1	Cover page	NA	NA	**Text**: "Because the issuance of a right-of-way would not be in conformance with the existing Red Cliffs NCA RMP, the BLM is also considering potential amendments to the Red Cliffs NCA RMP necessary to approve the right-of-way." **Comment**: The Council asks that the Final EIS supplement the information in the DEIS by listing previous decisions in those portions of Utah occupied by tortoises where BLM RMPs have been modified to avoid noncompliance. The purpose of this request is to analyze what seems to be an ill-advised precedent; i.e., if a controversial project such as the Northern Corridor is not in compliance with an RMP, how often has BLM modified its RMPs to facilitate compliance? Specifically, *but for* the Northern Corridor, would there be the need to revise the two RMPs?
8	ES-1	ES.1	NA	NA	**Text**: "The Utah Department of Transportation (UDOT) applied to the Bureau of Land Management (BLM) for a right-of-way (ROW) grant on September 18, 2018, to construct a multi-lane, divided highway (referred to as the Northern Corridor) across the Red Cliffs National Conservation Area (NCA)." **Comment**: Where does the DEIS outline the previous failed attempts to construct the Northern Corridor? Which entities have previously recommended or promoted its construction? Having failed in all previous attempts, this latest attempt

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					involving UDOT seems like one last, new attempt to construct a freeway that has been rejected in every previous attempt. In the appropriate amended section of the Final EIS, we ask that the previous attempts be documented including responses of the BLM and USFWS, in particular, which have (until now) always opposed a Northern Corridor through the Reserve. *We note that we specifically asked at the top of page 13 in our scoping comments (Desert Tortoise Council 2020) that the history of failed attempts to construct the Northern Corridor through the Reserve be documented in the DEIS. Failure to do so renders this DEIS deficient.*
9	ES-2	ES.1	NA	NA	**Text**: "As a result of the ITP and protective management of the Reserve's land base by the respective land managing agencies, **necessary development** has been able to occur in tortoise habitat on non-Federal lands in the County" (**emphasis added**). **Comment**: The Council asserts that "necessary development" should be matched by "necessary conservation" of the Reserve. Since 1996, the County has developed tortoise habitats on the promise of conservation management within the Reserve, which has been compromised by stochastic events like fire and by uncontrollable impacts like raven predation, weed proliferation, and tortoise poaching that are uncurbed by USFWS, BLM, or Washington County management. Now, what should be controllable (i.e., denial of UDOT's proposed freeway through the Reserve) is being promoted.
10	ES-2	ES.1	NA	NA	**Text**: "The ROW application is designed to address the growing [human] population and transportation needs in Washington County." **Comment**: The Council offers the following statement as being equally important to renewing the RMP, reissuing the HCP, and denying all action alternatives that bisect the Reserve: "The ROW application is being denied to address, in part, the declining populations of desert tortoises within the Reserve, recent habitat impacts that have undermined the quality of habitat, and persisting inability of the Reserve to provide conservation that is commiserate with the anticipated take level."
Draft EIS, Volume 2: Chapters 1 through 4					
11	2-9	2.3	NA	2.3-1	**Text**: "Open to aboveground and buried utilities."

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					Comment: This phrase pertains to Red Cliffs NCA RMP Amendment Alternative C. For the record, the Council opposes any measures that would facilitate any more development within the Reserve that would not happen *but for* the Northern Corridor. Would this allow for construction of utility poles along the freeway? If so, our concern is that these poles could be used for raven nests, which could be removed, but that they may also be used to facilitate raven perching that leads to increased predation, which would be more difficult to control (than nests). If utility poles are installed, new raven nesting and perching opportunities should be avoided.
12	2-11	2.4.1	NA	NA	**Text**: "Under this [No Action] alternative, the USFWS would not reissue an ITP to Washington County authorizing the take of Mojave desert tortoise subject to the conservation measures in the Amended HCP, and the ITP issued based on the 1995 HCP would expire." **Comment**: The DEIS fails to support this statement. The Council asserts that the revised HCP and reissued 10a permit can both be pursued under the No Action Alternative, which is a federal requirement of the BLM not a federal requirement under Section 10(a)(1)(B) of FESA. Although there is obvious BLM involvement in the Reserve, revising the HCP and reissuing the 10a permit are actions that can be pursued by Washington County in the absence of the UDOT freeway alternative. Linking these separate actions together unnecessarily federalizes the 10a permit process, which is a nonfederal approach to authorized take concomitant with conservation. Whereas establishing the Zone 6 satellite reserve is a compromise that shackles the reissuance of the ITP to BLM management, the No Action alternative does not prohibit the reissuance of the ITP, as the DEIS asserts.
13	2-13	2.4.2.2	NA	NA	**Text**: "The Permit Area contains approximately 1,372,742 acres, or 88 percent, of Washington County; [this is] equivalent to the direct loss of up to 14,466 acres of occupied Mojave desert tortoise habitat and 51,835 acres of potential Mojave desert tortoise habitat within the Permit Area; These combined 66,301 acres represent the extent of Mojave desert tortoise habitat occurring within the Permit Area, outside of the Reserve boundary, on lands that are not under Federal or Tribal management at the time the Amended HCP was prepared; [and] Within the Reserve, the amount of Mojave desert tortoise habitat within the Reserve that may be permanently lost to Covered Activities will not exceed 200 acres over the duration of the ITP Term." **Comment**: The Council is concerned that these are the authorized impacts based on the perceived promise of conservation in the Reserve. That the Northern Corridor is now being proposed inside the Reserve that was promised

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					to be conserved in 1995 violates the premise of the 1996 ITP, which at the time of this writing is still in effect. Additional impacts would be guaranteed under 10a permit reissuance, but conservation is only being promised; that there is evidence that these promises can be subsequently compromised, undermines the faith that these agreements will be binding and irreversible during or upon completion of the 25-year term of the reissued ITP.
14	2-13	2.4.2.2	NA	NA	**Text**: "Within the Reserve, the amount of Mojave desert tortoise habitat within the Reserve that may be permanently lost to Covered Activities will not exceed 200 acres over the duration of the ITP Term." **Comment**: Presumably, the BLM and USFWS biologists know that referring to 200 acres of permanently lost habitat reveals a fraction of the actual impacts; there are also predictable indirect impacts that will result [e.g., dust deposition out to 1 km from ROWs within the Reserve (page 3-11 in Vol 2)]. In fact, the "heat maps" included in the public meeting handout provided by BLM show "habitat fragmentation areas" that substantially affect what appears to be half of the entire Reserve. We note the following statement on page 3-56 of Volume 2 "The area for long-term effects because of fragmentation by the road is variable and extends from each road alternative to the southern boundary of the Reserve." It is our assertion that it is not ONLY the loss of 200 acres from the Reserve, per se, that is unacceptable, but the long-term, fragmenting indirect effects of the freeway alternatives through the Reserve that are contrary to conservation and recovery of the tortoise, which should be the main function of the Reserve.
15	2-18 2-19	2.4.2.6	NA	NA	**Text**: "The funding would be enough to acquire three times the acreage of land within the proposed Northern Corridor." **Comment**: As calculated below in Comment 232, we note that when the five variables are inserted in the DTMOG compensation formula, the multiplying factor equals 5.5, not 3, as implied by the above statement. We believe that development of any form of the Northern Corridor within the Reserve violates the mitigation of impacts of the HCP authorized over the past 24 years; that, after the development of 22,822 acres of tortoise habitats since 1996, proponents cannot now bisect the Reserve, which has functioned to offset those impacts. Even so, why have the HCP Partners opted to reference the DTMOG formula as if it has been used, then adopted a multiplying factor of 3, when it should be 5.5 according to the formula? Again, we believe this minimal-effort mentality may be one of the reasons HCP fees are being stockpiled rather than conscientiously spent to facilitate conservation within the Reserve.
16	2-18 2-19	2.4.2.6	NA	NA	**Text**: "The funding would be enough to acquire three times the acreage of land within the proposed Northern Corridor."

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					Comment: Acreage is only one factor in determining whether habitat is adequate to support a viable population of tortoises (or any other species). In addition to size, the shape and proximity to other habitats and connectivity are important (hence the fatal flaw with the Zone 6 satellite reserve). Also, good habitat quality that is free of stressors and threats (usually human-caused) is important. Based on the information given, the habitats that would be protected in the Zone 6 satellite reserve are not of equal quality to those being lost to the Northern Corridor within the actual Reserve, and the Applicants have failed to realize USFWS' mitigate to the maximum extent practicable.
17	2-21	2.5	NA	2.5-1	**Text**: "Manage 860.2 acres of proposed Reserve Zone 6 as open to new ROWs (Map 2.5-1)." **Comment**: As mentioned in numerous places in our comments, we feel that the entire process has been packaged to accommodate the Northern Corridor, there is minimal commitment by the County, which is relying on the BLM and others (UDWR) to implement the plan with maximum benefit to itself, there is nothing new to reverse steady declines in tortoise numbers within the Reserve, and as an ACEC, the proposed Zone 6 satellite reserve should already be managed for tortoises. This statement is one more "opportunity" the County is maintaining to maximize development with what is simultaneously promotes and new conservation to offset freeway impacts.
18	2-22	2.5	NA	2.5-1	**Text**: "Management decisions pertaining to reintroduction, relocation, translocation, and population augmentation of Mojave desert tortoises and other special status species were not included in the SGFO RMP." **Comment**: The Council interprets this statement reflecting current management to mean that the RMP does not foresee or allow translocation of displaced tortoises into the Zone 6 area. Yet, we understand that in 2019, 15 tortoises were moved off the new Lakes development (now known as DiVario development; pers. comm. Cameron Rognan, 9/2/2020) between St George and proposed Zone 6 lands, and placed onto those lands. If true, how was this unauthorized translocation accommodated? *Please note that we asked DEIS authors to address this specific issue on page 15 of our scoping comments, and failure of the DEIS to address this request has rendered the document deficient, which must be addressed in the Final EIS.*
19	2-22	2.5	NA	2.5-1	**Text**: "Major goals [of the existing RMP] include the preservation and protection of the desert tortoise and its habitat so as to achieve full recovery of the tortoise as well as other listed or sensitive species found within the Upper Virgin River Recovery Unit (UVRRU)."

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					Comment: It does not appear that either Alternative B or C of the RMP modify this "major goal" identified in the existing RMP. Table 2.5-1 identifies many changes that would affect management within the new Zone 6 satellite reserve, but fails to indicate how this "major goal" would be upheld within the existing Reserve; or, how it will be undermined by the development of the Northern Corridor within the Reserve. Please address this deficiency in the Final EIS.
20	2-24	2.5	NA	2.5-1	**Text**: "Do not authorize SRPs for competitive motorized events in proposed Reserve Zone 6." **Comment**: The Council supports this prescription in Alternative B, and does not find that competitive motorized events are consistent with recovery-level tortoise conservation. Nor do we believe that continuing to allow competitive *nonmotorized* events in Zone 6 to be consistent with tortoise conservation and recovery unless the BLM avoids or alleviates the impacts of spectators, which is not addressed in the DEIS.
21	2-24	2.5	NA	2.5-1	**Text**: "Limitations on the number of participants **and spectators** to all competitive events will be applied where warranted based on design of the competition and site capabilities" (**emphasis added**). **Comment**: Whereas the BLM currently minimizes participation to "up to 300 participants," there is no indication as to how many non-participant visitors are allowed, which may far exceed the number of participants and result in impacts that are certainly not restricted to roadways on which the events occur. The BLM must identify the number of allowable spectators and measures that will minimize impacts by these spectators.
22	2-30	2.7.1	NA	NA	**Text**: "Although the location [of the Twist Hollow Alignment] may address some resource conflicts with the Mojave desert tortoise, it would not meet the purpose and need to provide for consistency with the statutory purposes of the Red Cliffs NCA, which includes other ecological and scenic resources." **Comment**: It is not clear why this rationale is being applied to the Twist Hollow Alignment as an alternative considered but rejected when none of the action alternatives, excepting Alternatives 1 and 6, meets the very same "purpose and need to provide for consistency with the statutory purposes of the Red Cliffs NCA." Either this assertion cannot be used to dismiss the Twist Hollow alternative, or Alternatives 2, 3, 4, and 5 should also be dismissed because they also do not meet the purpose and need. It would seem that standards are being used arbitrarily in favor of the Applicant's desire to develop the Northern Corridor.

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23	3-33 3-50	3.5.1.1	NA	NA	**Comment**: Document authors can tell from our scoping comments of 1/6/2020 that we were very concerned that the DEIS provides a comprehensive description and data-driven analysis of the Affected Environment as it relates to tortoises. Having reviewed hundreds of environmental documents over the past few decades, the referenced scientific information given in this DEIS ranks among the best we have ever seen. So, thanks for that!
24	3-42	3.5.1.1	NA	NA	**Comment**: Through no fault of the authors, there was no opportunity to report the impacts of the Turkey Farm Road fire and Cottonwood Trail fire in July 2020. Please be sure that the effects of these fires are reported in the Final EIS, including revising Map 3.22-1.
25	3-43 3-44	3.5.1.1	NA	NA	**Comment**: With regards to recent tortoise translocations, has there been any follow-up monitoring on the short-distance translocation of 15 tortoises into Zone 6 areas from the Lakes development? We ask that this information be added to the translocation discussion in the Final EIS.
26	3-47 3-49	3.5.1.1	NA	NA	**Comment**: Whereas the statistics and analyses given on pages 3-47 and 3-49 are very useful, they lack the temporal aspect that compares current tortoise densities within the Reserve with tortoise densities in 1995. Are either actual or extrapolated data available for tortoise densities in the Reserve in 1995 compared to 2020? Our concern is that the HCP as written in 1995 has failed to produce increasing or even stable tortoise populations within the Reserve, that the declines due to drought in 2003 and fires in 2005 could not (and cannot) be curtailed by plan administrators, and that the ill-advised Northern Corridor as planned in Alternatives 2, 3, and 4 would contribute to the instability. Given these analyses and data, we conclude that tortoises are worse off now than in 1995 and that it is incumbent upon the regulatory agencies to increase conservation management, which in no way can accommodate a completely avoidable impact like the Northern Corridor. The data as presented in this section are being ignored if BLM adopts an alternative that allows the Northern Corridor to be developed. Rather, these data should be an indication to both BLM and USFW that the Reserve, itself, regardless of management of Zone 6, warrants heightened conservation management.
27	3-48	3.5.1.1	NA	NA	**Text**: "…the small geographic size of both the Reserve and the UVRRU compromises the potential viability of the Mojave desert tortoise population." **Comment**: Given the above statement on page 3-48, how can the agencies now plan for and accommodate the Northern Corridor in the face of documented tortoise declines in a reserve area it already deems to be too small? This is the main reason we do not accept the Zone 6 "compromise" as meaningful to tortoise conservation. If the 46,098 acres of critical

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					habitat within the boundaries of the Red Cliffs NCA are deemed to be too small to promote population viability (page 3-48 of the DEIS), how will the addition of 6,760 acres of (presumably) occupied tortoise habitat within Zone 6 (page 3-57 in Volume 2), which is neither critical habitat nor contiguous to the Reserve or NCA, be considered a realistic means to offset the avoidable impact of bisecting the existing Reserve with the Northern Corridor? If BLM and USFWS are obligated to perform these analyses and base management decisions on the analyses, how can anything but increased conservation management within the Reserve without the new freeway be entertained? The Council contends that by disabling the UVRRU as a functional recovery unit, the Northern Corridor will preclude recovery across the range.
28	3-50	3.5.1.1	NA	NA	**Text**: "While the Washington County HCP (1995) explicitly identifies only 87,229 acres of the ITP area as occupied or potential habitat for the Mojave desert tortoise, the HCP states that Mojave desert tortoise could also be found in 'non-habitat' areas." **Comment**: Stated as a fact without the significance or ramifications of the new findings, the Council interprets these data to show that more occupied and more potential tortoise habitats are now at risk because the revised HCP would allow for the take of all tortoises from occupied habitats in Washington County that would not be protected in Zone 6. That more tortoises are now at risk to authorized take than before is evidence that the HCP should provide for more protection within the Reserve, as tortoises in the Zone 6 area are already protected from development on BLM-designated ACEC lands and from SITLA lands, which do not seem to be in immediate danger of development.
29	3-55	3.5.2.1	NA	NA	**Text**: "The issue of indirect effects because of habitat fragmentation was quantified using the number of acres of Mojave desert tortoise habitat located between each ROW alternative and the southern Reserve boundary, for which connectivity to the larger tortoise population may be impaired. [Then] Evaluation of proposed Zone 6 considered acres of Mojave desert tortoise habitat with improved conservation status, and a qualitative review of beneficial management actions." **Comment**: We note that the BLM is not disclosing here that the foreseeable "Western Corridor" would bisect the Red Bluffs ACEC and border the western boundary of the proposed Zone 6 satellite reserve. Whereas, the description here lauds the "improved conservation status" and "beneficial management actions" of Zone 6 management, it fails to identify the same indirect effects that would result from the planned-for Western Corridor, which are likely similar to the indirect effects identified for the Northern Corridor within the Reserve. BLM cannot argue that the Western Corridor

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					is an unrelated project, because it has intentionally excluded the western half of the Red Bluffs ACEC from the Zone 6 satellite reserve to accommodate that planned-for development. As given in Appendix A of our scoping comments on 1/6/2020, the Council contends that the rangewide loss of tortoises throughout the listed population, the past and recent impacts of fire (including the Turkey Farm Road and Cottonwood Trail fires), and the failure of the 1995 HCP to maintain stable, much less increasing tortoise populations within the Red Cliffs Desert Reserve, all warrant that the entire Red Bluffs ACEC be identified as the new Reserve, even without development of the Northern Corridor through the existing Reserve.
30	3-55	3.5.2.1	NA	NA	**Text**: "Surveys conducted in Zone 3 during 2017 resulted in a density estimate of 17.2 Mojave desert tortoises per square kilometer (95 percent confidence interval of 12.6 to 23.4; UDWR 2018). The 2019 surveys of Zone 3 resulted in a density estimate of 12.3 animals per square kilometer (95 percent confidence interval of 8.7 to 17.5; UDWR 2020; refer to Table 3.5-3)." **Comment**: We are concerned with the ramifications that "All subsequent analyses in Zone 3 uses [sic] the density estimate of 17.2 Mojave desert tortoises per square kilometer." These data show there has been a reduction of about five tortoises per square kilometer in the two years between 2017 and 2019, which we interpret to mean two things: (1) There have been recent and continuing catastrophic declines within the Reserve that are being dismissed as "statistical" artifacts; and, in our estimation, (2) these declines are likely real, show that current management has failed to avoid the declines, and warrants enhanced protection WITHIN the Reserve, which will not be addressed by creating a noncontiguous satellite reserve in Zone 6. The DEIS has failed to demonstrate that new protections will be implemented within the Reserve to curtail these declines, and by this statistical interpretation, are blatantly dismissing apparent declines that threaten to jeopardize the stability of tortoise populations within the Reserve even in the absence of the Northern Corridor and certainly not addressed by creating the satellite reserve in Zone 6.
31	3-56	3.5.2.1	NA	NA	**Text**: "The analysis area for indirect effects from the Northern Corridor alternatives that do not require construction of a new roadway includes suitable Mojave desert tortoise habitats within 300 feet on either side of the ROW within the Reserve. The analysis area is smaller because ROW fencing on both sides of the highway excludes tortoises from entering the ROW, and tortoises occupying this area have likely been exposed to the wildland-urban interface, including the existing road."

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					Comment: Please indicate the existing literature that supports this reduced indirect impact associated with fencing. We believe that the two main advantages of fencing roadways are reducing the number of tortoises that would otherwise be crushed and reducing the number of other animals that would be crushed that then serve to attract and subsidize tortoise predators, particularly common ravens and coyotes. There is no evidence in the literature that the following indirect impacts are curtailed by fencing: increased incidence of fire, proliferation of weeds, increased access to poaching (particularly since the BLM is proposing bike and walking paths either side of the freeway), increased nitrogen deposition, etc. For these indirect impacts, we do not believe that the 300-foot area used in this analysis is sufficient or scientifically justified to realistically include all indirect impacts resulting from fence installation.
32	3-58	3.5.2.1	NA	NA	**Text**: "Recent stabilization of the [tortoise] population may be occurring, though at lower levels than pre-fire conditions." **Comment**: We question the veracity of this statement because data given on page 5-55 (see also Attachment B following these tables) statistically show declines of five tortoises/square kilometer between 2017 and 2019, which is in direct conflict with this statement, and demonstrates declining populations, not stabilizing populations.
33	3-58	3.5.2.1	NA	NA	**Text**: "As part of the review process, the USFWS may determine that measures in addition to those proposed should be included to minimize and mitigate ROW and RMP revisions." **Comment**: In addition to the four bullets following this statement, the Council continues to emphasize the inclusion of the entire Red Bluffs ACEC in the Zone 6 satellite reserve. *We proposed this measure in our scoping comments (top of page 8 of Desert Tortoise Council 2020) but do not see any acknowledgement of this proposal in the DEIS (e.g., alternatives considered but rejected), and therefore consider the DEIS to be deficient in this respect, which must be addressed in the Final EIS.*
34	3-58	3.5.2.1	NA	NA	**Text**: "HCP and ITP No Action Alternative: Under the No Action Alternative, the USFWS would not grant an ITP to Washington County, and the 1995 Washington County HCP would expire." **Comment**: The DEIS has failed to substantiate or demonstrate a clear nexus between Washington County pursuing the HCP/ITP and UDOT's proposal for the Northern Corridor. The ITP has functioned for 24 years, between 1996 and 2020, and only provisionally since 2016. Since the USFWS issues the 10a permit, not the BLM, how does the No Action Alternative (a BLM requirement) prohibit USFWS from issuing the ITP (a FESA requirement)? The trigger to

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					revise the HCP and reissue the ITP should be the 2016 expiration date, not UDOT's desire to develop the Northern Corridor. In the absence of UDOT's proposal, the HCP would have been revised and the ITP reissued in response to the expiration date, and 66,301 acres of occupied and potential tortoise habitats could still be available for development (page 360, Volume 2). Linking the reissuance of the ITP to the Northern Corridor is contrived to create a fatally flawed relationship between two unrelated actions, where one action cannot occur *but for* the other, which is neither explained nor clearly supported in the DEIS' analyses.
35	3-59	3.5.2.1	NA	3.5-10	**Comment**: In addition to identifying numerous flaws associated with management of Zone 6 to offset development of the Northern Corridor (e.g., non-contiguous location, small size, authorized competitive recreation events, etc.), we note that the indirect impacts associated with Alternatives 2 (3,586 acres), 3 (2,652 acres), and 4 (2,021 acres) compared to the 6,760 acres in Zone 6, constitute indirect impacts to the primary Reserve of 53% for Alternate 2 (i.e., 53% of the 6,760 acres supposedly gained), 39% for Alternative 3, and 30% for Alternative 4. In other words, the indirect impacts associated with these three alternatives would comprise between a third and a half of the projected conservation value attributed to management of Zone 6, which further undermines any real mitigation by adopting this compromise. Whereas we recognize that fencing the Northern Corridor would be a *minimization* measure (and that there are no mitigation measures within the actual Reserve), where are the commiserate *mitigation* measures (e.g., habitat compensation) to offset indirect impacts? We believe that if the Applicant was sincere in achieving mitigation of impacts to the maximum extent practicable, that it would have recommended the *entire* Red Cliffs ACEC to mitigate impacts rather than just the eastern half.
36	3-60	3.5.2.1	NA	NA	**Comment**: Furthermore, the list of Covered Activities described at the top of page 3-60 indicate they must be "…non-Federal and performed within the Analysis Area for the HCP." Though not funded, since the Northern Corridor is an action that would be both *authorized* and *carried out* by the BLM, it is not therefore a federalized action that cannot be a Covered Activity, as described in this section of the DEIS? This assertion is further substantiated in the following statement "If the BLM issues UDOT a ROW grant for the _____ Alignment, it is anticipated that UDOT would design and construct a highway through the Reserve and Red Cliffs NCA." Again, this is one of the three caveats ("fund, authorize, or carry out") that federalizes a project that cannot be considered a Covered Activity by the HCP/ITP.

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37	3-63	3.5.2.1	NA	NA	**Text**: "With approval of a highway alternative through the Reserve, Washington County would provide funding and technical assistance to UDOT for culverts under Cottonwood Springs Road within Reserve Zone 3 that would help restore some of the potential for Mojave desert tortoise movement across this preexisting internal barrier." **Comment**: It is our understanding that fees collected under Section 10a of FESA are intended to promote conservation of tortoises, and that the need for culverts predates the Changed Circumstance that would facilitate the Northern Corridor. We note that the 1995 HCP required that, "Cottonwood Rd will either be gated where it crosses the northern and southern boundary of the Reserve, or it will be fenced" (Section 5.2.1). Therefore, in our estimation these culverts should already have been developed, and in fact should still be developed even if the BLM's No Action alternative is selected. As written, the reader is led to believe that *but for* the Northern Corridor, these culverts will not be developed, which is irresponsible and misleading.
38	3-63	3.5.2.1	NA	NA	**Text**: "This [data collected between 2011 and 2017] reveals there is an important desert tortoise population cluster located within the path of the T-Bone Mesa Alignment, UDOT Application Alignment, and Southern Alignment Alternatives within the Reserve. **This may be the most important high-density cluster of desert tortoises in the recovery unit (USFWS 2020a) [emphasis added].** Map 3.5-5 provides a visual representation of the habitat fragmentation discussed previously." **Comment**: The Council asserts that this area of high density tortoise concentration is facilitated by, if not created by, protections granted under the 1995 HCP and subsequent BLM management. This tortoise concentration, then, has resulted from proactive conservation provided by the existing permits and management plans, which have concomitantly authorized the development and permanent loss of 22,822 acres of tortoises habitats from Washington County since 1996. To develop these habitats now after 26 years of cumulative loss of 22,822 acres of tortoise-occupied habitats would be an unmitigable violation of the tenuous conservation balance accomplished under existing permits within the Reserve (see discussion in the Amended HCP on page 2), which cannot be mitigated by creating a noncontiguous satellite reserve in Zone 6.
39	3-125	3.15	NA	NA	**Text**: "The Washington County Amended HCP and the USFWS's potential issuance of an ITP to Washington County would not impact recreation and visitor services outside of proposed Zone 6."

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					Comment: Although we understand the intent of this statement, we ask that USFWS take a second look at the statement considering the following concerns. Given the persisting declining trends for tortoises in the Reserve, are there current recreational activities in the Reserve that need to be curtailed or modified to further protect tortoises? For example, in March 2020 there was an EA designed to improve the Cottonwood Trailhead into the Reserve. Whereas we understand that this action is considered in its own NEPA process, we ask that USFWS take a hard look at allowable recreation development given the declining tortoise trends. Although we understand that the recent Turkey Farm Road fire was started by illegal use of fireworks in the Reserve, we wonder if the perpetrators were even aware that they were inside a Reserve and that fireworks are prohibited? Could increased or different patterns of law enforcement in the Reserve have prevented this and other human-caused fires? As such, we ask that USFWS and HCAC continue to look for new ways to educate the recreating public, which currently is missing from both the DEIS and Amended HCP.
40	3-128	3.15.1.3	NA	NA	**Text**: "The SGFO RMP designates much of Washington County, including BLM-administered portions of proposed Zone 6, as an Extensive Recreation Management Area (ERMA)." **Comment**: The Council is concerned that referring to a conservation area for "extensive recreation" will undermine the intended, new use of Zone 6 for tortoise conservation. Therefore, we ask that the ERMA designation be removed from Zone 6 in the foreseeable likelihood that one of the pro-Northern Corridor alternatives will be adopted.
41	3-128 3-133	3.15.1.3	NA	NA	**Text**: "The area of proposed Zone 6 has been a popular destination for recreational users for decades, with recent estimated visitor use on BLM-administered and SITLA lands totaling 82,775 annual visits (pers. com. Kiel 2019b, pers. com. Voyles 2020). [And] "…these users are likely to seek out experiences on public lands further west of proposed Zone 6." **Comment**: At this point, we are taking the opportunity to express our concern that there are no versions of the modified RMPS that can be reviewed at this time. Certainly, decisions being made now may be interpreted in different ways, which will express themselves in the revised RMPs. Therefore, we believe that specific revisions to the RMPs should have been identified and made available as part of the current review process. We note that this is the only place in the DEIS where BLM acknowledges that recreation activity displaced from the east half of the ACEC onto the west half of the ACEC is likely to occur. *This single sentence does not constitute the **analyses** we requested on page 10 of our scoping comments, nor do we see any measures in the DEIS that BLM intends to implement to curtail displaced, illegal*

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					activities onto those parts of the ACEC not included in the proposed Zone 6 satellite reserve, which we identify as a deficiency of the DEIS that must be addressed in the Final EIS.
42	3-129 3-133 3-134	3.15.2.3	NA	NA	**Text**: "Section 3.15.2.3. states: "Existing competitive use events that have an SRP would be unaffected by implementation of the HCP. On BLM-administered lands, Alternatives B and C would not alter how motorized SRPs are issued in the proposed Zone 6." **Comment**: Page 3-129 indicates there are five competitive events currently in Zone 6, which we understand would continue to be permitted under all three SGFO RMP alternatives. Given this information, we feel that the discussion in Section 3.15.2.3 fails to describe the nature of these events and associated impacts. How many participants and spectators would continue to be allowed in a Zone 6 satellite reserve? How would the SGFO RMP be modified, if at all, to curtail impacts of these five competitive events in the satellite reserve? Has BLM monitored the competitive events, and if so, what are the documented impacts? Based on these data or anecdotal observations, how will the events be conducted to promote tortoise conservation in the satellite reserve? This information needs to be added to the Final EIS.
43	3-141 3-143	3.18	NA	3.18-1	**Comment**: Although we recognize that Table 3.18-1 would function to divert the reader to 11 other sections addressing NCA Objects and Values, we find that Section 3.18 fails in its consistency with both previous and subsequent sections to make clear and factual statements as to the Environmental Consequences associated with each action alternative (excepting Alternatives 1 and 6) relative to governing laws and agreements. It is clear to us by the information presented relative to the OPLMA ("Act;" page 3-141) and prescriptions given in BLM Manual 6260 ("Manual") as they relate to NCAs (pages 3-141 and 3-142), that all action alternatives (2, 3, 4, and 5) would violate the intent and function of the Act and Manual by developing the Northern Corridor. We contend that although BLM can alter its RMPs to approve any of the Northern Corridor alternatives, they cannot change either the OPLMA or management criteria for NCAs, and that both are violated by all action alternatives (excluding 1 and 6), and that recommended changes to the RMP do not elevate any of the action items to mitigate impacts to either the Act's or Manual's intent. We contend that Section 3.18 needs to describe each of the six alternatives as they relate to the OPLMA and BLM Manual 6260 rather than redirect the reader to 11 other sections that do not directly address either the Act or the Manual.

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44	3-144	3.19	NA	NA	**Text**: "Decisions to be made by the BLM in this Draft EIS would not affect or alter the management of ACECs managed by the SGFO outside proposed Zone 6. Therefore, the analysis area for ACECs is the proposed Zone 6 boundary." **Comment**: The Council disagrees with these statements on page 3-144 for the following reasons. As stated in the DEIS on page 3-133, the BLM anticipates that reduced recreation activity in Zone 6 will displace those activities to the west, which corresponds to the remainder of the Red Bluffs ACEC (see Map 2.5-15 in Appendix B). Please indicate how ACEC management and monitoring of recreation use will be changed to address this foreseeable impact.
45	3-144	3.19	2.5-15	NA	**Comment**: We understand that the BLM is actively planning for a Western Corridor along the western boundary of the proposed Zone 6 satellite reserve but fails to divulge this in the DEIS (a "Western Corridor Connector" is identified on page 3-179 but is not mapped; see Comment 58 below with regards to enhanced mapping requests). We ask that the rationale for the current western boundary of Zone 6 be described in the Final EIS section corresponding to Section 3.19 of the DEIS.
46	3-57 3-144	3.19	2.5-15	NA	**Text**: "All habitats within the Reserve below 4,500 feet in elevation are considered currently occupied Mojave desert tortoise habitat, and all habitats between 4,500 feet and 5,000 feet are considered potential future occupied habitats." **Comment**: Though difficult to tell from Map 2.5-15, which does not show contours or elevations, it appears that Boomer Hill may be the highest elevation in the Red Bluffs ACEC, which is at 3,800 feet elevation. Why, then, are only 2,345 acres of the 6,168-acre Red Bluffs ACEC (38%) being considered for Zone 6 management when the entire ACEC is well within the elevational range the DIES identifies as occupied by desert tortoises? Furthermore, what is the undisclosed reasoning for including the SITLA lands in the Zone 6 satellite reserve without including the western 3,823 acres of the ACEC, which are within the correct elevational range for tortoises and likely less impacted than the SITLA lands?
47	3-146	3.20.1	NA	NA	**Text**: "…the BLM's issuance of a ROW could impact future land tenure actions including acquisitions of non-Federal lands crossed by an alternative." **Comment**: We are concerned with the above statement and no additional explanation. What does this statement mean with regards to the private parcels that would be affected by BLM's endorsement of any one of the four action alternatives (2, 3, 4, and 5) that would cross private lands? Does the BLM still intend to acquire and manage these private lands if one of these four alternatives is approved?

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48	3-150 3-152	3.21	NA	NA	**Comment**: We find that, in the absence of grazing history, the actual benefits implied in Section 3.21 on grazing are not obvious. Whereas we believe that eliminating grazing from areas managed for tortoise conservation are ultimately beneficial, we cannot ascertain the actual, immediate benefit in the absence of use data. Therefore, we ask that BLM supplement this discussion in the Final EIS to show how recently these allotments have been grazed, and to what extent relative to allowable versus actual AUM data. How many ranchers would be affected by retiring these allotments? What have BLM range health assessments of these allotments (if any) revealed as they pertain to relative habitat quality to tortoises?
49	3-150 3-152	3.21	NA	NA	**Text**: "…unavailable for livestock grazing..." **Comment**: What exactly does the above, repetitively-used clause mean? Does this mean that the allotments would be retired and permanently "removed from the books?" Please explain the administrative action and its temporal ramifications in the Final EIS; e.g., does this mean "in perpetuity," with no ability of BLM to reestablish the allotments at a later date, under a future RMP revision?
50	3-152	3.22	3.22-1	NA	**Comment**: Please modify Map 3.22-1 in the Final EIS to show the extent of the Turkey Farm Road and Cottonwood Trail fires. Based on Map 3.22-1, it appears there have been no documented fires in the southern part of the Reserve that would be impacted by the four action alternatives. Based on BLM's statements in Section 3.22.1 about threat of future fires, we believe that these two fires, alone, should be construed as Changed Circumstances; that, as a result of these two events, the southern portions of the Reserve are now more vulnerable to new fires and that development of the Northern Corridor will predictably increase the likelihood of new fires. We believe that this fact, alone, is sufficient reason for BLM to deny the Northern Corridor. We ask that the discussion of Vegetation Condition Classes (VCC) be reconsidered in light of these fires in the Final EIS, and that new indices be developed as necessary to describe conditions following the fires, which requires reconsideration of Table 3.22-2.
51	3-129 3-180	3.28	NA	3.28-1	**Comment**: We note on page 3-129 that there have been five competitive mountain bike events in the Zone 6 area. However, it is not clear if these events will continue to be allowed or if BLM judges they are compatible with elevated conservation management for tortoises (particularly with regards to impacts by spectators). Since this issue has already been raised in Comments 41 and 42 above, we believe that the vague statement that there are "…45 permit applications for activities … in various locations" (see page 3-180 in Table 3.28-1) needs to be clarified. We ask that all permitted

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					motorized and nonmotorized routes in both the Red Cliffs Desert Reserve and proposed Zone 6 satellite reserve be mapped and further described as they affect the analysis, which should be added to the Final EIS.
52	3-183 3-184	3.28.1.4	NA	3.28-1	**Text**: "The implementation of the Washington County Amended HCP, which includes expanded protection of proposed Zone 6, **continues to help offset the long-term, cumulative impacts** to Mojave desert tortoise from development in the county on non-Federal lands" (**emphasis added**). **Comment**: We note the irony in this statement that whereas the HCP may have functioned in this protective capacity since 1996 (see page 2 of the Amended HCP), current proposals will effectively jeopardize this balance, and no longer offset cumulative impacts. The minimal additional management in Zone 6 would not offset cumulative impacts to the actual Reserve, particularly if BLM adopts an alternative that will allow subsequent utility development inside the Reserve (Alternative C of the RMP).
53	3-189	3.28.1.15	NA	NA	**Text**: "No reasonably foreseeable actions identified in Table 3.28-1 would affect State LWCF lands within the analysis area." **Comment**: The statement given above with regards to cumulative effects to Land and Water Conservation Fund Act Lands (LWCF) seems naïve and misleading given that ALL private lands outside the Reserve and Zone 6 would be open to development and loss of biological resources throughout Washington County as the result of reissuing the ITP, particularly if the Lake Powell Pipeline (which IS listed in Table 3.28-1) is developed: First, State LWCF lands mapped in Map 3.16-1 are only a fraction of the LWCF lands identified in the same map, failing to depict federal LWCF lands, so why are only State lands being referenced? Why not Federal lands as well? Secondly, it is our understanding that the "analysis area" is not restricted to the Red Cliffs Desert Reserve, as shown in Map 3.16-1, but that it includes all of Washington County. The full extent of State and Federal LWCF lands need to be mapped within the entire county for the deficiencies characterizing this section to be remedied. Finally, this discussion, which is currently limited to only direct effects of the action alternatives on LWCF lands, should be expanded to discuss the indirect and fragmenting effects to all State and Federal LWCF lands identified elsewhere in the DEIS.
54	3-190	3.28.1.18	NA	NA	**Text**: "Alternatives 2, 3, and 4 would result in **entirely beneficial effects on the Red Bluff ACEC**, while Alternatives 1, 5, and 6 would not impact ACECs" (**emphasis added**).

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					Comment: As noted elsewhere, we believe this statement is erroneous because less than 40% of the Red Bluffs ACEC would be included in the Zone 6 satellite reserve. The BLM admits on page 3-133 that the western parts of the ACEC may be impacted by displaced recreational activities from the eastern portions now being considered in Zone 6. This statement needs to be modified in the Final EIS for accuracy to further identify the deleterious effects of bisecting the ACEC and future uneven management of the two parts.
55	3-190	3.28.1.18	NA	NA	**Text**: "Events would not create new surface disturbance because they would be limited to established trails." **Comment**: As described elsewhere, this statement naively dismisses impacts associated with spectators and from event participants who are likely to camp in areas adjacent to established trails before, during, and after the events. We suggest that this sentence either be removed or modified in the Final EIS to address this concern.
56	Many	App B	See right	NA	**Comment**: A dozen maps, including the first seven (e.g., 1.1-1, 2.2-1, 2.3-1, 2.3-2, 2.3-3, 2.3-4, 2.3-5, etc.) depict the Red Cliffs Desert Reserve boundary with a dashed line that is indistinguishable from the Red Cliffs NCA, which is depicted as a solid line and superimposed over the Reserve boundary. In fact, it is not until Map 2.4-2 (which does not map the NCA boundary) that we can see the actual Reserve boundary line. Please reconsider the color layout on all affected maps that depict the Reserve so that it can be differentiated from the NCA.
57	B-10	App B	2.4-3	NA	**Comment**: It is not clear why Zone 6 is not depicted on Map 2.4-3. The Council believes that one of the flaws inherent to designating Zone 6 as a satellite reserve is that it is noncontiguous to the actual, functional Reserve in Zone 3. We therefore ask that Map 2.4-3 be amended to show Zone 6 relative to the other five zones (i.e., Map 2.4-4 does not give the naive reader the overall view of the isolated, disjunct nature of the proposed satellite reserve).
58	NA	App B	NA	NA	**Comment**: We ask that the BLM amend Map 2.5-15 to show the location of the Western Corridor, so the concerned public can see how Zone 6 areas, as proposed, would be exposed to indirect impacts extending at least a kilometer into the satellite reserve from the west.
59	NA	App B	NA	NA	**Comment**: The Council is particularly concerned that habitat fragmentation associated with three of the six alternatives is severe and fatally flaws all three alternatives because it compromises any conservation that has occurred between 1996 and 2020, and violates the OPLMA and BLM Manual 6260. Interestingly, there are very revealing maps in the BLM's public meeting handout (see page 18 of 33 in the Power Point presentation distributed in July 2020) that are not included anywhere in the DEIS. Perhaps this is an oversight or these maps were created after release of the DEIS, but

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					in any case these maps need to be added to Appendix B of the Final EIS so the concerned public can see the extent of habitat fragmentation associated with these three alternatives and just how much of the high density tortoise areas (depicted in red) would be affected by all alternatives.
60	3-48 B-53	3.5.1.1 App B	3.5-5	NA	**Text**: "…in 2017 Mojave desert tortoise surveys were conducted on 3,000 acres of SITLA and 2,150 acres of BLM-administered land, most of which is included in proposed Zone 6." **Comment**: With regards to the above statement on page 3-48, none of these data are depicted relative to tortoise densities on Map 3.5-5 in Appendix B. There are other places that refer to tortoise densities in Zone 6 that were unforeseen by the 1995 HCP. In any case, we ask that Map 3.5-5 be amended (or better yet, a new map developed) to reflect tortoise densities in Zone 6 so that the concerned public can see what is being lost (i.e., red zones inside the actual Reserve) compared to what is being "gained" (i.e., tortoise densities inside the proposed satellite reserve). Although the resolution is too small to be meaningful, we note that Figure 3 in the Amended HCP (page 27) shows that all of Zone 6 is characterized by "Low Density MDT Habitats." Absent these data, we do not believe that the agencies can demonstrate that establishing Zone 6 as a new reserve will offset the losses in the actual Reserve from development of the Northern Corridor or the take of tortoises throughout Washington County.
61	B-8 B-178 3-189	3.28.1.15	2.4-1 3.16-1	NA	**Comment**: With regards to the statement on page 3-189 of Volume 2 that State LWCF lands would not be affected by reissuance of the ITP, the DEIS limits its mapping to State LWCF lands within the Reserve, as mapped in Map 3.16-1. Map 2.4-1 on page B-8 is already rather busy, so we ask that a new map be added to Appendix B that shows the full extent of State and Federal LWCF lands within the analysis area boundary shown in Map 2.4-1, and that the Cumulative Effects analysis given on page 3-189 relative to LWCF be expanded to address all LWCF lands in the County, not just those in the Reserve.
62	3-179	3.28	NA	3.28-1	**Comment**: We ask that BLM develop a new map in the Final EIS that shows the locations of each of the proposed developments and uses identified in the Cumulative Effects section in Table 3.28-1. We note, for example, that one of the projects is referred to as the "Western Corridor Connector," but we cannot tell from the location information given in the table where this project would be developed, or if it would connect to the Western Corridor, which we understand would coincide with the western boundary of Zone 6. We also believe that this will reveal to naïve members of the public that the Washington Parkway terminates at the eastern boundary of the Reserve, and that, *but for* this Parkway,

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					none of the action alternatives (2, 3, 4, and 5) could be developed, which supports our concern that regulatory agencies have already decided to develop the Northern Corridor, and this EIS process is a formality.
63	3-179	3.28	NA	3.28-1	**Comment**: The location of the DiVario Development, in particular, is important as it is revealed (for the first time in the DEIS on page 3-180) that this 730-acre development would be *within* the Zone 6 area, which we assume is in error? This development is identified in two places as bordering the Zone 6 satellite reserve (pages 3-187 and 3-188) but is described as being "*within* the northeastern border" in Table 3.28-1 on page 3-180, which we assume will be corrected in the Final EIS.
64	H-2	H.2.1	NA	NA	**Text**: "There is no current 'scientific proof of resource degradation' specifically due to livestock grazing within Zone 6." **Comment**: With regards to the above statement, may we interpret this to mean that the BLM has performed range health assessments that demonstrate no grazing impacts? Or, that these data do not exist as range health data have not been collected? As documented in a dozen or more references in Appendix B of the Council's scoping comments (Desert Tortoise Council 2020), we know that cattle grazing affects habitats and tortoises, so we assume this statement is based on absence of data. Please clarify.
65	NA	App H	NA	NA	**Comment**: We contend that Appendix H is deficient in its consideration of inconsistencies with numerous regulatory decisions and documents, as follows. (1) On a gross level, the Northern Corridor is inconsistent with and in violation of the intent of the 1995 HCP and implementation of the 1996 ITP. The function of the 1996 ITP over the past 24 years has been predicated on the protection of the Red Cliffs Desert Reserve. To date, the ITP has authorized development of 22,822 acres of habitat and displacement of more than 500 tortoises in exchange for protection of the Red Cliffs Desert Reserve. Only Alternatives 1 and 6 are consistent with these existing agreements. Even so, rather than identify these inconsistencies with the HCP, Appendix H unaccountably claims there are no inconsistencies. We note that more than half of the goals and objectives for the function of the Reserve (see Section 2.1 in the Amended HCP) are undermined by introducing the freeway into the Reserve, which is referred to as the "central conservation measure" on page 2 and elsewhere in the Amended HCP. (2) Appendix H fails to acknowledge or elucidate how development of the Northern Corridor is in violation of the OPLMA (page 3-141 of Volume 2) and undermines prescriptions given in BLM Manual 6260 as they relate to NCAs (pages 3-141 and 3-142 in Volume 2). We believe that Appendix H fails to address

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					inconsistencies of all action alternatives with the (3) Federal Land Management Policy Act (FLMPA) and the Federal Endangered Species Act (FESA), particularly as it relates to inconsistencies with both the (4) 1994 Recovery Plan (USFWS 1994) and 2011 revised desert tortoise Recovery Plan (USFWS 2011), and (5) adverse modification of tortoise Critical Habitat [(81 FR 7214), (16 USC §1536(a)(2)), (50 CFR §402.02)]. Appendix H in the Final EIS must be amended to identify and discuss these inconsistencies that are not currently addressed.
Amended[1] Habitat Conservation Plan for Washington County, Utah (May 2020)					
66	i	Exec Sum	NA	NA	**Text**: "A Renewed/Amended ITP is needed to extend the County's access to previously authorized, but unrealized, incidental take of the MDT for an extended term of 25 years. Amendments to the 1995 HCP are needed to incorporate developments in the best available science pertaining to the MDT, comply with current USFWS regulations pertaining to ITPs, incorporate current policy regarding amended HCPs (as applicable), and clarify the language to more accurately reflect the intent of the 1995 HCP." **Comment**: The 2020 HCP needs to examine the effectiveness, implementation, and adequacy of implementing the Conservation Program of the 1995 HCP, and its appropriateness under current conditions. Information on declines in numbers and densities of tortoises and degradation/loss of tortoise habitat in the areas managed for tortoises (e.g., Fridell et al. 1998 and McLuckie et al. 2020) shows that management has not been effective in moving toward accomplishing the biological goal for the MDT. Implementation of conservation actions and mitigation is not working for the tortoise. Based on this information, the 2020 HCP needs to do more than continue actions previously identified in the 1995 HCP. The modified/additional conservation actions and mitigation should be linked to the stressors causing the greatest degree and intensity of threats to the UVRRU population of tortoises. Consequently, the sections of the HCP that describe Conservation Program Budget and Funding Assurances need to be revised based on lessons learned from the management of the Reserve since 1996, threats previously not addressed in the HCP or downplayed regarding their importance (e.g., invasive plant species, fire), and the anticipated increase in the number and/or severity of impacts

[1] Throughout our comments, we use the terms "Amended," "Renewed," or "2020" HCP to refer to the current, May 2020, Habitat Conservation Plan and endeavor to use the term "1995" to refer to the existing HCP that is proposed to be renewed or amended.

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					in the future from human population growth, climate change, and their associated stressors (e.g., invasive species, new pathogens, fire, extreme drought and other weather events, etc.).
67	ii	Exec Sum	NA	NA	**Comment**: The ITP having authorized the development of 22,822 acres since 1996 now envisions the further authorized loss of 66,301 acres throughout Washington County. The conservation balance thus far has been achieved by protecting the Red Cliffs Desert Reserve, intact (as lauded on page 2 of the Amended HCP). Now, the County plans for three times more impact than has already been realized, the development of a freeway through its primary Reserve, and the establishment of a 6,760 acre satellite reserve, about half of which is on SITLA lands that are outside the jurisdictional control of the County and some of which are likely impaired given their proximity to adjacent urban development in western St George. Project development and habitat loss are being guaranteed on the promise that remaining, unfragmented portions of the soon-to-be impaired Reserve will be protected going forward. Tortoise populations have steadily declined within the Reserve since 1996, and likely throughout the County where take is authorized. As stated elsewhere, the Council believes that the entire Red Bluffs ACEC should be designated as a Reserve as a means to alleviate the imbalance that is already documented, and that this be done while denying the Northern Corridor. The Applicant is requesting take of more than 66,000 acres of occupied and potential tortoise habitat. To mitigate for this loss, the Applicant needs to identify other areas of tortoise habitat that, when acquired and enhanced, would contribute to the long-term management of the tortoise, in the Reserve and UVRRU. Partial mitigation to offset the impacts of taking 66,000+ acres would be for the Applicant to implement effective conservation actions within critical habitat and in the Reserve to improve its ability to grow and sustain a viable tortoise population for future generations. Such conservation actions would include, but are not limited to, substantial improvements to habitat quality, especially the quality of nutritious forage (e.g., removal of non-native invasive plant species, establishment of native annual plant species), habitat restoration for burned areas in the Reserve, implementation of effective fire prevention and fire suppression plans that focus on the needs of the tortoise/tortoise habitat, implementation of effective local community and visitor education and law enforcement plans, implementation of tortoise exclusion fencing and human access exclusion fencing as identified from required compliance and effectiveness monitoring, reducing direct and indirect mortality from humans (e.g., crushing by vehicles, vandalism, collection, loss of tortoises from the effects of roads),

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					closing unnecessary roads and restoring habitat, reducing predation from ravens, feral and roaming dogs, etc. As written, the 2020 HCP fails to provide for these actions and should be modified to do so.
68	ii	Exec Sum	NA	NA	**Text**: "However, this Amended HCP does not expressly prohibit uses of the Reserve that are not Covered Activities." **Comment**: This statement is referring to the Northern Corridor. The 1995 HCP makes it clear that new roads are not acceptable as it closed existing roads in the Reserve. P. 21 of the 1995 HCP says "The proposed reserve is consistent with that recommended in the DTRP [Desert Tortoise Recovery Plan], and its boundaries have been drawn with generally accepted reserve design criteria (see Chapter 7 for an in depth analysis of the reserve boundaries against these criteria)." Page 123 of the 1995 HCP says, "(7) Blocks of habitat that are roadless or otherwise inaccessible to humans are better than roaded and accessible habitat blocks. Unfortunately, there are few roadless areas of any size within desert tortoise habitat in the UVRRU. To the maximum extent practicable, interior roads will be closed within the reserve boundaries. Paved highways such as Interstate 15, Highway 18, Snow Canyon Road, and Skyline Drive will remain open to vehicular traffic. Desert tortoise mortality along Highway 18, Interstate 15, and Skyline Drive will be minimized through fencing. The largest block of habitat which will remain roadless is within Zone 3 of the reserve which is between the Cottonwood Road, Interstate 15, the Dixie National Forest, and Red Cliffs, an area of approximately 28,147 acres. The next largest block is also within Zone 3, and it is between Highway 18 and the Cottonwood Road north of Skyline Drive, an area of approximately 10,155 acres." Page 21 of the 1995 HCP further supports no new roads with the following information - "Zone 3 will be managed by the Dixie Resource Area of the BLM for the preservation and enhancement of the Mojave desert tortoise." "Grazing permits will be acquired and retired on a willing buyer/willing seller basis." "Hiking, equestrian, and camping should be restricted to designated areas." "BLM should …apply for mineral withdrawal for Federal minerals." "Vehicles should be restricted to designated roads." "Continuation of present activities associated with the Moroni Feeds Turkey Farm should be permitted but new actions, which the reserve manager reasonably believes may harm the desert tortoise, should not be allowed." "No organized or competitive sporting or recreational events should be allowed." "From Skyline Drive, no general public access will be permitted into the reserve, except on designated trails."

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					If these activities are prohibited based on 1995 standards because of their impacts to the tortoise/tortoise habitat, why would a new freeway with major traffic be considered an acceptable activity in a wildlife reserve under current 2020 standards?
69	ii	Exec Sum	NA	NA	**Text**: "Therefore, the implementation of this Amended HCP remains consistent with the analyses in the 1995 Environmental Impact Statement and 1996 Biological Opinion." **Comment**: The Council contends that the declines in tortoise populations throughout the listed range of the Mojave Population of the Agassiz's Desert Tortoise since 1995 (see Attachment D) constitute both an Unforeseen Circumstance and Changed Circumstance that are not being adequately addressed in the amended HCP; that the 1995 EIS does not adequately address the relationship between authorized impacts and a concomitant level of conservation because of these declines and failure of the HCAC to curtail fire, poaching, predation, and other deleterious impacts within the Reserve; and that "…substantial new analysis of the impacts of the reauthorized take…" **IS** warranted, contrary to the assertion given in this section.
70	ii	Exec Sum	NA	NA	**Text**: "Up to 200 acres of this take could be applied to Covered Activities inside the Reserve, subject to compliance with other conservation measures specified in this Amended HCP." **Comment:** We have a few issues with the above statement. First, it is inconsistent with what the 2020 HCP says on page i, which is "A Renewed/Amended ITP is needed to extend the County's access to previously authorized, but unrealized, incidental take of the MDT for an extended term of 25 years. Amendments to the 1995 HCP are needed to incorporate developments in the best available science pertaining to the MDT, comply with current USFWS regulations pertaining to ITPs, incorporate current policy regarding amended HCPs (as applicable), and clarify the language to more accurately reflect the intent of the 1995 HCP. Excluding 200 acres to build use and maintain a highway is not an amendment that incorporates developments in the best available science pertaining to the MDT, comply with current USFWS regulations pertaining to ITPs, incorporate current policy regarding amended HCPs (as applicable), and clarify the language to more accurately reflect the intent of the 1995 HCP." Language throughout the HCP must be consistent and be clear, unlike the example given above.

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					Second, the Northern Corridor will impact more than 200 acres when direct and indirect impacts of the construction, use, and maintenance of the freeway are calculated. The impacts of the road effect zone are well documented for wildlife species with the behavioral characteristics of the desert tortoise. When added to the impacts of habitat and population fragmentation and eventual loss of tortoises south of the Northern Corridor because of small isolated population size and stochastic events, the area impacted by the activities of the Northern Corridor grows larger. *We provided this is information in our scoping comments, which do not appear to be addressed in the documents*. Third, this new exclusion appears to be inconsistent with the legislation authorizing the creation of the Red Cliffs NCA. [see Public Law 111-11, Section 1974(e)(1)(a)]. Please explain how removing the 200 acres from conservation complies with this legislation.
71	iii	Exec Sum	NA	NA	**Text**: "This Amended HCP adopts, with clarifications, the same set of Covered Activities as the 1995 HCP." **Comment**: Given the claim by this 2020 Amended HCP that the 1995 HCP did not expressly prohibit new roads, it seems prudent that the 2020 HCP should list Covered Activities allowed in the Reserve, and clearly state that "all other activities that do not contribute to the survival and recovery of the tortoise are prohibited in the Reserve." Please revise the HCP to make this language clear.
72	iii	Exec Sum	NA	NA	**Text**: "Therefore, the implementation of this Amended HCP remains consistent with the analyses in the 1995 Environmental Impact Statement and 1996 Biological Opinion." "[S]ubstantial new analysis of the impacts of the reauthorized take is not warranted—the USFWS has already deemed the authorized take to be consistent with the issuance criteria for an ITP." **Comment**: The latter part of this statement is not true if applied to the current request for an amended ITP. It is not relevant for an ITP issued 24 years ago. The status of the tortoise, as for any species, changes over time. Because an entity determined in the past that specific actions could be implemented that would not jeopardize the continued existence of a listed species, adversely modify or destroy critical habitat, and would contribute to the conservation of listed species does not mean those specific actions would produce the same determination. Unfortunately, the status of the tortoise in this recovery unit, status of the tortoise rangewide, and the quality of available habitat including critical

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					habitat are not the same as in 1995 and 1996 as they are now. Consequently, the analysis in the DEIS and BO should reflect these changes. The red, highlighted statement above should be removed from the HCP as it is not accurate.
73	v	Exec Sum	NA	NA	**Text**: "The Amended HCP uses a Habitat Conservation Advisory Committee (HCAC) and a Technical Committee (TC) appointed by the Washington County Commission …oversee and provide guidance on the implementation of the Washington County HCP. These committees provide adaptive management recommendations to the County, through the HCP Administrator, for addressing new information and uncertainty regarding the effectiveness of the conservation program." **Comment**: The analyses and discussions given in the DEIS and Amended HCP should be based in science. This section did not say what happens to the recommendations or the process for implementing them. Please add this information. Otherwise from the information provided, it appears there is a lot of discussion but not much implementation of action to manage for the tortoise. In its Five-Point Policy (USFWS and NMFS 1998), USFWS requires the HCP include science-based effectiveness monitoring and adaptive management to determine if all aspects of the conservation program are functioning. We did not see the monitoring/adaptive management for fencing, law enforcement, community education and outreach, recreation management, tortoise translocation, and fire habitat management in the 2020 HCP. In addition, this monitoring/adaptive management would be required for the compensation land acquired to offset the 66,301 acres of occupied and potential desert tortoise habitat the Applicant is requesting to take. The Applicant should provide assurances in the HCP that they will immediately modify the conservation actions when the effectiveness monitoring indicates an action is not producing the desired results. The Applicant should provide assurances in the HCP that they will take immediate corrective action if the results from compliance monitoring indicate compliance is not occurring. We stress immediate action because the Permittee has a history of not taking action to deal with tortoise predation (see St. George News October 25, 2019 "Efforts to control desert tortoise predation by ravens moving too slowly for some HCP committee members").

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					This Policy also requires compliance monitoring for all aspects of the Covered Activities. The HCP should include the methods and requirements for entities that will be implementing Covered Activities, how their actions will be documented, and how the locations and extent of habitat impacted will be mapped for tracking take of habitat. In addition, we have concerns about how the impacts of the taking of tortoise habitat will be determined as they frequently extend beyond the footprint of the Covered Activity.
74	v	Exec Sum	NA	NA	**Text**: "The community goals and objectives address the County's underlying purpose and need for continuing the implementation of the conservation program for a Renewed/Amended ITP Term." **Comment**: This statement is incorrect. The County would continue to implement the conservation program even without an amended ITP Term. The conservation program does not disappear when the permit expires. As stated in a previous comment, the development is permanent so the conservation program must also be permanent. A 25-year conservation program provides little to no benefit to a long-lived species. This time encompasses just one generation for the tortoise. The tenets of conservation biology and population ecology show that multiple generations must benefit so the trend is positive. We refer the decisionmaker to USFWS (2011) that says, "Recovery Objective 3 (Habitat). Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations." If "[t]he biological goals and objectives of this Amended HCP are consistent with the recommendations of the 2011 MDT Recovery Plan for the Upper Virgin River population of MDT, then implementation of conservation actions needs to continue until the rates of population change (λ) for desert tortoises are increasing (*i.e.*, $\lambda > 1$) over at least 25 years" and the "[d]istribution of desert tortoises throughout each tortoise conservation area is increasing over at least 25 years." (USFWS 2011).
75	v	Exec Sum	NA	NA	**Text**: "The Reserve has been established and the majority of Reserve land acquisitions have been completed…. Regardless of acquisition status, the collaborative effort of the County and the HCP Partners has provided for the establishment, management and monitoring of the Reserve since approval of the 1995 HCP" **Comment**: Given the intent of the regulatory agencies to reverse previous opposition to the Northern Corridor within the Reserve, we object to the above statement as being intentionally misleading and not reflective of current plans under the umbrella of "Changed Circumstances." Whereas these statements may be true prior to the 2020 reissuance of the ITP, in light of current plans, they will no longer apply after reissuance.

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76	v and 66-95	Exec Sum	NA	NA	**Text**: "…the County and the HCP Partners have made substantial progress toward fully implementing the goals and objectives of the 1995 HCP." According to the 2020 HCP (p.66), "The overarching intent of the Washington County HCP is to create a conservation program, compatible with the County's community goals and objectives, for conserving the Upper Virgin River population of MDT in its native habitat **in perpetuity** [**emphasis added**]. The 1995 HCP identified several biological goals and objectives for the conservation program, restated with some modifications here as follows: "To the maximum extent practicable, conserve the Upper Virgin River population of MDT within the Plan Area by • meeting substantively the recovery recommendations for establishing the Upper Virgin River DWMA (i.e., the Reserve) contemplated in the 1994 and 2011 MDT Recovery Plans; • placing most lands within the Reserve under BLM or UDNR ownership, subject to willing partnerships with non-federal landowners; • managing the acquired lands within the Reserve in a manner consistent with the conservation missions of the BLM and UDNR, with enforcement of associated land use restrictions; • removing land uses from the Reserve that are not Covered Activities and that impact the MDT, such as land development, grazing, off-road use, mining, and others; • incentivizing the siting of Covered Activities in areas that are not MDT habitat or that are poor-quality MDT habitat through land use planning, impact fees, and environmental education; • translocating healthy MDT individuals from areas affected by Covered Activities to the Reserve, thereby minimizing the impacts of the Covered Activities on the MDT and expanding the protected MDT population; and • monitoring MDT population trends and MDT threats in the Permit Area to support adaptive management actions." **Comment**: For the second bullet above, this objective is unclear. We interpret it as the Applicants wanting to divest themselves of the expense and responsibility of managing the Reserve. BLM ownership is not acceptable as they have a very poor record of management in other places in the southwest deserts. For the third bullet above, "managing the acquired lands within the Reserve in a manner consistent with the conservation missions of the BLM and UDNR" we disagree with this objective. It should be reworded to say the acquired lands in

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					the Reserve will be managed in a manner consistent with the 1994 and 2011 Mojave Desert Tortoise Recovery Plans and to conserve other listed and rare species in the Reserve including plant species and their habitats. BLM's management mandate is multiple use, not conservation. The mission of UDNR does not include plants (https://wildlife.utah.gov/strategic-plan.html). In addition, it is limited to managing wildlife and does not specifically include managing habitat. For the fifth bullet, we disagree that incentivizing the location of Covered Activities in areas that are not MDT habitat or that are poor-quality MDT habitat should be limited to only land use planning, impact fees, and environmental education. This sentence should be reworded to allow for other means of providing incentives. For the sixth bullet, "translocating healthy MDT individuals from areas affected by Covered Activities to the Reserve," this statement should be modified to say "translocating healthy MDT individuals from areas affected by Covered Activities **to agency-approved locations**." In this section, it appears the Applicants are measuring the success of the HCP on how many actions have been implemented (e.g., acres acquired) rather than whether these actions have resulted in improvements to the status of the MDT [e.g., improvements in demographic data (numbers, density, reduced sources of mortality) and in habitat quantity, quality, and connectivity]. The data on tortoise and tortoise habitats tell whether the actions are successful. If they are not, adaptive management was to be implemented to modify these actions. Given the demographic data that UDWR has collected on the tortoise in the Red Cliffs Reserve from 1999 to 2019, the data indicate the tortoise population has declined. We contend the HCP has not been accomplishing its goal with respect to the tortoise. We contend the HCP presents information that shows the HCAC has been following a checklist to complete actions rather than incorporating an analysis of the monitoring data and thereby using adaptive management to modify this list and implement actions that do contribute to conservation of the tortoise regarding demography and habitat. We argue that the 2020 HCP must be modified to address the declines in tortoise numbers and densities, recurring fires in the Reserve, and other impacts

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					that were learned from monitoring and scientific research in the Plan Area. This would mean adding biological objectives, conservation actions, monitoring, adaptive management, and funding to cover these additional actions.
77	vi	Exec Sum	NA	NA	**Text**: "The establishment of the Reserve **is the primary conservation measure** of the 1995 HCP that offsets the impacts of incidental take caused by the Covered Activities" (**emphasis added**). **Comment**: As stated in numerous places and reiterated here, if the Reserve is the primary conservation measure, then the construction of the freeway through the Reserve compromises the entire conservation balance envisioned by the HCP. HCP Partners appear (now) to be advocating the freeway, which undermines the veracity of this statement.
78	vi	Exec Sum	NA	NA	**Text**: "This Amended HCP clarifies the intent of the 1995 HCP that the respective landowners or land management agencies have the responsibility for ensuring that the long-term management and use of Reserve lands is consistent with the goals and objectives and allowed uses of this Amended HCP." **Comment**: This sentence is unclear. We are unsure whether it is directing land owners/manager to ensure that their land management plans are consistent with the goal and objectives of the HCP or that they are responsible for implementing and funding these goals and objectives. It should be the former. We request that this sentence be rewritten to say that the plans must be consistent with the HCP.
79	vi	Exec Sum	NA	NA	**Text**: "[T]he long-term management of the Reserve is supported by the Red Cliffs National Conservation Area (RCNCA) designation, the BLM RCNCA Record of Decision and Resource Management Plan, and UDNR's MDT Management Plan for Snow Canyon State Park." **Comment**: While this statement may be true now, these are management plans that can change at any time. They have no legal clout to require continued management of the Reserve. The BLM's proposal to grant a ROW to construct the Northern Corridor is one example of no guaranteed protection for the Reserve despite its designation as an NCA. Consequently, the HCP should include a legal designation on the lands in the Reserve, a conservation easement in perpetuity should be placed on these lands. This is one of many lessons learned from implementing the HCP since 1996 that should be modified in the Amended HCP
80	vii 86-88	Exec Sum 6.3.2.1	NA	NA	**Text**: "HCP Partners will, to the extent practicable, perform maintenance on Reserve fences within 60 days of notification of a maintenance issue."

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					Comment: Since the tortoise was listed in 1989, a 60-day notification has never been acceptable; repairs implemented as soon as possible should be the goal. Fence repair/replacement is likely an ongoing issue. The HCP partners should have equipment and supplies stored for fence repair/replacement and staff that can be assigned within a day to fix damage to desert tortoise exclusion fencing. This is one example of inadequate funding for implementation of the 2020 HCP. In addition, the Reserve Fencing section provides information on four types of fencing/barriers, total number of miles of fencing installed under the 1995 HCP, and a map of the land ownership of fencing. It does not provide a map delineating where each of the four types of fencing have been installed. Please add this information to an appropriate map in the HCP. The endowment fund for fence maintenance is an excellent idea and should be implemented. Given the recent accounts of tortoises killed by vehicle collisions in the Reserve, it would be helpful to provide data collected since 1996 on where vehicle collisions have occurred in the Reserve and what actions the HCAC took (adaptive management) to minimize these collisions. These data would indicate whether the current locations of fences are adequate or if additional fencing with shade structures need to be included as a conservation action with associated funding. The 2020 HCP should provide adequate funding for maintenance of all four types of fencing.
81	vii 86-87	Exec Sum 6.3.2.1	NA	NA	**Text**: "Installation of new fencing within the Reserve or along the boundary of the Reserve is not currently contemplated by Washington County or the HCP Partners. If, through adaptive management, the installation of new fencing is deemed a priority for achieving the biological goals and objectives of this Amended HCP, the landowner or management entity will be responsible for providing for the materials and labor for the installation and long-term maintenance of the fencing." **Comment**: First, new fencing to exclude tortoises should also include the construction of tortoise shade structures (see Balduini 2018). Second, we do not understand the delegating of responsibility to the landowner. If this is a minimization or mitigation measure under the Applicants' incidental take of the MDT, it should be the responsibility of the

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					Applicants. To pay for it and ensure it is implemented. If not, it appears that the purpose of the HCP is to tell others what to do and hope they do it. Please clarify this statement.
82	vii 88-89	Exec Sum 6.3.2.2	NA	NA	**Text**: "The BLM and UDWR will continue to be responsible for providing law enforcement within lands acquired for the Reserve. Law enforcement activities within the Reserve will focus on access and use regulations that implement the Red Cliffs Desert Reserve Public Use Plan, applicable BLM Resource Management Plans (RMPs), and all laws and regulations (local, state, and federal) that pertain to the protection and conservation of threatened, endangered, candidate, and Utah sensitive species and their habitats." **Comment**: As previously mentioned, these management plans can be changed so they allow for activities that are not compatible with the HCP/ITP. In addition, there is a patchwork of land ownership within the Reserve that makes effective law enforcement difficult. Consequently, there should be one set of rules for the Reserve, regardless of land ownership, that promote its conservation of the tortoise and its habitat.
83	vii 88-89	Exec Sum 6.3.2.2	NA	NA	**Text**: "The County will continue to allocate existing resources from the Washington County Sheriff's Office to provide law enforcement on unacquired lands within the Reserve boundary owned by SITLA or the Municipal Partners. The County estimates that an appropriate level of effort for this activity is approximately 20% of a full-time law enforcement position (i.e., approximately 416 hours per year)." **Comment**: In the 1995 HCP, two fulltime law enforcement officers were to be provided. Now existing staff from BLM, UDWR, and Sheriff's Department provide LE with no information how much time they spend patrolling. We presume they receive no budgetary assistance from the HCP. If so, this is unacceptable. LE in BLM is woefully inadequate in a rural setting. The needs for LE adjacent to a growing city are even greater. This is another lesson learned from the past 24 years. The 1995 HCP presumed that two LE positions were sufficient. We assert that calculating time on the job is grossly inadequate. There are 8,760 hours in a year. A Full Time Equivalent working for 52 weeks at 8 hours a week works 2080 hours a year. Subtract vacation time (average of 160 hours), sick time/injuries/doctor appointments (160 hours), mandatory training (100 hours), holidays (80 hours) leaves 1,580 hours or 197 days or 39 of 52 weeks of the year. Two people working is 3,160 hours in a year. If these two positions were dedicated full time to Law Enforcement of the Reserve, after vacation, sick leave, holidays, and training, their combined time would be 36 percent of the time

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					in a year to enforce/educate the public on appropriate activities in the Reserve. This calculation assumes no backup or overlapping of time on duty and assumes that two people can adequately enforce the area. We consider this another lesson learned from the implementation of the 1995 HCP that should be applied to the 2020 HCP and requires additional effort and therefore spending. The number and severity of unauthorized activities in the Reserve with respect to the take of tortoises and the math calculations above indicate that law enforcement needs to be increased substantially. In addition, the area they must cover and the human activities in the Reserve during the past 24 years with their resulting adverse impacts to tortoises and habitat resulting in declining numbers since the ITP was issued supports the need for a substantial increase in law enforcement presence on the Reserve.
84	viii 89-91	Exec Sum 6.3.2.3	NA	NA	**Text**: "Planning and funding to construct a new Red Cliffs Visitor Center facility in Washington County, as contemplated in the 1995 HCP. This new facility may also serve as a holding facility for MDT awaiting translocation or adoption or may support a head-start program." **Comment**: From this wording (i.e., "planning and funding to construct") we presume that the Visitor Center Facility would not be built in the next 25 years. Please explain why the planning and funding of this facility would take so long. We contend planning should take a few years, and time/methods to acquire the funds is up to the HCAC and Washington County Commission. Funds could be acquired in as little as a few years; or better yet, some of the seven million dollars sitting in the bank should be used for immediate planning and construction. If it will not be implemented during the permit term, it should not be included in the HCP.
85	viii 89-91	Exec Sum 6.3.2.3	NA	NA	**Text**: "The BLM and UDWR will also continue their respective programs for education and outreach regarding the MDT, other rare and sensitive resources, and the Mojave Desert ecosystem." **Comment**: On the BLM's Red Cliffs National Conservation Area webpage (https://www.blm.gov/programs/national-conservation-lands/utah/red-cliffs-nca), we found the following information on the tortoise: "Red Cliffs Desert Reserve, a multi-jurisdictional land base that has been collaboratively managed by BLM, the State of Utah, Washington County, and local municipalities since 1996 to protect populations and habitat of the threatened Mojave Desert tortoise." We did find a link to the NCA's congressional designation (P.L. 111-11), news stories (two on camping, one on land acquisition), links to the RMP, the Annual Manager Report for Fiscal Year 2016, a 1-page fact sheet that mentions the

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					tortoise once, and link to the Doyle land acquisition on the eplanning website, dated August 30, 2016. We conclude that BLM has not updated it webpage since 2016; that, or nothing noteworthy regarding management of the NCA or land acquisition has occurred since 2016. In addition, there is a printable map, interactive map, brochure, and webpage on camping information. The brochure is titled "Red Cliffs Recreation Area" and (https://www.blm.gov/sites/blm.gov/files/documents/files/Red%20Cliffs%20Recreation%20Area_Brochure.pdf); there is no mention of the tortoise. It stresses recreation opportunities and camping/access fees in the NCA. Our point is the BLM does not appear to have a program, at least online, for education and outreach regarding the MDT at the Red Cliffs NCA. Consequently, we recommend that BLM add this requirement to its list of tasks in the Implementation Agreement with USFWS, UDWR, and HCAC review if the current wording of the HCP is to be correct. Because the Applicants cannot control what BLM or UDWR does, they should develop, fund, and implement a community education and outreach plan and not rely on federal or state agencies to do it for them. It should be reviewed by professionals who know who to communicate with and effectively inform the public of the conservation of the tortoise and how conserving it and its habitat provides an economic and environmental benefit to their community and indirectly contributes to improving their quality of life.
86	ix 91-92	Exec Sum 6.3.2.4	NA	NA	**Text**: "UDWR coordinates with the BLM and the County to release healthy MDT into the Reserve" and "The County's, UDWR's, and the BLM's responsibility for the fate of translocated MDTs ceases once the MDTs are released into the Reserve or to another entity approved by the USFWS." **Comment**: This language is confusing. The HCP should clearly state that translocated tortoises will only be released on lands secured for the management of the tortoise in perpetuity. This requires permanent conservations easement or other legal entitlements. We suggest that the HCP clarify what is meant by "the fate of the translocated tortoise." The fate of the habitat into which it is translocated should never be in question as it will be if the Northern Corridor is facilitated by this planning process.
87	ix 94	Exec Sum 6.3.2.7	NA	NA	**Text**: "The County will also engage in the adaptive management process contemplated in the Public Use Plan." **Comment**: We are not sure what this means. It appears to be saying that the Public Use Plan which "provides the primary guidance for managing public recreation on lands in the Reserve" does not have an adaptive management requirement. If so, it does not meet the requirements of an HCP. This language should be changed to require

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					implementation of adaptive management in the development, implementation, and/or monitoring of any plan that affects the ecological resources of the Reserve. If this language was in the 1995 HCP, it did not meet the requirements for permit issuance. Please change this language to require adaptive management.
88	x 94	Exec Sum 6.3.2.7	NA	NA	**Text**: "The County launched a Trail Stewards Program to recruit, train, and support qualified volunteers in monitoring trail conditions, conducting minor trail maintenance, providing visitor information, and reporting instances of vandalism and noncompliance with Reserve regulations. The County intends to continue this program for the Renewed/Amended ITP Term." **Comment**: In addition, if the Applicants are unable to operate this program with volunteers, there should be provisions in the HCP to fund this program. In addition, the wording sounds like this program is part of the law enforcement program (e.g., "reporting vandalism and noncompliance with Reserve regulations.") We presume these reports are submitted to law enforcement and the HCAC to be corrected ASAP (e.g., adaptive management).
89	x 95	Exec Sum 6.3.2.8	NA	NA	**Text**: "The County will establish an adaptive management fund to help support planning, monitoring, and responses for fire management within the Reserve boundary." **Comment**: This is another example of unclear language. Please change this to say the County will fund actions to restore habitat in any area in the Reserve destroyed/damaged by fire regardless of the fire source. If the County and its partners had been managing the Reserve for tortoise, which also means managing the habitat, at the top of the list would have been management of nonnative plant species to substantially reduce their presence in the Reserve. Nonnative plant species fuel and carry fire in the Mojave Desert. Prior to their presence, large areas of fire or reoccurring fires were unknown in the Mojave Desert. Appendix D-2 of the HCP says "In 2018, wildfire continues to be one of the greatest threats to tortoise habitat." We agree. This threat should be managed for in the HCP's biological goals, objectives, and conservation actions.
90	x 95	Exec Sum 6.3.2.8	NA	NA	**Text**: "Reserve Habitat and Fire Management Plan [was] adopted by the HCAC in October 2019 to help set priorities for Reserve management during the Annual Work Plan process and to provide guidance to the County, the HCP Partners, and fire crews for addressing wildfire-related threats within the Reserve." **Comment**: We support this action. However, Appendix D of the 2020 HCP says, "destructive wildfires…burned ~25% of the RCDR in 2005." We do not understand why the HCAC took 23 years from issuance of the 1996 ITP and 14 years

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					from the disastrous 2005 wildfires to develop this plan. This is another example of the HCAC not implementing adaptive management when a substantive threat was known, as there were fires earlier in the ITP term that had adverse impacts on the tortoise and tortoise habitat in the Reserve. For example, Appendix D of the HCP says, "In 2018, wildfire continues to be one of the greatest threats to tortoise habitat." So, the threat has been known but the response has been lacking.
91	x 96-98	Exec Sum 6.3.3	NA	NA	**Text**: "This committee process established by the 1995 HCP and coordinated by the County for the original ITP Term has proven highly successful at identifying and solving issues regarding the HCP's conservation program." **Comment**: We assert that the committee process has not been successful as the number and density of tortoises and acres of high quality habitat have declined since the ITP was issued in 1996 (please see Attachment B following these tables). We conclude that the adaptive management process is not working. It needs to integrate science (e.g., monitoring data about tortoise demographics and tortoise habitat quality, configuration, and quantity) to determine if the conservation actions are achieving the biological goals and objectives.
92	x	Exec Sum	NA	NA	**Text**: "This committee process established by the 1995 HCP and coordinated by the County for the original ITP Term has proven **highly successful at identifying and solving issues** regarding the HCP's conservation program" (**emphasis added**). **Comment**: We feel that this statement is disingenuous in light of the active intent of the "committee process" to accommodate the Northern Corridor. It is also our understanding that ubiquitous wildfires (page 3-152 in Volume 2), persisting raven predation on tortoises (page 3-40 in Volume 2), proliferation of weed species (Map 3.2-2a in Appendix B), documented poaching of tortoises (referred to on page 3-36 in Volume 2 but incidences not documented in the DEIS), the injury and death of 146 tortoises crushed on existing roads inside the Reserve (page 3-36 in Volume 2), and now active planning for the Northern Corridor are evidence that conservation is considerably less than "highly successful." All of these impacts (many of which are not stochastic as stated on page x) have resulted in persisting tortoise declines, which is evidence that the HCP is not functioning as intended, and indeed, needs to be amended WITHOUT accommodating the Northern Corridor.
93	x	Exec Sum	NA	NA	**Comment**: The following statement in the Executive Summary on page x, "…the population of MDT within the Reserve appears to be relatively stable and robust" is totally unsupported by the data. Page 3-48 of Volume 2 of the

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					DEIS states: "Within the Reserve, UDWR surveys between 1999 (3,404 Mojave desert tortoises) and 2020 (2,011 Mojave desert tortoises) show an overall decline of 41 percent (UDWR 2020)." Attachment B following these tables clearly shows consistent, persisting declines in tortoise numbers throughout the Plan Area. Page 3-55 of Volume 2 indicates that in just two years density estimates have fallen from 17.2 tortoises/km^2 in 2017 down to 12.3 tortoises/km^2 in 2019. Here, the Amended HCP indicates that as of 2017, tortoise densities were at 19.6 tortoises/km^2, and that they had been as high as 29.6 tortoises/km^2 prior to 2005 fires. In light of these and other data, how can the HCP claim "stable and robust" populations relative to 1995 estimates? We find the one-sidedness of the Executive Summary to the Amended HCP that presents the "success" of previous implementation to be misleading and presumptuous, and in the case of tortoise densities and trends, simply wrong. We find the HCP to be biased towards lauding successes without focusing on persisting problems that are happening even in the absence of the planned-for Northern Corridor.
94	x	Exec Sum	NA	NA	**Text**: "Therefore, monitoring indicates that the conservation program of the Washington County HCP is effective, and **ongoing funding by the County is no longer necessary to assess the basic efficacy of the conservation program**" (**emphasis added**). **Comment**: Given previous observations, we are concerned with the accuracy of the above statement and the apparent intent to discontinue the County's fiscal responsibilities to monitor ongoing efficacy of the HCP. We then read in the bullets that the County may, at its discretion, volunteer to provide monitoring here and there but it will be the responsibility of BLM and UNDR to provide funding and implement monitoring. As the entity seeking take authorization and responsible for implementing requisite HCP commitments, it appears that the permittee (Washington County) is claiming success of the HCP, so far, and relinquishing its responsibilities going forward. Is this consistent with the Implementing Regulations of Section 10 of FESA?
95	xxvii	Glossary	NA	NA	**Text**: "[HCAC] Oversees the administration of the Washington County HCP and advises the Washington County Commission on the interpretation of the HCP document." **Comment**: This interpretation of the HCP should be a minor component of the HCAC's duties if the HCP is written in clear language. We find this lack of clarity to be a major flaw in the revised 2020 HCP; specifically, its lack of clarity in describing biological objectives, conservation actions, monitoring, adaptive management, and funding render it deficient in numerous ways.

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96	2	1.2	NA	NA	**Text**: "The central conservation measure of the 1995 HCP was the creation of the 61,022-acre Reserve. The Reserve design was consistent with the criteria for the Upper Virgin River Desert Wildlife Management Area (DWMA) envisioned by the 1994 MDT Recovery Plan (USFWS 1994a:62–63; see discussion in Chapter 7.1.2 of the 1995 HCP)." **Comment**: Although it was prudent that this was a consideration in 1995, it is now imprudent that development of the Northern Corridor now compromises reserve design, which is no longer consistent with the 1994 Recovery Plan (USFWS 1994), which states: "Blocks of habitat that are roadless or otherwise inaccessible to humans are better than blocks containing roads and habitat blocks easily accessible to humans." Not only are BLM, USFWS, the County, and their consultants now facilitating development of the Northern Corridor, they are taking the opportunity to construct adjacent trails thereby increasing the accessibility of the primary Reserve to humans.
97	4	1.2	NA	NA	**Text**: "The County and the HCP Partners adopted a conservation program designed **to promote conservation and recovery** [**emphasis added**] of the MDT (ITP No. TE036719:2) and meet substantially the recovery goals for the MDT in the UVRRU (1995 HCP:9, 120)." **Comment**: We contend that the County and HCP Partners have not achieved substantial progress toward promoting the conservation and recovery of the MDT in the UVRRU or rangewide. This position is supported by the most recent data on tortoise demography and comparing it with data from before the ITP was issued. Please see McLuckie et al. 2018, which is summarized in Attachment B following these tables; Attachment D to these comments - Status of the Mojave Desert Tortoise (*Gopherus agassizii*) from USFWS 2015; and Allison and McLuckie 2018. Our conclusion is also supported by the acreage of tortoise habitat damaged/destroyed by fire in the Reserve during the permit term of the 1996 ITP.
98	5	1.3	NA	NA	**Text**: "Namely, the Original ITP was identified as a renewable permit, the County applied for a renewal in advance of the original expiration date, the USFWS acknowledged receipt of the renewal application, and the County (as the permittee, in conjunction with those entities performing Covered Activities under its direct control) did not complete the Covered Activities before the expiration of the Original ITP, and the mitigation commitments prescribed under the 1995 HCP have kept pace with (actually exceeded) the takings." **Comment**: However, the HCP Handbook says, "Revisions depend on how much of the originally Covered Activity has been completed, whether the mitigation has kept pace with impacts, or possibly if the status of covered species has

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					changed. The effects of climate change, or other factors, may lead us to recommend new species or habitat surveys to identify potential HCP amendments." We contend that the mitigation has not kept pace with the impacts as tortoise numbers and densities have declined, the status of the species has changed in the recovery unit and rangewide, and climate change has adversely affected habitat quality and quantity for the tortoise in the Plan area. In addition, the HCP fails to mention the numerous limitations that are listed in the USGS habitat model regarding its accuracy, including not considering habitat quality, land uses that degrade habitats and statements by scientists that in some of the identified habitat areas, tortoises did not occur (USFWS 2011).
99	5	1.3	NA	NA	**Text**: "Revisions depend on how much of the originally covered activity has been completed, whether the mitigation has kept pace with impacts, or possibly **if the status of covered species has changed**" (**emphasis added**) . **Comment**: With regards to the above statement for reasons to renew and amend HCPs, since 2004, the declining populations of tortoises throughout the listed range excepting the Northeastern Mojave Recovery Unit (Allison and McLuckie 2018) directly relates to the emphasized wording above. Table 6 on page 33 of the Amended HCP shows a 24.3% reduction in tortoise numbers in the Upper Virgin River Recovery Unity. In California, declines in all recovery units within the state led to a 2019 petition by the Council, Defenders of Wildlife, and Desert Tortoise Preserve Committee to upgrade the State listing of *Gopherus agassizii* from threatened to endangered. Yet, counterintuitively, Utah field offices of the agencies are promoting development of the Northern Corridor through a local tortoise population that is already imperiled in the absence of the freeway while simultaneously providing for the elimination of tortoises from areas outside the Reserve in take areas throughout the County.
100	5	1.3	NA	NA	**Text**: "The Amended HCP includes revisions appropriate to **address changes to the status of the listed species in the Plan Are**a and current regulatory requirements for ITPs" (**emphasis added**). **Comment**: Given the documented decline of 41% of tortoises within the Reserve (page 3-48 of Volume 2), how is the above statement accurate? Should not such a significant reduction be remedied by enhanced protections in the Amended HCP, and prohibit the construction of a freeway through the Reserve?
101	6	1.3	NA	NA	**Comment**: How can the Reserve be the "…central conservation measure of the 1995 HCP" (page 2) and the Amended HCP, which will accommodate the Northern Corridor under the guise of a Changed Circumstance, still claim the "…basic framework of the 1995 HCP has been preserved?" (page 6). Herein, we assert that the basic intended function

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					of the Reserve is lost by constructing a freeway through its most dense tortoise concentrations. We also ask that the agencies address the perception that there is a conflict of interest in having Washington County serve both as a proponent of the Northern Corridor and managing partner in amending the HCP.
102	9	1.5	NA	NA	**Comment**: The fourth paragraph on page 9 refers to Section 10 of the Endangered Species Act but mixes the Act's requirements with the Code of Federal regulations requirement. Whereas, Section 10 allows the Secretary of the Interior to issue an incidental take permit and to receive other such assurances, the CFRs require the USFWS to follow certain procedures to issue an ITP and these are mentioned in paragraph 5 of the HCP. Please correct this misinformation in the Amended HCP.
103	NA	NA	NA	NA	**Comment**: The HCP uses "Implementing Agreement" *and* "Implementation Agreement." The use of more than one term for the same document is confusing. We request that the terms used in the HCP be consistent throughout the document.
104	10	1.5	NA	NA	**Text**: "The HCP Handbook also provides guidance regarding amendments and renewals for HCPs and ITPs (HCP Handbook:17-5)." **Comment**: Please change this to say HCP Handbook 17-4. Section 17.5 is "When Additional NEPA, Section 7, or NHPA Compliance Is Needed."
105	12	2.1	NA	2	**Comment**: To provide clarity and avoid confusion, this table should state that these Covered Activities are located "outside the Reserve boundary." This is in the narrative but not the table and is needed for clarity and consistency.
106	12	2.1	NA	NA	**Text**: "For example, the Covered Activities may include future otherwise lawful land uses that occur on lands under federal ownership at the outset of the Renewed/Amended ITP Term but that have become non-federal by the time the otherwise lawful land use occurs, such as may occur through land exchanges associated with Reserve land acquisitions or other BLM land sales or dispositions." **Comment**: This wording is confusing, and is not an example. Does this mean if a permittee has grazing authorization on BLM land now and the land is transferred to the reserve under non-federal ownership, the permittee continues to have the right to graze this land? If this is correct, this is unacceptable and the grazing should not be allowed. Please clarify this language and provide an example. Any land placed in the Reserve should have a permanent conservation

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					easement placed on it, as a minimum, so the land is managed for its intended purpose in the Reserve. If the loss of habitat is in perpetuity, the acquisition and management of habitat must be in perpetuity.
107	12	1.2	1	NA	**Comment**: According to the HCP Handbook (USFWS and NMFS 2016) "The permit area must be clearly delineated with a map and written description in the HCP and the permit. The written description may include township, range, and section information; plat map and parcel numbers; global positioning system (GPS) coordinates; legal descriptions; or whatever is necessary to ensure that there is no uncertainty as to where Covered Activities may occur and take is authorized." We were unable to find a legal description of the permit area or a map/figure that clearly delineates the permit area. While Figure 1 shows the County boundary for the Plan Area, the permit area is smaller. The western boundary of the permit area cannot be determined from the figure provided. Please add a map of the permit area that clearly shows which lands near the western border are in the permit area and which lands are outside.
108	12-13	2.2	NA	2	**Comment**: There is no table listing Covered Activities *inside* the Reserve. Please add this table so it corresponds to the Table 2 of Covered Activities *outside* the Reserve, clearly label the title of the table as "Covered Activities inside the Reserve," and include a list of non-covered activities inside the Reserve. This is needed for clarity and allows the comparison of activities inside and outside to Reserve to better determine the completeness and clarity of the tables.
109	13-14	2.2	NA	NA	**Comment**: All Covered Activities that are likely to occur inside the Reserve that will benefit the tortoise but may result in take should be included in this section. This information must be complete for the USFWS to analyze these impacts and to provide incidental take coverage. This would include types of activities for habitat management (e.g., reduction of invasive plant species – hand pulling, backpack herbicide spraying, etc.), fire prevention, and fire suppression methods, habitat restoration methods, trail maintenance methods, etc. and equipment that would be used. Failure to do so would result in amending the HCP and prolonging the authorization process for these activities to be implemented to help with conserving the MDT. Please ensure all Covered Activities inside the Reserve are described.
110	13	2.2	NA	NA	**Text**: "The County has direct control over these activities when performed directly by the County, through agreements with the HCP Partners and Municipal Partners, and through the issuance of permits or other legal mechanisms, as applicable." **Comment**: Please add that when they are partially or completely funded by the County, the County has direct control over these activities.

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111	13	2.2	NA	NA	**Text**: "Infrastructure facilities, as contemplated herein, include the temporary and permanent ROWs or workspaces and the physical structures associated with such facilities." **Comment**: This paragraph should clarify if this applies to existing ROWs or anticipates that additional ROWs will be needed and granted. It should clarify that a road is authorized only for the use of the utility and not for public use.
112	14	2.2	NA	NA	**Text**: **"Zone-specific allowed uses:** This Amended HCP clarifies that the following zone-specific allowed uses are Covered Activities when performed in accordance with the conservation measures specified in Chapter 6. Reserve Zones 4 and 5 do not have zone-specific allowed uses. o **Reserve Zone 1:** Low-density residential development limited to a maximum overall density of one unit per acre with minimized surface disturbance during development, retention of native vegetation, and restrictions on exotic plant materials. o **Reserve Zone 2:** Existing state and local government uses are Covered Activities, including, but not limited to, existing public recreational access and use of related facilities and various infrastructure facilities (e.g., detention basins, wells, utility access roads). o **Reserve Zone 3:** Existing state and local government uses are Covered Activities, including, but not limited to, the continued operation, use, and maintenance of facilities associated with the City of St. George law enforcement training range, the debris basin behind City Creek dam, Pioneer Park, and other various infrastructure facilities (e.g., detention basins, wells, utility access roads)." **Comment**: This paragraph is not clear. Does "maximum overall density of one unit per acre with minimized surface disturbance during development" mean a person can build a 10,000 square foot home, several outbuildings, and a paved driveway and patio occupying similar square footage? While we presume this is an extreme example, if it is permissible, then this would not be acceptable. The zoning requirements should be included in the HCP as they could be changed in the next 25 years. We recommend that the entire paved and/or graded surface should be less than 10 percent of a 1-acre parcel.

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					We found no information on the types of businesses that may be conducted from a person's residence in Zone 1. This information should be included in the HCP to determine if the activities associated with the business are acceptable for the biological goals and objectives of Zone 1.
113	14	2.2	NA	NA	**Text**: "Some activities specifically allowed within the Reserve under the 1995 HCP are no longer relevant to this Amended HCP and have been removed from the list of Covered Activities." **Comment**: We found no list. We found a narrative. Lists allow comparison of activities/issues between sections of the HCP (e.g. Covered Activities outside the reserve and Covered Activities within the Reserve) and facilitate determining their completeness and clarity.
114	14	2.2	NA	NA	**Text**: "For example, the 1995 HCP covered the continued operation of the Moroni Feeds Turkey Farm in Reserve Zone 3 (1995 HCP:32). However, the private lands associated with the former Moroni Feeds Turkey Farm in Reserve Zone 3 have been acquired for conservation purposes by UDWR, and the farming activity has been discontinued." **Comment**: Because this is an amended HCP, it is crucial that all changes from the 1995 HCP to the 2020 HCP be clearly documented and described in the 2020 HCP in a table. Providing examples is helpful to explain a concept but not for providing clarity of information on all changes to Covered Activities inside the Reserve that no longer apply and why. Please add a table of Covered Activities inside the Reserve that no longer are applicable and why.
115	14	2.2	NA	NA	**Text**: "Neither the 1995 HCP nor this Amended HCP expressly prohibit uses of the Reserve that are not Covered Activities." **Comment**: Washington County is using the argument that because the 1995 HCP did not explicitly prohibit roads, new roads can be constructed and used in the Reserve and is excluding acreage from the Reserve boundary or a major new road in the Amended HCP. This is unacceptable. Providing information on activities that are allowed and not allowed are equally important and should be listed and described in the Amended HCP. Regarding the example provided, while there may be lands inside the Reserve boundary that have not become part of the Reserve (e.g., private inholding lands, etc.), this does not prevent the Amended HCP from listing uses that are prohibited in the Reserve that are not Covered Activities. Providing no information provides no clarity for current and future land management including the purpose and intent of that management. Thus, to provide clarity, prohibited uses in the Reserve should be added to the HCP.

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					Consequently, for all Zones in the Reserve, the HCP should include a list and description of activities that are not allowed in each zone in the Reserve in addition to Covered Activities. Activities not allowed should include new roads and modifications to existing roads that increase the footprint, frequency or type of use, or other factors that would adversely affect the tortoise and/or tortoise habitat. If this action had occurred in the 1995 HCP, we might not be in the current situation regarding the road issue (Northern Corridor freeway) through the Reserve because the 1995 HCP did not expressly prohibit new roads. This should be an example of applying adaptive management to the Amended HCP. When amending an HCP, the process requires examining what did not work in the original HCP and changing it in the Amended HCP to correct this (i.e., adaptive management), avoid continuing these mistakes into the future, and provide clarity. Any use or action that would result in disturbance to the soil or vegetation in the Reserve, unless it intended purpose is to benefit the tortoise and its habitat, should be prohibited unless it is a Covered Activity.
116	15	2.3	NA	NA	**Text**: "Collaboration is an important principle of this Amended HCP and achieving the biological goals and objectives of this Amended HCP requires the cooperation of multiple HCP Partners across many layers of government." **Comment**: We agree. While the success of the Conservation Program and management of the Reserve depends on successful collaboration and timely implementation of it by all federal, state, and local partners, the federal and state Partners are not required to implement conservation actions. Please see Sections 7.C. and 8.E. of the Implementation Agreement. The first section says, "Effect of Federal Default - Failure to comply with or perform the applicable commitment and requirements of this IA or the Amended HCP on the part of a Federal Party shall not result in the suspension or revocation of the New ITP as to any other Parties or any Certificate Holder that is in compliance with the requirements of this IA. Likewise, such a failure will not negatively affect the renewal, amendment, or any other type of extension sought by the applicant." Thus, if the BLM does not implement its part of the Conservation Program for the Reserve, this failure would not affect the renewal of the permit. The second section says, "Availability of Funds - Implementation of this IA and the Amended HCP by the Parties is subject to the requirements of the federal Anti-Deficiency Act, the laws of the State of Utah, and the availability of appropriated funds from each Party respectively. The Anti-deficiency Act prohibits Federal agencies from incurring obligations or making expenditures (outlays) in excess amounts available in appropriations or funds (31 U.S.C. § 1341 (a)(l). Agencies of the State of Utah are likewise

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					enjoined in Utah Code§ 63G-6a-1204 from entering into contracts or incurring obligations that commit funding beyond that appropriated. Therefore, Federal and state agency support of the conservation measures in the HCP is contingent on having sufficient funding over the term of the HCP." We acknowledge a requirement to not overspend an appropriated budget. However, we also know that federal and state agencies are given much latitude in how they spend a portion of their budget. Thus, these laws are frequently used as a reason why actions did not happen, when it was a management decision rather than a lack of funds. Ultimately the IA appears to require nothing of the federal or state agencies sunless specifically appropriated by their legislative bodies. Consequently, we are not sure what the purpose of the IA is other than to say this might happen.
117	22	3.2.1	NA	NA	**Text**: "The MDT is a large, herbivorous reptile that can live up to 80 years." **Comment**: Please note the following studies. Curtin and others (2009) used skeletochronology and reported that the oldest western Mojave desert tortoise males reached 56 years compared with 27 years for females. In comparison, the oldest Sonoran desert tortoise males reached 47 to 54 years and the oldest Sonoran desert tortoise females reached 42 to 43 years, the latter significantly older than Mojave females. Medica and others (2012), in a 47-year study reported that the average age of long-term surviving tortoises was 43 years (range = 39–47 years). The lifespans described for tortoises in these studies were shorter than those previously assumed (e.g., up to 83 years) and may alter assumptions for population modeling and viability analyses. We suggest you update this information in the Amended HCP.
118	23	3.2.2	NA	NA	**Text**: "The UVRRU is the smallest Recovery Unit and is entirely contained within the County." **Comment**: According to the 1994 Recovery Plan and Proposed Desert Wildlife Management Areas (DWMAs) (USFWS 1994), now called "Tortoise Conservation Areas," the UVRRU had an extremely high degree of threat. It had the highest density of tortoises estimated at up to 250 adults per square mile. However, it has only one DWMA [or Tortoise Conservation Area (TCA)]. The desert tortoise population is considerably smaller than that identified in the Recovery Plan as necessary to ensure an adequate probability of population persistence. However, a population of this size can persist if anthropogenic sources of desert tortoise mortality are strictly controlled. The current population has doubtlessly persisted primarily because rugged terrain and poor access discourages anthropogenic habitat destruction and direct sources of desert tortoise mortality. [Recovery Plan 1994 – "Preserving viable populations of desert tortoises within each of these units is essential to the long-term recovery, viability, and genetic diversity of the species."]

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					For the Upper Virgin River Recovery Unit, the Recovery Plan says, "**Develop reserve-level management within DWMAs"** (**emphasis added**). "Because the factors causing the decline of the desert tortoise are primarily human-related, many human activities within DWMAs will need to be strictly regulated or eliminated." These includes "eliminating burro, horse, and domestic livestock grazing; limiting vehicular access, including prohibiting new vehicular access and reducing existing access; and prohibiting new surface disturbances…" This information on management of this Recovery Unit and TCA should be included in the Amended HCP.
119	27	3.2.3.2.1	3	NA	**Comment**: We recommend that Figure 3, which depicts low, medium, high densities and potential tortoise occupied habitats relative to the larger permit and Plan Areas, be supplemented with a second map (perhaps Figure 3b) that shows these polygons within a map focused on the Reserve so that better resolution provides a better depiction of these areas. Zone 6 boundaries should also be added to this enlarged map, which we expect will demonstrate that all of Zone 6 is comprised of Low MDT densities.
120	28-30	3.2.3.2.2 3.2.3.3	5	NA	**Text**: "The USGS model quantifies the statistical probability of MDT habitat potential at a spatial resolution of 1 square kilometer (0.39 square mile), based on an analysis of 16 environmental data layers and MDT occurrences (Nussear et al. 2009). However, the scale of the USGS model is relatively coarse and the model does not account for anthropogenic changes to the landscape, such as urban development (Nussear et al. 2009)." **Comment**: We have several concerns with the way the Nussear et al. (2009) report and potential habitat model for the desert tortoise are used in the 2020 HCP. We have described these concerns in an attached document (Attachment C). Paramount among these concerns is the dismissal of most of the limitations and assumptions the authors presented for assumptions made regarding ecological and behavioral differences, threats, population viability, and reserve design (e.g., habitat quality, habitat quantity, conformation of habitat blocks and edge effect, adequate connectivity between blocks of habitat, etc.). It appears that the 2020 HCP has disregarded most of these limitations and assumptions and used the results of the model as the foundation for the development of the HCP analysis. In addition, the figure (Figure 5 in the 2020 HCP) that maps "suitable tortoise habitat" does not agree with the map from USFWS (2019d) that shows contiguous high value habitat in the UVRRU. We request that these concerns be addressed in the revision of the 2020 HCP and any documents used to support the HCP.

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					The 2009 habitat model produced a map the indicated areas with tortoise habitat from 0.5 probability (i.e., 50 percent chance it is tortoise habitat and 50 percent chance it is not) to 0.99 probability. However, even with a 0.99 probability, Nussear et al. (2009) lists several limitations and assumptions regarding the accuracy of the model's predictions. Among these are the absence of data throughout the range of the tortoise (e.g., climatic data), the need to interpolate data because of this absence, and modeled data for some environmental variables may be untested/incorrect, and the results were scaled to a coarse level (i.e. 1 square kilometer). In addition, we note the model used habitat parameters for both the Sonoran desert tortoise and Mojave desert tortoise. These and other limitations and assumptions render the map of modeled desert tortoise habitat in Nussear et al. (2009) unreliable in its accuracy. We suggest that models are only as accurate as the data used to develop them. They should be verified with statistically adequate ground-truthing throughout the area that they represent. For the 2020 HCP, this would be Washington County. In addition, a model is a tool among many tools to use to help answer a question; it should not be the only source of information for answering a question (e.g., determining occupied and potential habitat for the Mojave desert tortoise).We suggest that the new, revised 2020 HCP employ a more recent model with finer spatial scale produced by Defenders of Wildlife modelling effort (Feinberg et al. 2019), which identifies less habitat for the Mojave desert tortoise in Washington County.
121	30-32	3.2.3.3 3.2.3.4	5	4	**Comment**: Please see our comments in Attachment B regarding the habitat estimates used in the 2020 HCP.
122	32	3.2.3.4	NA	NA	**Text**: "Based on the updated habitat modeling, approximately 40,000 acres of MDT Habitat within the Permit Area (15%) may have been lost to development activities between 1995 and 2019, with approximately 22,821 acres of loss occurring on non-federal lands outside of the Reserve (26%)." **Comment**: We interpret this to mean that of the 24,096 acres of occupied (12,264 acres) and potential (11,832 acres) tortoise habitat that was authorized for incidental take of the MDT in the 1996 ITP, 94.7 percent of this take occurred between 1996 and 2019. Consequently, there is little unrealized take of MDT as the 2020 HCP claims in Section 5.2.2.2 Amount of Renewed Take Authorization. In this section it requests the acreage where incidental take should be allowed

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					to increase to 66,301 acres or almost a 30 percent increase. Where are the minimization and mitigation measures to offset this additional incidental take?
123	32-33	3.2.4.1.	NA	6	**Comment**: In 2018, the Beaver Dam Slope, Gold Butte, and Mormon Mesa Tortoise Conservation Areas in the Northeastern Mojave Recovery Unit were surveyed. All their density estimates declined from 6.2 to 5.1 adult tortoises per square kilometer, 2.7 to 2.3, and 6.4 to 3.6, respectively. Table 6 needs to be amended to include this information.
124	33	3.2.4.2.	NA	NA	**Text**: "Applying the USFWS's estimated density of MDT outside of the Reserve (i.e., 1.3 MDT per square kilometer) to the MDT Habitat that occurs in the portion of the Plan Area that is outside of the Permit Area suggests that the current population of MDT in the Plan Area may be approximately 4,970 individuals." **Comment**: While worded as a suggestion, we object to using a model of potential tortoise habitat with numerous limitations an assumptions to calculate the density of tortoises in the UVRRU. This is an assumption built on an assumption. Please see our comments in Attachment B regarding the inappropriate way this habitat model is used throughout the 2020 HCP.
125	33	3.2.4.2	NA	NA	**Text**: "The USFWS estimates that the population of MDT within the UVRRU (a geography that is analogous to the Permit Area for this Amended HCP) may be approximately 4,449 individuals. Approximately 2,401 MDT may occur within the Reserve and 2,048 MDT may occur within the UVRRU outside the Reserve (Hilary Whitcomb, USFWS, personal communication to Amanda Aurora, SWCA, via email on May 14, 2020). The USFWS further estimates that the number of MDT occupying non-federal lands within the Permit Area but outside of the Reserve is 947 individuals." **Comment**: Please provide information or a useable reference that indicates how the USFWS arrived at these calculations. A personal communication is not available to the public for review.
126	33	3.2.4.2	NA	NA	**Text**: "Applying the USFWS's estimated density of MDT outside of the Reserve (i.e., 1.3 MDT per square kilometer) to the MDT Habitat that occurs in the portion of the Plan Area that is outside of the Permit Area…" **Comment**: Please see our comments in Attachment B regarding the inappropriate way this habitat model is used throughout the 2020 HCP.
127	33	3.2.4.2	NA	NA	**Text**: "According to line-distance sampling efforts in 2017, Reserve Zones 2, 3, and 5 support approximately 19.6 adult MDT per square kilometer (36.7 per square mile) and 2,250 adult MDT (McLuckie et al. 2018). Prior to wildfires in 2005, densities were as high as 29.6 MDT per square kilometer. However, UDWR considers the population of MDT

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					within the Reserve to have stabilized: there is no evidence of further declines in tortoise densities" (McLuckie et al. 2020)." **Comment**: McLuckie et al. (2020) also says "Although the population is considered stable, we have observed a localized decline of densities in Management Zone 3, **the core of the Reserve** (**emphasis added**). Tortoises in this area, particularly the west side of Cottonwood Rd, have declined significantly over the years. In 1994, mark recapture plots estimated 87 to 114 tortoises per mile^2 in the City Creek monitoring plot, a square mile plot located west of Cottonwood Spring Rd within Management Zone 3 (Fridell et al. 1995a; Fridell et al. 1995b). During the first several years of monitoring (1998 to 2001), tortoise densities were consistently high; however, following two [types of] stochastic events, drought and wildfire, tortoise densities decreased over 50%, from an estimated 3,351 adult tortoises in 2001 to 1,181 adults by 2019. Further, in 2019, we observed one of the lowest encounter rates recorded in Management Zone 3 since monitoring began in 1998." In addition, the recent Turkey Farm Road and Cottonwood Trail fires that burned 12,000 and 3,000 acres, respectively, in the Reserve likely resulted in the loss of tortoises and tortoise habitat, as these are stochastic events similar to the fire reported by McLuckie et al. (2020) quoted above. We have read reports of 20 to 25 percent of tortoise habitat in the Reserve has been affected by these recent fires. In addition, McLuckie et al (2020) says, "Wildfires in 2005 resulted in substantial losses of adult and juvenile tortoises, with observed mortality rates higher than all other monitoring years (1998 to 2019). The 2005 wildfires burned approximately 7,885 acres of tortoise habitat in the Reserve (~20%; McLuckie et al. 2007)." Thus, the data in the 2020 HCP indicating a stabilized tortoise population is not correct. Please revise the 2020 HCP to include correct this information.
128	34	3.2.5	NA	NA	**Comment**: This section provides an overview of the threats to the MDT rangewide. This information is helpful. However, what is missing from the 2020 HCP is identification of the threats to the UVRRU population of the MDT and their severity. The threats to the UVRRU tortoise population may differ in type or intensity from the species as a whole. This information should be available from population surveys, other monitoring activities conducted in the Plan Area since 1996, and scientific literature derived from the area. This information on local threats and their severity is necessary to develop appropriate biological goals and objectives and conservation actions to implement in the 2020

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					HCP to reduce these threats to the MDT. Please add this information to this section. We note that Section 3.4.2 provides information on the MDT at a rangewide and UVRRU population level. Given the decline in tortoise numbers and densities in the Reserve since 1996 (see Attachment B), we suggest this indicates that the Reserve is not being managed to strictly control anthropogenic sources of tortoise mortality (e.g., loss of nutritional forage from fires, failure to substantially reduce the presence of non-native invasive plant species, failure to restore habitat for the tortoise, failure to eliminate vehicle-caused mortality and injury (e.g., reports continue of tortoises being run over in Snow Canyon, etc.). All threats to the tortoise specifically known for the UVRRU and the Reserve should be included in this section.
129	34	3.2.5	NA	NA	**Comment**: We find that the paragraph referencing USFWS statements about threats to be generalized and woefully inadequate. The DEIS provides, at least, the following information relative to documented threats: wildfires (page 3-152 in Volume 2), persisting raven depredation of tortoises (page 3-40 in Volume 2), proliferation of weed species (Map 3.2-2a in Appendix B), documented poaching of tortoises (referred to on page 3-36 in Volume 2 but not quantified), and the injury and death of 146 tortoises crushed on existing roads inside the Reserve (page 3-36 in Volume 2). These are documented impacts that we believe show the inefficacy of the existing HCP to protect tortoises. These impacts are inadequately analyzed in the Amended HCP, and should be the basis for strengthening protection going forward.
130	39	4.2.4	NA	NA	**Text**: "All of the ecological systems in the Reserve have a high departure from their natural range of variability due to the presence of nonnative grasses and forbs in burned and unburned areas (Provencher et al. 2011)." **Comment**: This statement indicates there has been a reduction in the quality of tortoise habitat including diversity and density of nutritious forage species. This has occurred because of the spread and proliferation of nonnative plants that outcompete native plants and the absence of management actions in the 1995 HCP (including implementation of adaptive management) to reduce the occurrence of nonnative plant species, which should be clarified in the revised Amended HCP going forward.

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131	44	5.1.1	NA	NA	**Text**: "The Reserve has an extensive WUI, [wildland urban interface] as it borders private and municipal lands in the cities of St. George, Ivins, and Hurricane. However, much of the MDT Habitat on non-federal lands bordering the Reserve is degraded habitat already fragmented by roads and isolated by other developments." **Comment**: This statement means that indirect impacts from this extensive WUI would be high and would necessitate buffer areas between the WUI and the Reserve for the Reserve to perform its conservation function. In addition, these areas would not be providing the habitat quality needed by the tortoise to survive and recover and could not be included as tortoise habitat in habitat calculations, which should be clarified in the revised Amended HCP going forward.
132	44-51	5.1	NA	NA	**Comment**: In this section of the 2020 HCP, we did not find a discussion of the issue of invasive plant species previously identified in Section 4.2.2 of the HCP, how it affects the availability of tortoise forage quality, and ultimately the survival, growth, and reproduction of tortoises. This is only one aspect of the issue of habitat quality for the tortoise, which despite being identified as a major concern in Tracy et al. (2004) and the Revised Recovery Plan (USFWS 2011), is ignored in the 2020 HCP. In addition, this section does not address habitat quality despite it being identified in the Nussear et al. (2009) report as an issue that was not considered in the development of the model. Regarding invasive plant species, Jennings (2002) reported "the loss of these preferred plants due to habitat deterioration or invasive species would be quite detrimental." "Given the lower digestibility and nutritional content of grasses compared with forbs and the potential for growth of juvenile tortoises to be limited in part by dietary nitrogen and phosphorus, a desirable management goal is to reduce biomass of less nutritious, invasive grasses such as *Schismus* spp. that contain lower nitrogen and produce phosphorus loss, and to maximize diversity and abundance of native plant diversity that includes forb species. This would help tortoises obtain high nutritional foods without additional time spent searching that would increase their vulnerability to predators and temperature extremes (Hazard et al. 2009, 2010). Decisions on habitat management should take both the quantity and quality of tortoise nutritional resources into account. Particular attention should be paid to factors affecting the distribution and abundance of plants high in potassium excretion potential (PEP) index, water, and protein (Oftedal 2002). Alien *Schismus* spp. and other invading plants have poor nutritional quality for tortoises (Oftedal 2002). When comparing annual forbs with annual grasses, forbs provided more energy, nutrients, and minerals (nitrogen, calcium, phosphorus, and magnesium) to juvenile tortoises than did

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					grasses. Forbs had less fiber and about five times more nitrogen than grasses. Juveniles gained weight rapidly (up to 0.5% of body mass added per day) when eating forbs. While eating grasses, tortoises lost body mass, shell volume, nitrogen, and phosphorus. Tortoises had a net loss of nitrogen and phosphorus on dry grass diets (Hazard et al. 2009, 2010). Thus, the nutritional quality of forage is important to the growth, survival, and reproduction of tortoises. This issue of reduced availability of native forbs because of competition from invasive annual grasses should be included in the 2020 HCP. Please add this adverse effect and information to this section of the 2020 HCP.
133	44	5.1.1	NA	NA	**Text**: "…and other aspects of the built environment can fragment habitat and can have detrimental effects on MDT." **Comment**: Please add to this section that not only the built environment, but also the non-built environments (e.g., large fires, other human-influenced actions that result in degraded habitat quality such that it can no long provide the life requisites for the tortoise.)
134	44-51	5.1	NA	NA	**Comment**: Whereas we appreciate the generalized review of the literature on impacts given in Section 5.1, we believe that the authors have failed to document the incidences of these general impacts as they specifically occur in the Reserve and Zone 6 areas, which then should drive enhanced protections. With regards to habitat fragmentation (Section 5.1.1), except for discussion on Cottonwood Road, what are the other fragmenting features within the Reserve as described on pages 3-34 through 3-37 in Volume 2 of the DEIS? Section 5.2.1 on Recreation fails to reveal the existing permitted recreational activities in the Reserve or would-be Zone 6, and fails to divulge the intent to maintain competitive events in Zone 6. The County has partnered with Northern Arizona University and more recently with Southern Utah University to conduct Human Impact Monitoring and assess/quantify recreational impacts on habitat (e.g. trail proliferation, illegal social trails, trail widening, etc.) for more than 5 years; why are the results of this monitoring effort in the Reserve not included in the HCP? Missing from Section 5.1.4: where were the 146 tortoises crushed within the Reserve and how will the HCP be amended to avoid further road-killed tortoises? We suspect that the documented loss of 28 tortoises to raven depredation between 2015 and 2019 (page 3-40 of Volume 2 of the DEIS) is a fraction of the actual raven depredation that has occurred, and appreciate that these and previous data are included in Section 5.1 of Amended HCP. In fact, the level of detail given in Section 5.1.6 should serve as a good example in amending the rest

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					of Section 5.1. There should also be a new section added on poaching and vandalism within the Reserve, as there have been recent documented incidences of tortoises being removed from the Reserve (i.e., in a recent presentation by Ann McLuckie at a Council Symposium where the act was caught on a motion camera). With these as a few examples, we believe that Section 5.1 of the Amended HCP needs to be substantially modified to document actual impacts within the existing Reserve and the intended satellite reserve: particularly Sections 5.1.1 on fragmentation, 5.1.2 on recreation, 5.1.3 on grazing, 5.1.4 on both existing and planned-for utilities, 5.1.5 on road impacts, and 5.1.8, which fails to document the extent of fires in the Reserve.
135	44 & 89	5.1 6.3.1.3	NA	NA	**Text**: "The Covered Activities are described in Chapter 2. The Covered Activities may directly and/or indirectly affect MDT and can cause incidental take in the form of kill, wound, or harm." **Comment**: Please add "harass" to the forms of incidental take.
136	45-46	5.1.2	NA	NA	**Comment**: Because this section of the 2020 HCP is describing Incidental Take and adverse effects to the tortoise and its habitat, we suggest that the last paragraph in Section 5.1.2 (page 46) be moved to Chapter 6. Conservation Program.
137	46-47	5.1.4	NA	NA	**Comment**: This section provides several threats to the tortoise with few citations. Please add citations to support this information.
138	46-47	5.1.4	NA	NA	**Comment**: As per Comment 134 above, we ask that specific information be provided relative to the Reserve, and that they be mapped (see Comment 62 above).
139	47-48	5.1.5	NA	NA	**Comment**: Another impact of roads that is briefly touched on in this section is fire. Brooks and Matchett (2006) reported that between 1980 and 2004 in the Mojave Desert, the largest amount of area burned occurred in the northeast and eastern Mojave Desert. Human-caused fires prevailed in the low and middle elevations. Since the early 1990s the trend has been for more area burned by these fires in the middle elevation shrubland zone, middle elevation shrublands dominated by creosote bush (*Larrea tridentata*), Joshua tree (*Yucca brevifolia*), and/or blackbrush (*Coleogyne ramosissima*), where most of the fires occurred between 1980 and 2004. This zone is more susceptible than other areas of the Mojave Desert to increased fire size following years of high rainfall. Increases in fire size are likely related to the flush of non-native annual grasses, *Bromus rubens* in particular, that produces continuous fuel beds following years of high rainfall. Car fires along roadside are frequent causes of fires in the Mojave Desert. Native fuels in the middle elevation zone [includes the UVRRU] appear to be just below the threshold of allowing fire to spread. This indicates

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					the need to reduce the presence of nonnative annual plants that provide fuel to carry fires and to reduce or eliminate the presence of vehicles, whenever possible in the Reserve. Please include these adverse effects in this section of the 2020 HCP.
140	48-49	5.1.6	NA	NA	**Comment**: This section on predation does not mention road kill as a subsidized source of food for ravens. Please add this to this section.
141	48	5.1.6	NA	NA	**Text**: "While raven predation in the Reserve has been occurring for many years (i.e., in 1997, nearly 34 MDT carcasses were observed in Reserve Zone 5 near a single raven roost site), data has only been consistently gathered since 2015 (Schijf et al. 2018)." **Comment**: This statement says that adaptive management has not been working very well in the implementation of the 1995 HCP. This deficiency needs to be addressed in the 2020 HCP.
142	51	5.1.8	NA	NA	**Comment**: This section mentions several actions that could be implemented to reduce the likelihood of fire ignition and transmission. Because this section of the 2020 HCP is describing incidental take and adverse effects to the tortoise and its habitat, we suggest that this entire section on Fire Management be moved to Chapter 6. Conservation Program. We request that information on the adverse effects to the tortoise/tortoise habitat from implementation of fire prevention and fire suppression (e.g., use of fire retardant that promotes the growth on non-native invasive plant species) activities by the non-Federal partners be added to this section.
143	51	5.2	NA	NA	**Text**: "The County has applied for the Renewed/Amended ITP to extend time wherein the County and others under the County's direct control may continue to access the previously authorized, but as yet unutilized incidental take." **Comment**: While this is true, it is only part of the truth. USFWS has granted an extension of the 1996 ITP while the County diligently works to complete its application for a Renewed/Amended ITP. We request that planning information since the 2016 extension be documented in this section of the 2020 HCP. Who participated and what were the major decisions made during the extended period of take authorization?
144	51	5.2	NA	NA	**Comment**: We request that this section be modified to fully document why it has taken from 2016 to 2020 to revise the HCP and reissue the ITP. Except for the 20-year time period of the 1996 ITP, there appears to be no other compelling reason to revise the HCP and reissue the ITP (i.e., ostensibly, 912 tortoises may still be taken and 66,301 acres may still be developed under the current authorization), except that the County now wants to develop the Northern Corridor

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					and it has taken these last four years in the interim for agencies and their consultants to devise a compromise that redesignates Zone 6 as a conservation area with no relatable documented economic or planning impacts to Washington County (except that SITLA lands may not be sold and subsequently developed to the benefit of the County's tax base).
145	51-52	5.2.1.1	NA	9	**Text**: "The County estimates that 257 MDT individuals should be appropriately characterized as taken by the Covered Activities." **Comment**: We found no information on how this number was calculated. In fact, a knowledgeable biologist in the area has reported that more than 500 tortoises have been translocated under authority of the ITP, which does not even include the tortoises removed that tested positive for Upper Respiratory Tract Disease. In its annual reports, Washington County should have been reporting to the USFWS the number of tortoises incidentally taken through implementation of Covered Activities. We request that this information be provided in the 2020 HCP to support the level of incidental take that is claimed in this section. If not available, it seems that Washington County did not take its responsibilities seriously under its 1996 ITP as that permit required Washington County report annually the amount of incidental take and to implement the 1995 HCP, which says, "6.2.3 Habitat Conservation Advisory Committee (HCAC)" "They will direct the activities of the administrator and review and approve the annual work plan and quarterly and annual reports on the quantity of take and mitigation implemented prior to submission of the documents to the County Commission. All deficiencies in the reports identified by the HCAC will be corrected or completed by the HCP administrator." Similarly, Section 6.3.2 of the HCP requires "The following information will be included in each quarterly report: Clearances Requested: Owner, Number of Acres, Legal Description, General Location. Surveys Conducted: Owner, Number of Acres, Results, Who Conducted Survey. Audits Performed by UDWR: Owner, Number of Acres, Person Conducting Survey, Discrepancies Noted. Removals Conducted: Owner, Acres, Number of Passes, Number of Desert Tortoises Expected, Number of Desert Tortoises Removed. Law Enforcement: Report by UDWR and BLM."

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					In addition, the 2020 HCP says, "Take of individuals collected and processed for recovery purposes was authorized by UDWR's recovery permit and other Section 6 agreements with the USFWS." This process requires annual reporting to the USFWS of the number of individual tortoise taken. Also see p. 55 of the 2020 HCP, which says, "these MDT will be reported separately from the MDT incidentally taken by Covered Activities in the Annual Reports to the USFWS and the HCP Partners." Thus, the data on incidental take subject to the Covered Activities of the HCP should be available. Please provide this information in this section of the HCP. If it is not available, then it appears that Washington County is not in compliance with its 1995 HCP and 1996 ITP. If so, the County would not be able to renew and amend the 1996 ITP as USFWS should have rescinded the ITP. 50 CFR 13.21(c)(4) says, "(4) The failure to submit timely, accurate, or valid reports as required may disqualify such person from receiving or exercising the privileges of a permit as long as the deficiency exists."
146	51-53	5.2	NA	NA	**Text**: "Based on the updated habitat modeling, approximately 40,000 acres of MDT Habitat within the Permit Area (15%) may have been lost to development activities between 1995 and 2019, with approximately 22,821 acres of loss occurring on non-federal lands outside of the Reserve (26%)." **Comment**: This latter figure would apply to the HCP. We note that Section 5.2.1 claims that because only a portion of the tortoises authorized for take were taken between 1996 and 2019, the remaining portion can still be taken through permit renewal. However, the Applicant wants to convert number of tortoises to acres of habitat as a surrogate. This conversion calculation ignores the specific language in the 1996 ITP that says "The Permittee is authorized to take (kill, harm, harass, etc. as defined in the Endangered Species Act of 1973, as amended (ESA) up to 1,169 desert tortoises (*Gopherus agassizii*) incidental to otherwise lawful activities including, but not limited to, grading or other earth-moving activities for construction and development projects on up to 12,264 acres of Mojave desert tortoise habitat on non-federal land in Washington County, Utah, and on all other non-federal land in Washington County outside the Beaver Dam Slope area designated as tortoise habitat on the date of this permit, as more fully described in the Permittee's federal fish and wildlife permit application and the WCHCP." This information is on Figure 1.1 of the 1995 HCP. Thus, this information must be carried forward to the 2020 HCP and this is the amount and location of incidental take that was authorized in the 1996 ITP. If the Applicant wants to request incidental take above this number of tortoises or in other areas that it now labels tortoise habitat that were not considered habitat in 1996, the Applicant must amend

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					their application request to reflect this increase in incidental take and must minimize and mitigate to the maximum extent practicable this additional incidental take.
147	52	5.2.1.2	NA	NA	**Text**: "In terms of the updated habitat modeling described in Chapter 3.2.3.2 (i.e., the updated take metric for this Amended HCP), the Covered Activities caused the loss of 16,037 acres of Occupied MDT Habitat and 6,785 acres of Potential MDT Habitat (together, 22,822 acres of MDT Habitat) from non-federal lands in the Permit Area." **Comment**: As stated above in Comment 120, we have numerous issues with the way the model of potential desert tortoise habitat is used especially as a foundation for other assumptions, and the apparent dismissal of most limitations and assumptions (see also Attachment B). The ITP is very specific as to what it authorizes. For loss of habitat, it authorizes the loss of "up to 12,264 acres of Mojave tortoise habitat on non-Federal land in Washington County, Utah and on all other non-federal land in Washington County, Utah outside the Beaver Dam Slope area designated as desert tortoise habitat on the date of this permit." According to Table 10 of the 2020 HCP, this was 24,096 acres of occupied (12,264 acres) and potential (11,832 acres) tortoise habitat. We request this information be carried forward when the Permittee is showing the acres developed under the 1996 ITP and acres acquired by the Permittee under the 1996 ITP to provide history, for comparison between the two HCPs and transparency.
148	52	5.2.2	NA	NA	**Text**: "…which incorporates the current best available information about the distribution of MDT Habitat" **Comment**: Again, we affirm this is not correct. Please see our comments in Attachment B regarding the many assumptions and limitations that were ignored in mapping this habitat in the HCP, including threats and stressors to habitat and habitat quality, size, configuration, and connectivity.
149	53	5.2.2.1.1	NA	NA	**Text**: "Take arising from the Covered Activities may occur through directly killing or wounding individual MDT or through indirectly harming MDT by significantly altering MDT Habitat in ways that lead to actual death or injury of an individual MDT." **Comment**: Please add "or harassing" after "harming" to the above statement in the 2020 HCP.
150	54	5.2.2.1.2	NA	NA	**Text**: "Tracking take of MDT in terms of the acres of MDT Habitat that is directly modified by Covered Activities is a surrogate metric with a rational link to the true number of taken individuals."

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					Comment: We strongly disagree with this statement. Take can occur from many indirect effects that do not affect the quality of habitat or that degrade but do not destroy habitat. As such, there should be a metric that is developed to calculate the amount of take from the Covered Activities that include these indirect effects that lead to incidental take, just as the HCP argues that the USFWS developed a metric for determining number of tortoises from tortoise detections during surveys. We request that the statement above be changed to say "directly or indirectly modified" and that an appropriate metric be developed to include indirect impacts from Covered Activities. The product of this metric would be larger than the footprint or direct impact of the Covered Activity.
151	54	5.2.2.1.3	NA	NA	**Comment**: We agree that the footprint of most authorized development projects is measurable. However, because something is easily measured does not make it the metric that accurately represent the amount of incidental take or impacts of the incidental take. Please see Comment 150 regarding appropriate measurement or metric for indirect impacts that are likely to result in incidental take. In addition, some people develop projects without permits. Consequently, the example provided in the 2020 HCP in this section should additionally address how unpermitted development will be tracked in this metric, and what actions the Permittee will take to require the unpermitted activity complies with the HCP, or not.
152	55	5.2.2.2	NA	NA	**Text**: "The County requests the renewal of as yet unrealized incidental take of the MDT associated with the Covered Activities in an amount equivalent to the direct loss of up to 14,466 acres of Occupied MDT Habitat and 51,835 acres of Potential MDT Habitat within the Permit Area. These combined 66,301 acres represent the current extent of MDT Habitat occurring within the Permit Area, outside of the 2019 Reserve boundary." **Comment**: If the acres authorized for development in 1996 were 12,264 acres, we are not sure how this is equivalent to direct loss of 14,466 acres of Occupied MDT Habitat and 51,835 acres of Potential MDT Habitat. Please explain the discrepancies in the figures between what the 1996 ITP said and what Washington County is now saying. In addition, we compare this with the 24,096 acres permitted in 1996. This is more than a doubling of acres in the loss of occupied/potential habitat with no new or substantial increase in minimization or mitigation to offset these new impacts during the next 25 years. If The Permittee is requesting this much take, the conservation plan should be much greater

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					than provided in the 1995 HCP to offset this take and should be effective for the threats that the MDT faces today and in the foreseeable future. These are not necessarily the same in identification or intensity as those it faced in 1995.
153	57	5.3	NA	NA	**Text**: "The amount of MDT Habitat within the Reserve that may be permanently lost to Covered Activities will not exceed 200 acres over the duration of the Renewed/Amended ITP Term. Considering the estimated average annual loss of habitat from Covered Activities or similar activities on federal lands within the Reserve, approximately 50 acres of new habitat loss might be expected over the Renewed/Amended ITP Term." **Comment**: We question why there would be any permanent loss. In examples provide in the section of past loss in the Reserve, these included "the County estimates that Covered Activities or similar activities on federal lands within the Reserve during the original ITP Term caused the permanent (or, in some cases, temporary) loss of approximately 40 to 50 acres of MDT Habitat. This equates to approximately 2 acres of habitat loss per year associated with new utility pole footings, utility access roads, trails, or recreation facilities." There should be no new utility access roads in the Reserve. Utility pole footing, new trails and recreation facilities should not add up to 40 or 50 acres. Apparently, Washington County is aware of actions that would result in the loss of 50 acres, but is requesting 200 acres, presumably a *de facto* plan to accommodate the Northern Corridor. We request that information on specific actions/projects that would result in permanent loss be included in this section of the HCP. Again, we note that USFWS needs this information to analyze the adverse effects in their biological opinion on the issuance of the incidental take permit and in their NEPA document on permit issuance. In addition, we request that the entity responsible for the loss be required to place a permanent conservation easement on the habitat acquired as mitigation so its use cannot be changed in the future.
154	57	5.3	NA	NA	**Text**: "Conservation measures that address HCAC or TC recommendations for offsetting impacts to MDT taken by Covered Activities Inside the Reserve may include the following…. Case-by-case consideration for conservation credit generated by actions that …prevent wildfire within the Reserve, control invasive species within the Reserve." **Comment**: The Conservation Program should already be implementing and funding these actions in the HCP. Please ensure this is occurring along with areas adjacent to the Reserve.
155	57	5.3	NA	NA	**Comment**: We find it revealing that the DEIS consistently characterizes the No Action Alternative with the inability of the County to revise the HCP or USFWS to reissue the ITP; that unless the Northern Corridor is developed, the County cannot revise the HCP or solicit a new ITP. Yet, in the Amended HCP, on page 57, there is the misleading

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					statement that the new take authorization will result in only 200 acres of new impacts, without acknowledging that the County will only consider reissuance of the ITP if the Northern Corridor is developed. It is revealed in Table 3.2-2 on page 3-12 of Volume 2 that the action alternatives will have the following impacts: 266 acres for the T-Bone alternative, 240 acres for UDOT alternative, and 286 acres for the southern alternative. Since the environmental documentation inextricably links reissuance of the ITP with development of the Northern Corridor (hence the real reason for the four-year delay since reissuance), isn't it misleading that this section claims that only 50 of the authorized 200 acres inside the Reserve will be developed, when it should reveal that, *but for* the Northern Corridor, there would be no immediate impacts? And, that the baseline for the impact will be at least 240 acres developed within the Reserve within the next few years as the result of permit reissuance? That, whereas only 40-to-50 acres have been developed in a dispersed pattern over the past 24 years (top of page 57; and see Figure 10 on page 59), 240 acres within the main conservation area will be developed in the immediate future within a 600-foot wide ROW within the next few years as the direct result of permit issuance?
156	60	5.4	NA	NA	**Text**: "Therefore, the implementation of this Amended HCP remains consistent with the analysis in the 1996 Biological Opinion (USFWS) 1996) and 1995 Environmental Impact Statement (USFWS 1995)." **Comment**: For the same reasons given in the previous comment, we disagree with the above statement. The agencies and County have devised a nexus, unique to the 2020 analysis and nonexistent in 1995-1996, that predisposes development of the Northern Corridor, which was not foreseen in the 1996 biological opinion or 1995 EIS, and therefore negates the applicability of these two documents *because* the Northern Corridor is linked to reissuance of the ITP in such a way that both must happen. As asserted above, there is no justification that the BLM's No Action Alternative must be characterized with inability to revise the HCP or reissue the ITP. We construe the agencies failure to analyze an alternative that denies the Northern Corridor while providing for reissuance of the ITP has fatally flawed tortoise conservation while guaranteeing a freeway through the heart of the Reserve, which can no longer function as the foundation of the HCP/ITP, and is not mitigated by redesignation of a noncontiguous, satellite reserve.
157	60	5.4	NA	NA	**Comment**: To be accurate about the intent of the County and agencies to accommodate the freeway, the following statement on page 60 should be modified with the following bold-font text: "However, some of the underlying information associated with the analyses in the 1996 Biological Opinion and 1995 Environmental Impact Statement

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					has changed over time…This updated information includes the duration over which incidental take would occur, the amount and extent of MDT Habitat in the Plan Area, ~~and~~ the estimates of MDT density and abundance within the Reserve**, and the Reserve will no longer be maintained as an intact, unfragmented conservation area due to development of the Northern Corridor.**"
158	60	5.4	NA	NA	**Text**: "…the implementation of this Amended HCP remains consistent with the analysis in the 1996 Biological Opinion (USFWS 1996) and 1995 Environmental Impact Statement (USFWS 1995)." **Comment**: While Washington County may make this claim, it is not true. Since 1996, new information has been collected on the status of the tortoise and threats to the species, and needs for survival and ultimately recovery. This new information must be used in the USFWS' documents when considering permit issuance, including the biological opinion, findings document, and NEPA document. Because this statement is not correct, we request that it be removed from the HCP.
159	60	5.4	NA	NA	**Text**: "In consideration of the No Surprises assurances provided to ITP permittees, substantial new analysis of the impacts of the reauthorized take is not warranted—the USFWS has already determined the authorized take to be consistent with the issuance criteria for an ITP." **Comment**: The No Surprises assurances rule was adopted by the USFWS in 1998 [63 Federal Register (35) 8859-8873]. The existing ITP was issued in 1996, consequently, this assurance has not yet been provided to Washington County. With the issuance of an amended permit by the USFWS, the No Surprises assurances would be in effect. Consequently, we request that this inaccurate wording be removed from the HCP.
160	60	5.4	NA	NA	**Text**: "However, some of the underlying information associated with the analyses in the 1996 Biological Opinion and 1995 Environmental Impact Statement has changed over time in ways that could affect the USFWS's analysis of the impacts of the reauthorized take against the jeopardy and destruction or adverse modification of critical habitat standards related to ITP issuance." **Comment**: We agree with this statement. However, it is only one part of the analysis process. USFWS' analysis is for the population in the recovery unit and critical habitat unit, as well as a rangewide analysis. Consequently, the HCP should provide information on the status and trend of the Mojave desert tortoise throughout its range to assist the USFWS in its analysis. Please provide this information in the HCP.

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161	61	5.4.2	NA	NA	**Text**: "The updated modeling relies on both the original surveys, more recent MDT observations, and the range wide USGS habitat model (as modified for the UVRRU)." **Comment**: We reiterate the problems with the updated habitat mapping given in Comment 120. Please see Attachment B for these concerns regarding its accuracy. The updated model ignores limitations and assumptions in the model's report and fails to consider information. This updated model serves as the foundation for the HCP's incidental take limit, areas identified for this take, and Conservation Program. Because the updated model is seriously flawed, everything in the HCP that refers to it is flawed.
162	62	5.4.2	NA	10	**Comment**: Please see Comment 120 and others regarding the figures used in Table 10 to update habitat modeling.
163	62-63	5.4.3	NA	NA	**Comment**: On page 62, high, medium, and low tortoise densities are given per square mile, whereas on page 63, tortoise densities are reported in square kilometers. We request that this section (and all others) be modified to reveal consistency between the units being used (e.g., either square miles OR square kilometers).
164	63	5.4.3	NA	NA	**Comment**: We note on page 63 that the highest tortoise densities within the Reserve in 2017 are given as 22.5 tortoises/km^2, which equates to 234 tortoises/mi^2. However, we note the following data given on page 3-55 of Volume 2 of the DEIS: "Surveys conducted in Zone 3 during 2017 resulted in a density estimate of 17.2 Mojave desert tortoises per square kilometer … 2019 surveys of Zone 3 resulted in a density estimate of 12.3 animals per square kilometer." Please explain the discrepancy among these data. Also, it is our understanding that a 2020 monitoring report is now available, is not included in your analysis, and should be included in the Final EIS.
165	63	5.4.3	NA	NA	**Comment**: We note the following, similar statement on page 63: "The best available information indicates that the present average density of MDT within the Reserve is 19.6 MDT per square kilometer (McLuckie et al. 2018)." Don't the most recent data available to the authors, from 2019, show that the average density is now at 12.3? (Keeping in mind, as given above, that the 2020 monitoring data need to be added). Though not clearly divulged in the DEIS, the results from these data are very misleading as they rely on a preconstruction survey technique designed by USFWS compared to earlier distance sampling census techniques. The USFWS (2019a) technique is developed to estimate abundance prior to construction projects (not to estimate regional density) and surveys were conducted by individuals with minimal training. It is very misleading to compare the numbers estimated for this project to regional densities, which rely on two different techniques. We ask that the data derived from regional distance sampling methods versus

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					project-impact estimation methods be compared in the Final EIS with a discussion of the relevancy (and irrelevancy) of comparing differing results.
166	63	5.4.3	3	NA	**Text**: "However, survey data for approximately 5,150 acres of land contained within the proposed Reserve Zone 6 (see Chapter 9.1.1.1) demonstrates that the density of MDT in this area rivals that of the Reserve (i.e., approximately 22.5 MDT per square kilometer, see Rognan et al. 2017)." **Comment**: The above statement is not consistent with information presented in Figure 3 of the Amended HCP, which shows all of Zone 6 as being Low Density MDT Habitat. Please explain this apparent discrepancy. We believe this section would benefit from a map that shows 1995 estimated densities compared to 2019 estimated densities.
167	63	5.4.3	NA	NA	**Text**: "The USFWS approximates the present average density of MDT outside the Reserve as 1.3 MDT per square kilometer, based on the estimated density of MDT in the adjacent Northeastern Mojave Recovery Unit (Laura Romin, USFWS, personal communication, to Amanda Aurora, SWCA, via email on April 23, 2020)." **Comment**: According to the USFWS Desert Tortoise Recovery Office (2019), the current estimated density of adult desert tortoises per square kilometer in the Northeastern Mojave Recovery Units is 5.1 for the Beaver Dam Slope, 2.3 for Gold Butte-Pakoon, and 3.6 for Mormon Mesa. Consequently, we request that the HCP update its information. [USFWS. 2019. Range-Wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2018 Annual Reporting. Prepared by Linda Allison Desert Tortoise Monitoring Coordinator. US Fish and Wildlife Service, June 2019.] https://www.fws.gov/nevada/desert_tortoise/documents/reports/2020/2019_DRAFT_RangewideMojaveDesertTortoiseMonitoring.pdf]
168	63	5.4.3	NA	NA	**Text**: "The 1995 HCP estimated the abundance of MDT in the Plan Area as 7,883 adult individuals." **Comment**: Table 2.1 of the 1995 HCP says "Estimated Desert Tortoise Habitat Acreage and Number of Animals in the Upper Virgin River Recovery Unit." The total number of animals was given as 7,883. Please correct the wording in the 2020 HCP to indicate the 7,883 animals is for *all* tortoises, not only adults.
169	65	6.1.1	NA	NA	**Comment**: It is not appropriate to place this section under Section 6.1 Conservation Program Goals and Objectives. Growing the human population and development of Washington County is not part of the conservation program. The HCP uses the argument "But for the attainment of these community goals and objectives [of growth and development], the progress toward meeting the biological goals and objectives would not be possible." We contend that the growing

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					human populations and its impacts on the tortoise and its habitat are the reasons why the tortoise is in trouble and needs a conservation program for it to survive. Because this section explains why there is a need for an amended HCP and ITP, please move this information to the appropriate section in Chapter 1, the usual location for Purpose and Need explanations.
170	66	6.1.1	NA	NA	**Text**: "The County also intends for this Amended HCP to respond to the proposed Northern Corridor. Although not a Covered Activity, the proposed Northern Corridor has been identified as an important piece of local infrastructure in transportation planning documents since the mid-1980s (Washington County 2012), and federal consideration for a Northern Corridor across the RCNCA is mandated in the 2009 Omnibus Public Lands Bill (Public Law 111-11)." **Comment**: In reading Public Law 111-1, we found no language that says that federal consideration for a Northern Corridor across the RCNA is mandated. What we did find was that Section 1974 (e)(3) says, "(3) MOTORIZED VEHICLES.—Except in cases in which motorized vehicles are needed for administrative purposes, or to respond to an emergency, the use of motorized vehicles in the National Conservation Area shall be permitted only on roads designated by the management plan for the use of motorized vehicles; and in developing the current management plan for the (2009 legislation mandated the management plan be completed by 2012) the Secretary may incorporate any provision of (A) the habitat conservation plan; (B) the resource management plan; and (C) the public use ion 1977(b)(2)(A)plan." Section 1977(b)(2)(A) says, "identify 1 or more alternatives for a northern transportation route in the County." Please revise the language in this paragraph of the HCP.
171	66	6.2.1	NA	NA	**Comment**: In reading the 1995 HCP, we learned that there was one biological goal "to provide a mechanism to allow orderly growth and development in Washington County without further jeopardizing the status of Federally listed or candidate species, focusing on protection of the desert tortoise." It put community development before conservation as it used jeopardy as the standard rather than offsetting impacts. There were four objectives under this one goal – (1) Provide adequate protection for the desert tortoise by implementing aspects of the DTRP through the creation and management of the Upper Virgin River Desert Wildlife Management Area. (2) Provide protection for other listed and candidate species and their habitats. (3) Meet the growth and development needs of the County. And, (4) Create a framework within the County to deal with current and future listed species.

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					However, the 2020 HCP says "The 1995 HCP identified several biological goals and objectives for the conservation program, restated with some modifications here…" We request that Section 6.2.1 be revised and include this information as presented in the 1995 HCP with no modifications or interpretations. We request this because the USFWS' HCP Handbook says, "it is important that the HCP, incidental take permit, and associated documents are written clearly so that future users can fully understand how to implement the HCP and to ensure it will meet the stated goals and objectives. Although all parties actively developing the HCP may fully understand what is expected and anticipated, future responsible parties will only have what is written in the HCP, permit, and associated documents to guide them. Be mindful of the future when reviewing the draft HCP and its associated documents. If it is not clear, recommend revisions to clarify specific sections or to better explain the intent and rationale behind decisions or approaches." The 2016 HCP Handbook says, "Developing the conservation strategy of HCPs will be framed around the tenets of Strategic Habitat Conservation (SHC)… that links actions to outcomes, with learning as an explicit objective of conservation actions." This includes "developing a monitoring framework to measure results, developing an evaluation process to assess results, and outlining a systematic learning process to use what will be learned to improve future decisions." This strategy and process would apply to the 2020 HCP to update the 1995 HCP. The learning process to improve future decisions should be applied to results of the 1995 HCP monitoring and new data about the Reserve and used in the development of the 2020 HCP. This thought process should be clearly described and in the 2020 HCP, thus connecting what was learned from the 1995 HCP to the modifications in the 2020 HCP. We request that this process be clearly described and suggest that tables be used to show this process (i.e., what did the 1995 HCP say, what was implemented, what were the results, what adaptive management was implemented because of monitoring results, what were those results, and what is being changed in the 2020 HCP, if anything, because of these lessons learned. The HCP Handbook also emphasizes the need to "clearly explain the chain of logic" in the decision-making process. Because the HCP is part of the decision-making process, we believe the HCP should clearly explain its chain of logic.

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					We found this missing from much of the HCP. We found no "chain of logic" or "connecting the dots" in the 2020 HCP that linked the results from implementation of the 1995 HCP to what is proposed in the 2020 HCP. For example, the 1995 HCP committed to installing tortoise fencing. The 2020 HCP says these installations are considered complete. However, there are documented tortoise mortalities from vehicles in Snow Canyon as recently as spring 2020 because these roads are not fenced. We would conclude that ongoing but preventable mortality would be a threat that the HCP would address by implementing management actions and monitoring to assess its effectiveness (e.g., constructing tortoise exclusion fencing and shade structures along this road would be appropriate or should, as a minimum, be considered and therefore mentioned in the 2020 HCP). Please add this chain of logic to the 2020 HCP. As another example, to provide continuity, between the goals and objectives in the two HCPs, the one goal and four objectives of the 1995 HCP should be stated, the goals and objectives of the 2020 HCP stated, and information provided that explain the changes. Because this is an amended HCP, the document should include the history of the 1995 HCP implementation and information on its effectiveness. To do this the 2020 HCP would provide information on the status/population density of the tortoise in the Reserve in 1995 and its numbers now. It would describe the threats to the tortoise in the Reserve that were identified in 1995 HCP and the current threats. Using these data, it would display the 1995 biological goals, objectives, and conservation actions to contribute to the recovery of the tortoise and analyze which conservation actions worked, which ones did not, and why. If tortoise densities and numbers increased since 1995 in the Reserve and threats remained the same, then the biological goals and objectives and conservation actions could remain the same. If tortoise densities and numbers decreased, then the biological goals and objectives and conservation actions would need to change as the 1995 HCP was not successful in its mission. To clearly and concisely show this information and its chain of logic/connecting the dots, we strongly request that the amended 2020 HCP be revised and include this information in a table. Implementing the HCP is a scientific process. The HCP should be developed using the best available scientific information. As it is implemented, there is monitoring to determine if the biological goals and objectives are being met.

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					If they are not, the HCP requires that adaptive management be implemented to modify the conservation actions so the biological goals and objectives are met. This process is designed to provide efficient use of funds and accomplish the biological goals and objectives. We contend the 2020 HCP is emphasizing the conservation actions it completed, especially with respect to habitat acquisition. It has not provided monitoring information that shows that the biological goals and objectives are being met; in fact, declining tortoise numbers and densities in the Reserve 1996 to 2019 show they are not being met. This information indicates that adaptive management is required, that is, the HCP needs to be revised substantially so that tortoise numbers and densities are increasing as development and loss of tortoises from this development occurs. From the lessons learned from implementing the 1995 HCP, we believe the biological goals for the tortoise should include improving tortoise demographics in the Reserve (e.g., increase tortoise numbers and densities, demonstrate reproduction and recruitment on a regular basis from data on non-adult size classes, and demonstrate a decrease in mortality and disease); (2) improve connectivity (e.g., between tortoises within the Reserve, within the UVRRU, and between the UVRRU and Northeast Mojave Recovery Unit); and (3) substantially reduce major threats to the tortoise in the Reserve (e.g., currently these would be nutrition connected to invasive non-native plants connected to fire, predation, etc.). Continuing to manage the Reserve for the benefit of the tortoise should be the overall mission. The threats under the third goal may change during the 25-year implementation of the ITP so this would have a strong adaptive management component. Continuing with land acquisition fits under Goal 2. Conspicuously absent from the 2020 biological goals and objectives but needed because of scientific data on the UVRRU and local newspaper articles (recent ones include St. George News May 26, 2019; May 30, 2019, October 25, 2019) are substantially improving tortoise nutrition; reducing predation, especially predation from human-subsidized sources, and substantially increasing fire management actions to include fire prevention; fire suppression actions to respond to and fight fires quickly; and habitat restoration following each fire. Appendix D of the 2020 HCP says (page D-2) "In 2018, wildfire continues to be one of the greatest threats to tortoise habitat. Until non-native invasive plant

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					species are severely reduced in/near the Reserve and human-caused fires are curtailed, fire will continue to be a part of the Reserve's future." This serious threat to the MDT should be addressed in the HCP with appropriate biological goals and objectives, conservation actions, effectiveness monitoring, and adaptive management. As the St. George area grows, the human-provided subsidies for predators of the tortoise will grow. This will likely result (as it has elsewhere in the range of the MDT) in increased predator population sizes (e.g., common raven, coyote, feral and domestic dog, etc.) and subsequent increased predation on the MDT. The HCP should include a plan to monitor tortoise predation and predators, and implement effective actions to substantially reduce this predation. Improving tortoise nutrition should be a biological goal with objectives and conservation actions implemented to improve the availability of native nutritious plants for tortoises in the Reserve. This goal is closely tied to successful management of non-native invasive plant species that exclude native plant species, have lower nutritional values for tortoises, and provide a sustained fuel source for fires in an ecosystem with native plants not adapted to surviving fires. Thus, improving nutrition for the MDT is connected to reducing fuel loads for fires in the Reserve.
172	66	6.2.1	NA	NA	**Comment**: Modifying the 1995 goals and objectives and reasons for the modifications: Because the 2020 HCP wants to modify the goals of the 1995 HCP, the reasons for these modifications should be presented (e.g., information on the status of the UVRRU tortoise population/status of the species, threats [including climate change], changed/new management needs for the species/habitat because of new information [including effectiveness monitoring implemented under the HCP], and/or success in achieving a previously stated goal. These modifications should be clearly identified and reasons provided to support why it is being changed. Why the modifications are needed should be straightforward as updated information on status of the UVRRU population and species, threats (including climate change), management needs for the species/habitat should have been provided under Section 3.2 (including all its subsections) and Section 4 of the 2020 HCP. We agree that the goals and objectives need to be modified. Those in the 2020 HCP should be about the current and perceived future needs of the MDT based on current data. The goals and objectives should not be a slight tweaking of the 1995 goals and objectives as much data has been collected to demonstrate that the acquisition of habitat (the primary goal of the 1995 HCP) is not effective in managing for the tortoise,

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173	66	6.1.2	NA	NA	**Text**: We note on page 66 that the Amended HCP "…responds to the proposed Northern Corridor as a Changed Circumstance affecting the conservation value of the Reserve and provides for substantial new conservation actions in response" and then on page 67 lists nine goals and objectives identified in 1995. Three of these include (**emphasis added**): (1) managing the acquired lands **within the Reserve** in a manner consistent with the conservation missions of the BLM and UDNR, with enforcement of associated land use restrictions; (2) removing land uses **from the Reserve** that are not Covered Activities and that impact the MDT, such as land development, grazing, off-road use, mining, and others; and (3) conserving, **primarily through the establishment and management of the Reserve**, the ecological value and biological diversity of the Mojave Desert landscape that provides food and cover for Considered Species and other native wildlife and plants. On page 67, there is then the statement that these goals and objectives are "…carried forward in the Amended HCP." **Comment**: This is simply not true. Although we understand that elevated management in Zone 6 is intended to offset impacts of the Northern Corridor, these three goals and objectives are (1) specifically and only relevant to the Reserve as it was established in 1996, not as it would be compromised in 2020; and (2) when these goals and objectives were identified in 1995, they were considered in the absence of the Northern Corridor. Therefore, these three goals and objectives ARE NOT being carried forward, and regardless of any extraneous protection provided to Zone 6, the integrity of the Reserve will be compromised. Furthermore, given tortoise declines of up to 41% within the Reserve, we believe that the Amended HCP is negligent in its failure to reconsider the goals to address these losses and other impacts identified herein (e.g., with regards to predation, poaching, invasive weeds, fire, etc.).
174	66	6.1.2	NA	NA	**Text**: The 2020 HCP says objectives of the 2020 HCP are "- meeting substantively the recovery recommendations for establishing the Upper Virgin River DWMA (i.e., the Reserve) contemplated in the 1994 and 2011 MDT Recovery Plans; - placing most lands within the Reserve under BLM or UDNR ownership, subject to willing partnerships with non-federal landowners; - managing the acquired lands within the Reserve in a manner consistent with the conservation missions of the BLM and UDNR, with enforcement of associated land use restrictions." **Comment**: The Permittee has no authority over BLM and UDNR and will have no way of ensuring that the management of these lands is consistent with the management of the Recovery Plan, which should be addressed in the newly-modified HCP.

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175	66-67	6.1.2	NA	NA	**Comment**: Please clearly label any new Biological Goals and Objectives for the 2020 HCP as those being developed for the 2020 HCP.
176	66 & 84-85	6.1.2	NA	NA	**Text**: "o placing most lands within the Reserve under BLM or UDNR ownership, subject to willing partnerships with non-federal landowners;" **Comment**: This sentence needs to be modified. The BLM has not demonstrated that it is a worthy manager for the conservation of the Mojave desert tortoise. The status and trend of the MDT in TCAs throughout most of the range of the MDT are below viability and have shown a downward trend since the current population sampling protocol was initiated in the early 2000's. Please see our Attachment D. This decline is especially noteworthy in California where the BLM manages the California Desert Conservation Area (CDCA). In establishing the CDCA, Congress declared that– (1) the California desert contains historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources that are uniquely located adjacent to an area of large population; (2) the California desert environment is a total ecosystem that is extremely fragile, easily scarred, and slowly healed; (3) the California desert environment and its resources, including certain rare and endangered species of wildlife, plants, and fishes, and numerous archeological and historic sites, are seriously threatened by air pollution, inadequate Federal management authority, and pressures of increased use, particularly recreational use, which are certain to intensify because of the rapidly growing population of southern California; (4) the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan **to conserve these resources for future generations**" (**emphasis added**). BLM has changed their RMPs several times in the CDCA to allow for more development and human use in TCAs that adversely impact tortoises/tortoise habitats despite declining population numbers, densities, and low recruitment of MDTs. BLM can do the same thing for the RMP for the RCNCA. The RMP and Public Law 111-11 are not assurances that the RCNCA will be managed for the benefit of the tortoise and the language in the 2020 HCP should reflect this lack of assurance. That the pertinent RMP(s) will likely be modified to accommodate the Northern Corridor is evidence of this assertion.

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					In addition, the 2020 HCP says, "The overarching intent of the Washington County HCP is to create a conservation program, compatible with the County's community goals and objectives, for conserving the Upper Virgin River population of MDT in its native habitat in perpetuity." We contend that until there is a legal way to require BLM to retain and manage lands set aside, purchased, or exchanged for conservation purposes and in perpetuity, these lands should be held by another entity and a permanent conservation easement placed on them. Please modify this sentence so it specifies that only an entity that can legally ensure that lands acquired for conservation purposes (e.g., managed for the MDT) will be managed for those purposes in perpetuity would be able to own these lands.
177	66	6.1.2	NA	NA	**Text**: "o managing the acquired lands within the Reserve in a manner consistent with the conservation missions of the BLM and UDNR, with enforcement of associated land use restrictions;" **Comment**: First, please change the first part to say, "managing **and restoring** the acquired lands…" Second, once these lands are owned by BLM or UDWR, Washington County has no control over their management. What legal mechanism is Washington County going to implement to ensure these lands are managed for the tortoise and in perpetuity? Please address this issue in the HCP. And provide assurances. Third, BLM does not have a conservation mission. It has a "multiple use" mission even in an NCA as they must still comply with FLMPA. This language needs to be corrected.
178	66	6.1.2	NA	NA	**Text**: "o incentivizing the siting of Covered Activities in areas that are not MDT habitat or that are poor-quality MDT habitat through land use planning, impact fees, and environmental education;" **Comment**: The HCP should not limit its potential source of funding to one source. If another recession occurs and development is severely curtailed, who will pay for the management, monitoring, and adaptive management requirements of the HCP? In addition, activities that have resulted in increased amounts of incidental take in the Reserve indicate there is a need for greater law enforcement in the Reserve. Please change this to read "…through land use planning, ~~impact~~ fees, environmental education, **and law enforcement**;"
179	66	6.1.2	NA	NA	**Comment**: We found no commitment to manage the lands in the Reserve for the benefit of the MDT in perpetuity. Please add this as a goal especially given the 2020 HCP's statement on page 66 "The overarching intent of the Washington County HCP is to create a conservation program, compatible with the County's community goals and

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					objectives, for conserving the Upper Virgin River population of MDT in its native habitat in perpetuity." In addition, the development is permanent so the management of the lands for the tortoise and management of the tortoise must also be permanent. The mitigation commitment is not for the term of the permit; it is in perpetuity (in spite of the current intent to redefine "perpetuity" so as to accommodate the Northern Corridor). The term of the permit only limits the time during which incidental take as a result of a Covered Activity is lawful.
180	66-67 69-77	6.1.2	NA	NA	**Comment**: The USFWS' 2016 HCP Handbook says, "we do have a few rules that must be met. Applicants must minimize and mitigate the effects of their actions to the maximum extent practicable and the measures must be manageable and enforceable. Also, the applicant must clearly articulate the biological goals and objectives in the HCP with measurable success criteria." In reading Section 6 of the 2020 HCP, we did not find the document adhered to these rules. We are unsure how each completed and ongoing conservation action contributed to which biological objective and goal of the 1995 HCP and whether the success criteria were met. We are unsure how each ongoing conservation action contributes to which biological objective and goal of the 1995 HCP and the 2020 HCP. Absent this information, we cannot determine whether the HCP has made measurable success toward recovery of the MDT in the Plan Area. From the UDWR reports, it appears that tortoise densities have declined markedly since the ITP was implemented. Please provide this information in the 2020 HCP and show how the implementation of the HCP has improved the status of the MDT in 2020.
181	67	6.2.1	NA	NA	**Text**: "o translocating healthy MDT individuals from areas affected by Covered Activities to the Reserve, thereby minimizing the impacts of the Covered Activities on the MDT and expanding the protected MDT population;" **Comment**: This wording says that translocated tortoises may be released anywhere in the Reserve. We do not think this is the intent nor is it biologically appropriate or sound management. For example, if the Northern Corridor were developed, would tortoises be placed in impaired habitats south of the new freeway? Please modify wording in the HCP so that only areas designated for translocated tortoises receive them.
182	67	6.2.1	NA	NA	**Text**: "o monitoring MDT population trends and MDT threats in the Permit Area to support adaptive management actions."

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					Comment: Please change this to say "monitoring MDT population trends and MDT threats in the **Plan** Area **and to implement** adaptive management actions **promptly based on monitoring results**." We are not sure why monitoring would be limited to the Permit Area. It should include the larger Plan Area.
183	68	6.2.1	NA	13	**Text**: We appreciate the inclusion of this table (USFWS 2014). The 2020 HCP says, "The DTMOG and the local Recovery Implementation Teams reexamine these priorities on an annual basis to develop specific recovery projects." **Comment**: However, the recent fires in the Reserve and history of large fires point out the need to revise this 2014 list and implement these recovery projects. We would assert that "Fire management planning and implementation" should be implemented concurrently with habitat restoration. Fire management planning should include implementation of actions that effectively reduce the fuels provided by nonnative plant species that carry fires. This project should be a high priority.
184	68	6.2.1	NA	13	**Comment**: We found no information in Section 6.2.1 that ties the biological goals and objectives to the conservation actions, or provides information on whether they have been implemented, would continue to be implemented, or are proposed for implementation. Without this stepdown accounting, it is not possible to determine whether the conservation actions are likely to achieve the biological objectives and biological goals. Please provide a table or list of the biological goals with their objectives and conservation actions under each.
185	66-68	6.1.2	NA	NA	**Text**: On page 6 of the 2020 HCP (Section 1.3 Amended Habitat Conservation Plan), the document says, "This Amended HCP makes certain changes to facilitate the continued implementation of this recovery-focused HCP for the Renewed/Amended ITP Term, including …addressing changes in regulation and applicable policy guidance related to HCPs, such as the No Surprises rule (63 *Federal Register* [FR] 8859), Surrogate Rule (80 FR 26832), and the HCP Handbook." On page 9 (Section 1.5 Regulatory Framework) the 2020 HCP says, "The HCP Handbook provides guidance to ITP applicants and the USFWS regarding the preparation of HCPs." **Comment**: However, Section 6.1.2 of the 2020 HCP does not seem to be following the policy guidance in the USFWS' 2016 Habitat Conservation Handbook regarding identifying appropriate biological, goals, SMART (specific, measurable, achievable, result-oriented, and time-fixed) biological objectives, and conservation actions (Sections 9.1, 9.2, and 9.3 of the Handbook.) The 2020 HCP has used the policy guidance from other sections of this Handbook to support changes it is proposing in the 2020 HCP. We affirm that Section 6.1.2 of the 2020 HCP should follow Section

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					9 of the 2016 HCP Handbook in the development of the biological goals and objectives and their relationship to each other. This relationship should be clearly demonstrated in the HCP.
186	66-68	6.1.2	NA	NA	**Comment**: The biological goals and objectives in the 2020 HCP should demonstrate how they are considering climate change given the 25-year term of the permit. The 2016 HCP Handbook stresses the importance of considering climate change in the development of biological goals and objectives as it has a section on this topic (Section 9.2.2 Considering Climate Change Effects in the Development of Goals and Objectives). We request that the 2020 HCP explain how it considered climate change in the development of its biological goals and objectives.
187	69-72	6.2.1	NA	NA	**Comment**: This section is confusing. It is titled "Conservation Actions" but it appears to be more of a financial accounting. Please add a table of the completed conservation actions under each biological goal and objective from the 1995 HCP and a table of all the biological goals and corresponding biological objectives, conservation actions, and effectiveness monitoring that will be implemented in the 2020 HCP so we can determine what has been accomplished to attain the biological goals and objectives of the 1995 HCP and how they have changed given new information the status of and threats to the MDT in the UVRRU. This is a reiteration of Comment 171 above.
188	69-71	6.2.1	NA	NA	**Comment**: Maximum extent practicable – The 2016 HCP Handbook says, "the applicant must show that their HCP will minimize and mitigate the impacts of the taking to the maximum extent practicable because either: ● The combination of minimization and mitigation in the HCP leaves no remaining impacts of the taking on the species that could be further mitigated or minimized, that is all impacts will be fully offset. OR ● If the applicant cannot fully offset the impacts of the taking, they must demonstrate that it is not practicable to carry out any additional minimization or mitigation." The Handbook says "to determine that the proposed HCP minimization and mitigation measures meet the "maximum extent practicable" standard, we must be able to define "impacts of the taking" for the particular situation we are analyzing. Consider the impacts of the taking in a manner that is biologically sound and based on the best available science. Some examples of fully offsetting impacts include: Habitat example:

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					● Loss: 100 acres of habitat type x are permanently lost. ● Measure to offset impacts: restore and protect in perpetuity (at least) 100 acres of habitat type x that is of (at least) equal biological value to the covered species before impacts occur. ● Key questions: what value did the habitat lost have to the covered species? What value does the replacement habitat have to covered species (e.g., did the replacement habitat provide for the same life stage of the covered species as that lost)? Does the replacement ratio need to be greater than 1:1 to compensate for the lag time between impacts and full eco-function of the replacement habitat, to allow for restoration uncertainties, or is consistent with previously-defined recovery objectives? Is the identified conservation habitat likely to remain suitable in reasonably anticipated future climate scenarios? Is there more value to the species by replacing the habitat that is lost with a different habitat type (e.g. breeding vs. foraging habitat)?" The above questions need to be answered in the HCP. "Loss of individuals example: ● Loss: 100 individuals will be taken. ● Measure to offset impacts: measures should be implemented to fully offset the effects to the population or species from the loss of those 100 individuals (e.g., removal of non-native species, restoration, etc.). Conservation measures could affect the population by increasing carrying capacity (through improving habitat), or increasing population growth rate (by reducing threats) for instance. ● Key questions: what life stage of individuals would be lost? In a long-lived species, loss of adults may have a much higher effect on the species or population than loss of juveniles, which may require actions to replace the loss of 100 adults with 400 juveniles, since many juveniles will die before reaching the adult (reproductive) stage. What is the value to the population of the life stages that would be lost? What is the significance to the population or species to lose 100 individuals? Is it an important population loss? What is the expected reproductive value that could be lost before being replaced? Is the lost reproductive value factored into the mitigation requirements?"

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					The above questions need to be answered in the HCP. **Text**: In the 2020 HCP, page 99 says "6.4 IMPACTS OF TAKE FULLY OFFSET The impacts of take authorized with the Original ITP and reauthorized with the Extended/Amended ITP are fully offset by the conservation program of the 1995 HCP (see Chapter 6.2.1). This conservation program is carried forward and expanded in this Amended HCP." Section 6.2.1 says, "The 1995 HCP included an administrative provision whereby the funding or completion of certain conservation measures 'released' a certain amount of the incidental take authorized by the ITP, a provision referred to in the 1995 HCP as 'incremental implementation' (1995 HCP:114, 115). This administrative accounting tracked the implementation of those actions required of the County to minimize and mitigate the impacts of the authorized take and to ensure that pace of take remained in line with the implementation of the recovery-focused actions of the BLM related to the agency's commitment to acquire lands within the Reserve." It also says, "The incidental take areas that were subject to incremental implementation under the 1995 HCP totaled 12,264 acres, or the extent of occupied MDT habitat mapped on non-federal lands outside of the Reserve circa 1995 (see Chapter 3.2.3.2.1. Incremental implementation did not apply to authorized take associated with other Covered Activities." **Comment**: We assert that this section does not analyze or explain how the HCP minimization and mitigation measures in the 1995 HCP now meet the "maximum extent practicable" standard, as we found no analysis that defined "impacts of the taking" for the number of tortoises authorized in the ITP for specific geographic area. Because the Applicant wants to use habitat as a surrogate for the incidental take of tortoises in the 2020 HCP, we were unable to find in the HCP a description using the best scientific information of how the impacts of incidental take of tortoises would be converted to impacts to tortoise habitat. In addition, we assert that incidental take associated with all Covered Activities should be minimized and mitigated to the maximum extent practicable in the 2020 HCP, which was not the case in the 1995 HCP.

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					We were unable to find these analyses in the 2020 HCP. We request that they be added to the HCP using the incidental take that was authorized in the 1996 ITP and adding the incidental take now requested in the 2020 HCP.
189	71-77	6.2.2	NA	15	**Comment**: It is not possible to determine accurately from this table what conservations actions were implemented for which biological goals and objectives under the 1995 HCP. Similar to Comments 171 and 187 above, please provide a stepdown accounting of the goals, then objectives, then conservation actions that have been taken so the reader is able to determine the progress made toward meeting the biological goals. The accomplishments may be impressive, but we cannot tell to what extent (and particularly, what is missing) because of the manner in which the information is presented.
190	78	6.3.1	NA	NA	**Text**: "This Amended HCP reaffirms that Reserve acquisitions and long-term management are not the obligations of the County." **Comment**: This flat statement needs to be justified with more discussion in the Final HCP. Again, it seems as if the County is minimally participating in the conservation actions of a plan that results in maximum benefits to the County in terms of its future development. We believe that this mentality may be one reason the County has stockpiled more than seven million dollars in HCP fees when there have been many outstanding conservation measures that should have been implemented (e.g., culverts under Cottonwood Trail, development of a fire management plan, acquisition of private and SITLA lands within the actual Reserve, curtailing raven depredation, increased law enforcement to avoid fires on holiday weekends, addressing the excessive loss of 146 tortoises to crushing along roads and trails within the Reserve, etc.).
191	78	6.3.1	NA	NA	**Text**: "The 1995 Reserve boundary met substantively the recovery recommendations for establishing the Upper Virgin River DWMA contemplated in the 1994 and 2011 MDT Recovery Plans (USFWS 1994a, 2011; see Chapter 6.1.2)." **Comment**: The above statement may (or may not) have proven true in 1995 and perhaps in 2020 prior to reissuance of the ITP, but facilitation of the Northern Corridor through the Reserve by the Amended HCP introduces variables such that this statement is no longer true, which the Amended HCP needs to address. For example, the Reserve would no longer be roadless or inaccessible to humans as recommended in the 1994 Recovery Plan.
192	78	6.3.1	NA	NA	**Text**: "The establishment of the Reserve is the primary conservation measure of the 1995 HCP. The 1995 Reserve boundary met substantively the recovery recommendations for establishing the Upper Virgin River DWMA

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					contemplated in the 1994 and 2011 MDT Recovery Plans (USFWS 1994a, 2011; see Chapter 6.1.2). The 1994 MDT Recovery Plan describes the DWMAs as those areas "in which recovery actions will be implemented to provide for the long-term persistence of viable desert tortoise populations and the ecosystems upon which they depend." **Comment**: We argue that establishing a boundary does not establish a Reserve. A Reserve is those areas in which recovery actions will be implemented to provide the long-term persistence of viable desert tortoise populations and ecosystems upon which they depend. Both the acquisition of lands and implementation of effective management of those lands are needed to substantively meet the 1994 Recovery Plan recommendations for the UVRRU DWMA. We also argue that only establishing one reserve in the UVRRU is not preferred as it does not assure long-term persistence of the MDT without intensive management of that land. Please see the Recovery Plan for the Desert Tortoise Mojave Population (USFWS 1994 - pages 31-61, F7 – F9) and Proposed Desert Wildlife Management Areas for Recovery of the Mojave Population of the Desert Tortoise - A Companion Document to the Desert Tortoise Recovery Plan Providing Detailed Information on Each of the 14 Proposed Desert Wildlife Management Areas (USFWS 1994 - pages 23-27).
193	83	6.3.1.2	NA	NA	**Text**: "Expanding on the 1995 HCP, this Amended HCP anticipates the use of the following mechanisms for acquiring private lands and SITLA-owned lands within the Reserve: • Exchanges with BLM lands outside the Reserve boundary, on a case-by-case basis with individual landowners; • Fee simple land purchases that may be supported by monies from the federal Land and Water Conservation Fund, USFWS Cooperative Endangered Species Conservation Fund (also known as ESA Section 6 funds), the sale of BLM-managed lands (as provided for under the 2009 Omnibus Public Land Management Act), Utah's Endangered Species Mitigation Fund (the LeRay McAllister Critical Lands Conservation Fund administered by the Utah Governor's Office of Management and Budget), or other available sources; • Purchases of conservation easements that may be supported by monies from the federal Land and Water Conservation Fund, USFWS Cooperative Endangered Species Conservation Fund, the sale of BLM-managed lands (as provided for under the 2009 Omnibus Public Land Management Act), or other available sources; or • Donations of fee simple interest or conservation easements.

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					This Amended HCP establishes that conservation easements are an acceptable tool for achieving Reserve acquisitions. The County and the HCP Partners anticipate that conservation easements associated with Reserve acquisitions should be in perpetuity." **Comment**: The conservation easement should not be *anticipated* to be in perpetuity, it must be *required*. Throughout the HCP we found non-committal language for conservation actions in several places. It implies to the USFWS and the reader that this should happen but makes no commitment to do it. This is not acceptable. The language in the 2020 HCP should be clear and concise. It should not be suggestive. Please change this language to say that all conservation easements will be in perpetuity. A conservation easement in perpetuity would be an acceptable tool, as would the other methods described above, if it also means the following will occur: All surface and subsurface rights (e.g., mineral, water, energy, etc.) will be relinquished by the landowner. In addition, in Utah, the status on conservation easement says, "The existence of a conservation easement may not defeat or interfere with the otherwise proper exercise of eminent domain under Title 78B, Chapter 6, Part 5, Eminent Domain." (Utah Code, Chapter 18, Land Conservation Easement Act, 57-18-1)." Consequently, a conservation easement in perpetuity is not a guarantee that it will be in perpetuity, as it is not immune to being overturned by a local or state government. To be guaranteed in perpetuity, the conservation easement must include a document from the local and state government that has jurisdiction over the property that they are relinquishing their exercise of eminent domain on this property.
194	83	6.3.1.2	NA	NA	**Text**: "Expanding on the 1995 HCP, this Amended HCP anticipates the use of the following mechanisms for acquiring private lands and SITLA-owned lands within the Reserve:" **Comment**: Our question is what were the methods identified in the 1995 HCP and what changes/additions are being made in the amended 2020 HCP? Please provide this information in the HCP. Again, this is an example of the 2020 HCP not providing complete information and a clear history of what the 1995 HCP says and what the 2020 HCP says. Because this is an amended HCP, this history and these changes must be clearly presented so the USFWS and public know what changes are being proposed and how that relates to accomplishing the

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					biological goals and objectives of the HCP with respect to the status and trend of the tortoise since 1995 and changes in threats (e.g., new threats previously not identified, increase in frequency, duration, and/or location/occurrence of threats) from those identified in the 1995 HCP to those in the 2020 HCP.
195	86-87	6.3.2.1	12	NA	**Comment**: Page 3-36 of Volume 2 of the DEIS reports that 146 injured or dead tortoises have been found inside the Reserve. We ask that Figure 12 be amended or a new figure created that shows the locations of these injured and dead tortoises. We ask that the final version of the Amended HCP be modified to indicate how the HCP partners intend to curtail this impact, particularly if the Northern Corridor is constructed. Similarly, we expect that there will be a commitment from HCP partners to monitor for and report injured and dead tortoises within Zone 6, if it is established as a satellite reserve, which has not been identified in the Draft EIS.
196	90	6.3.2.2 6.3.2.3	NA	NA	**Comment**: As expressed elsewhere, we are concerned about the perpetuation of competitive vehicle events in the Zone 6 area, should it become a satellite reserve. We ask that the Amended HCP specifically address this concern and require educational materials that are directed towards the non-participant spectators visiting the areas before, during, and after these events. With regards to law enforcement (Section 6.3.2.2), we request that the Amended HCP be modified to require elevated law enforcement by the appropriate agencies during such authorized events, particularly in Zone 6, should it become a satellite reserve (see Comment 83 for additional details).
197	93	6.3.2.4	NA	NA	**Comment**: Because translocation of MDT is a Covered Activity, the HCP needs to provide information on where tortoises would be translocated to and how this translocation would affect the resident tortoises with respect to competition for food resources, mates, home range, cover sites, and social order. "Appendix E Translocation Management Plan," which should have contained some of this information is only a title page as a placeholder. Please include this needed information to assess incidental take from Covered Activities.
198	66 93	6.3.2.5	NA	NA	**Text**: "…responds to the proposed Northern Corridor as a Changed Circumstance affecting the conservation value of the Reserve and provides for substantial new conservation actions in response." **Comment**: Given the above statement on page 66 of the Red Cliffs Reserve and the current intent to manage Zone 6 as part of the Reserve, should Section 6.3.2.5 be amended to document intended actions within Zone 6? In other words, the Amended HCP seeks to redefine what is meant by "Reserve" to include Zone 6, so the statement that no additional actions are required "within the Reserve" may be misconstrued.

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199	99	6.4	NA	NA	**Text**: "The impacts of take authorized with the Original ITP and reauthorized with the Extended/Amended ITP are fully offset by the conservation program of the 1995 HCP (see Chapter 6.2.1). **This conservation program is carried forward and expanded in this Amended HCP**." **Comment**: The Council feels that the point has been made in numerous places elsewhere in our comments that the Amended HCP will not perpetuate the "successes" of the existing HCP; at worse, it facilitates, and at best, accommodates, development of the Northern Corridor, which substantially detracts from conservation within the Red Cliffs Desert Reserve. The reason for our redundancies, then, is to point out those places in the Amended HCP where the statements are often inaccurate, misleading, and/or presumptuous. For example, the above statement where our emphasis is added is blatantly false because the Amended HCP would facilitate/accommodate development of the Northern Corridor as a "Changed Circumstance." In this specific case, the Changed Circumstance substantially undermines the conservation program, which is not being "carried forward" in its present form, and is certainly not "expanded." Therefore, in spite of our redundancies, we feel that the document authors need to modify the document to demonstrate that this Amended HCP cannot carry forward a conservation program that is substantially modified by development of a freeway through the actual Reserve plus the promised conservation in a satellite reserve.
200	100	6.4.1	NA	NA	**Text**: "The 1995 HCP established an approximately 61,000-acre Reserve for the conservation of the MDT that is consistent with the lands identified as necessary for recovery in the MDT Recovery Plan." **Comment**: Whereas the above statement may have been true in 1995, it is equally true that the 2020 Amended HCP undermines this established Reserve under the technicality of a "Changed Circumstance" and is no longer consistent with tortoise recovery. We feel that this and numerous other places in the Amended HCP serve more as a public relations piece than an actual scientific assessment of current management without a Northern Corridor and future management with the freeway through the Reserve. For example, the following question is never addressed in either the DEIS or the Amended HCP: "Would USFWS have issued the 1996 ITP had the Northern Corridor been identified as a Covered Activity inside the Reserve?" We think not. And now that tortoises have declined by more than 50% in five of the six Recovery Units and by 41% within the Reserve, we don't think the freeway should be supported as a *de facto* part of the 2020 ITP reissuance either.

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201	91 101	6.2.3.4 6.4.2	NA	NA	**Comment**: Please note on page 91 of the Amended HCP that the authors indicate that 3,754 acres have been repopulated in Zone 4, whereas page 101 indicates that 5,318 acres have been repopulated. Regardless of this discrepancy, since the Amended HCP indicates that these tortoises are not monitored after release, the authors do not know to what extent tortoises have dispersed within the fenced Zone 4 reserve and therefore cannot conclusively identify the number of acres repopulated. Are they clumped within a portion of Zone 4 or evenly distributed? In the absence of this distribution data, the extent of repopulation is speculative, and the number of repopulated acres should not be guessed at or lauded as one of the HCPs resounding successes.
202	66 109	6.1.1 6.5	NA	NA	**Comment**: On page 66, we find it noteworthy that in spite of the following sentence, "The County also intends for this Amended HCP to respond to the proposed Northern Corridor," that the Northern Corridor is not mentioned again until page 109, when development of the freeway is referred to as a foregone conclusion (**emphasis added**): "**Within 10 years of the triggering the proposed Northern Corridor Changed Circumstance**, the County and the HCP Partners **will develop a survey**." Yet, in numerous places between pages 66 and 109 (in addition to the observations given above), the Amended HCP reads as if the Reserve will continue to function, unchanged as it has since 1996. This leaves the reader with a false sense that what has been proposed and deemed a resounding success (the main thrust of the Amended HCP seems to document commitments above and beyond those required in 1995) will continue to function, as if the freeway will not be developed. We contend that in this respect the Amended HCP document is misleading, presumptions, and has failed to document what it identifies as a foreseeable, planned-for "Changed Circumstance." Without divulging the ramifications of those changes and the overall impact of the freeway to the conservation balance, we contend that the document's focus on successes between 1995 and 2019 fails to divulge how those successes are compromised by impairing the function of the Reserve going forward, which is identified in the Executive Summary as the "primary conservation measure" of the HCP. We feel that nearly every section of the Amended HCP needs to be reconsidered and modified to document current management without a freeway versus future management with a freeway, otherwise the Amended HCP does not effectively document the full extent of future conservation with a freeway through its Reserve.
203	113- 114	7.3.2	NA	NA	**Comment**: Technical Committee Composition – only see USFWS, UDWR, BLM, UDNR – Snow Canyon, local biologist nominated by Washington County Commission, and biologist-at-large nominated by the HCAC. The function

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					of the technical Committee is to provide "technical guidance to the HCAC and HCP Administrator on matters related to the biology and conservation of the MDT and other protected species occurring in the Plan Area." This responsibility means the committee members would need to possess current knowledge in several disciplines including conservation biology, population ecology, plant community ecology, and fire management. We recommend that research scientists in these disciplines be on the committee because of their knowledge and expertise and because they would be unlikely to have a vested interest in the HCP or Plan Area. This selection process, if it is the only requirement, gives an appearance of political influence. In addition to the current process, we recommend that criteria be developed regarding the knowledge and expertise needed for managing the Reserve for the tortoise, and then fill the positions on the Committee with persons with this knowledge and expertise. This provides for an objective selection process that fulfills the needed expertise on the Committee and provides a scientific foundation for this Committee.
204	118-123	8.1.1	NA	20	**Comment**: Referring back to Comment 202 above, we feel that the first actual acknowledgement of the Northern Corridor as part of the Amended HCP is not mentioned until page 118, where the document assumes the Changed Circumstances will be triggered. And that the first real analysis of the impact of the proposed freeway is not revealed until page 123 of the Amended HCP, when the following financial data are provided. Given the budget presented in Section 8.1.1, Table 20, the County is committing to pay $27,680,957 over the next 25 years to implement the plan. That, in response to UDOT's proposed freeway (or variation thereof), the County will pay $16,171,151 (60% of the total cost) to accommodate the freeway compared to $11,171,592 (40% of the total cost) without the freeway. And that this is only a fraction of the freeway-related costs, as it does not consider BLM expenditures that would not occur *but for* the freeway. In light of these observations, the Amended HCP seems more like a 16.2 million dollar mitigation package to accommodate a single entity's project – UDOT's freeway – than a proactive plan intended to recover tortoises. The proposed funding strategy is not reliable. It is not sufficiently diverse to deal with economic changes including recent major downturns seen to the building industry in the early 1990s and late 2000s. The funding strategy in this HCP should learn from and seek to avoid the adverse experiences of other HCPs/ITPs because of inadequate funding. Previously, the USFWS issued ITPs in southern California and southern Nevada that relied on building/development

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					fees for funding conservation programs of HCPs. However, when building slowed, the funds were insufficient for implementing and maintaining the conservation program. USFWS should have learned from these experiences that a diversified source of funds is needed when building/development fees are the funding source for implementing the conservation program. In addition, the fee should not be fixed as the cost of implementation will likely increase during the 25-year permit term. This is another lesson the USFWS should have learned.
205	118-123	8.1	20	NA	**Comment**: Because the threats to the tortoise in the UVRRU and the Reserve, status of the tortoise population in the Reserve and its trend since the ITP was issued in 1996 are not provided, they do not lay the foundation for what the appropriate conservation strategy is for the next 25 years for the tortoise. Because threats have increased in intensity, tortoise numbers and densities have declined, and habitat in the Reserve has been lost or severely impacted from human activities, the tortoise is in worse condition in 2020 than it was in 1996 when the ITP was issued. This should indicate that a continuation of past management is not working and substantial revisions to the Conservation Strategy are needed. Until this occurs in the HCP, the funding chapter cannot be developed. In addition, we assert the conservation actions funded in the HCP will not offset the incidental take of the tortoise requested in the HCP. The Permittee is requesting to provide XXX acres of conserved lands for development of 66,301 acres of tortoise habitat (Note: Since the Reserve could be bisected by the Northern Corridor, no one can ascertain how many actual acres are within the Reserve; should the areas south of the Northern Corridor continue to be counted as part of the Reserve if the freeway is developed? The answer is questionable; hence "XXX acres" in the above sentence). This is a 0.3:1 ratio of conservation and not acceptable under the MOG or any state conservation agency to offset impacts. However, the actual lands that the Permittee will be managing for the tortoise are far less as the Permittee has no management control over most of the lands identified for addition to the area inside the Reserve boundary, and as a result of the parenthetical note given above. Many of the conservation actions described in this section identify volunteers. The Permittee should not assume that these actions will be implemented as there may be a shortage of willing or trained volunteers. The implementation budget should include adequate funds to pay for all necessary wages and benefits, equipment, supplies, insurance, and

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					contracts that should be implemented because the expertise that is needed to implement the HCP may not occur within the paid HCP positions (HCP Administrator, HCP Biologist, Outreach Coordinator, Field Technician) identified in the budget. On page 79, the 2020 HCP says, the Permittee acquired 1,240 acres, of which 350 acres were acquisition of mineral rights (page 79) and modified Reserve boundaries to add 987 acres, but we are not sure who manages this land. As previously mentioned, Law Enforcement is inadequately funded and seems again to rely on others (BLM and UDWR) to conduct most of the law enforcement. We have the same concerns for most of the conservation actions. According to Table 16 of the 2020 HCP, there are 36,968 acres of occupied or potential MDT habitat within the Reserve boundary. However, there is no information on how much is under the management of the Permittee or how many acres will remain after freeway construction. Table 17 shows 2,981 acres are private or other lands, some or all of which we presume are under the management of the Permittee. The remaining 59,028 acres are under federal or state management with the Permittee having no management authority. In the 1996 ITP, the Permittee was authorized to incidentally take the MDT on 25,096 acres. In the 2020 HCP, the Permittee is requesting to increase this acreage to 66,301 acres (page 55 - 5.2.2.2 Amount of Renewed Take Authorization). Thus, for the development of an additional 40,000 acres of MDT habitat, the Permittee is not proposing to acquire and manage in perpetuity MDT habitat that would offset this loss of 40,000 acres. We found no information on how endowment or enhancement funds or other means of providing adequate funding for the Reserve lands in perpetuity under the Permittee's management authority would occur. We note that throughout the 2020 HCP the Permittee uses "in perpetuity" when discussing the conservation for the MDT population in the UVRRU (p. 66, Section 6.1.2; .p. 83, Section 6.3.1.2). However, we do not see this intent expressed in implementation with respect to current and future funding. This oversight needs to be corrected.
206	120	8.1.1	NA	20	**Comment**: Under "Land Acquisition," the budget identified acquisition of 450 acres in Zone 6 at an estimated costs of $5,000 per acre. In searching Land and Farm website, we discovered that land prices in the area west of St. George varied substantially with smaller parcels costing more per acre than larger ones. Prices we found ranged from $18,000

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					to more than $60,000 per acre for raw land. We suggest this section of the budget be revised to reflect current real estate process with a real estate inflation rate included. Using history of real estate prices, this inflation rate is frequently greater than the overall rate of inflation. In any case, the $5,000/acre figure quoted seems to be a gross underestimate. Funding is not sufficient to implement the conservation program described in the HCP. For example, the funding strategy claims that land acquisition in Zone 6 would be about $5,000 per acre. In searching websites for raw land for sale in the area, the least expensive asking price found for raw land was $18,000 per acre. Another example, there is little funding for effectiveness monitoring and adaptive management for implementation of the minimization and mitigation measures (e.g., public education and outreach, law enforcement, etc.). There is inadequate funding for proper implementation, monitoring, and adaptive management of a translocations program to any proposed new areas (e.g., studying resident tortoise before translocations, constructing and maintaining tortoise exclusion fencing along roadways in the Zone where translocation will occur, etc.). In addition, this section appears to assume that the 450 acres will be acquired gradually and throughout the 25-year permit term. Thus, if a large parcel becomes available for purchase in the first few years, the budget does not consider this and does not appear to have adequate funding. This also means that the conservation benefit for the MDT to be derived from the purchase and management of 450 acres of private lands would not be realized until near the end of the permit term. However, the acquisition of this land is supposedly a Changed Circumstance for the Northern Corridor freeway. The freeway will likely be built within a few years of the issuance of the ITP issuance so this land acquisition would need to occur very soon.
207	120	8.1.1	NA	NA	**Comment**: Under "Land Acquisition," the budget identifies Reserve land acquisition real estate transaction costs (appraisals, surveys, title searches, recording fees, etc.) as $20,000 per year with a total budget of $648,851. At a low cost of raw land of $18,000 per acre, if this price holds, the Permittee is anticipating only purchasing 36 acres with no inclusion of fees for appraisals, surveys, title searches, recording fees, etc. We do not understand how this budgeted amount or acreage amount would offset the additional 42,205 acres of incidental take the Permittee is requesting that is in addition to the incidental take granted in the 1996 ITP. Please explain in the revised HCP.

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208	122-123	8.1.1	NA	20	**Comment**: Under "Monitoring and Adaptive Management Planning," only one action is identified for funding – "Baseline Reserve population monitoring." There are other effectiveness monitoring actions that should be added to the HCP budget to determine if the current management of the Reserve is achieving the intended goal of conserving the MDT. These include various types of recreational uses, habitat restoration efforts, and minimization efforts (e.g., types of fencing and locations, law enforcement, outreach and education, results of ongoing MDT translocation efforts, etc.). In addition, there is the requirement to conduct compliance monitoring. This would apply, for example, to all human activities in the Reserve. We request this section be revised to indicate the different types of monitoring (e.g., compliance, effectiveness, etc.) that are required in an HCP, list the monitoring studies by activities that are known to contribute to take of the MDT (including "take" of habitat as this is the metric that the Permittee has requested to use to determine take). As such there should be a baseline study conducted to determine the quality, quantity, and connectivity of MDT habitat in the Reserve. This would then be compared to future studies (e.g., every 5 years) and comparisons made to determine if the habitat has improved, which can only be determined by monitoring. For all monitoring efforts, there should be an ecological statistician who reviews the monitoring design and implementation. If you do not properly monitor an issue, you do not know if your actions are effective. There should be a separate Adaptive Management Budget for the HCP, as not all implementation is successful. This budget should identify each issue that corresponds to each monitoring issue.
209	124	8.1.2	NA	NA	**Comment**: This section relative to other HCP plan partners reverts back to 1995 estimated expenditures for BLM and UNDR, which are no longer applicable to the Amended HCP, given the "Changed Circumstances." Nor is it consistent with Section 8.1.1 which reveals the costs of plan implementation with and without the Northern Corridor. Therefore, it is incumbent upon the authors to reveal what the costs are to BLM and UNDR with and without the Northern Corridor. We expect that the expenses to BLM (hence taxpayers) will be considerable (estimated at 60 to 70 million dollars on page 124) given that half of the Zone 6 satellite reserve is comprised of SITLA-managed lands would need to be purchased, and the County has stated it is not responsible for these acquisitions (see second bullet on page 110).

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210	124	8.1.2	NA	NA	**Comment**: We note that Section 8.1.2 restates the intended budgets of 1995 without revealing actual expenditures by the BLM or UNDR; that nowhere in the Amended HCP is there an accounting of expenditures to date by these entities. Therefore, we ask that this section be amended to reveal the actual costs of implementation to date. This request is consistent with the next section, where expenditures by Washington County are given to the dollar: "…$6,344,254 more than originally budgeted for implementation of the 1995 HCP (70% more)."
211	124	8.1.2	NA	NA	**Text**: "The BLM and UDNR are responsible for Reserve land acquisitions and long-term management and monitoring toward achieving the recovery-focused biological goals and objectives of this Amended HCP." **Comment**: Habitat acquisition and management is the primary conservation strategy of the 1995 and 2020 HCPs. Washington County was granted incidental take to develop on about 25,000 aces of MDT habitat under the 1996 ITP. It now requests incidental take for the MDT for an additional 42,205 acres with no commitment to acquire and manage habitat for the MDT. This apparent absence of minimizing and mitigating the impacts of the incidental take must be changed and the conservation strategy of the HCP substantially modified to include funding for acquisition, enhancement, and management in perpetuity of the habitat acquired under the HCP to demonstrate the Permittee has minimized and mitigated to the maximum extent practicable (see 2016 HCP Handbook). The Permittee cannot and should not rely on a state and federal entities to provided minimization and mitigation measures for incidental take of the MDT, as the Permittee has no management authority over these entities. Thus, there is no assurance that the lands acquired by BLM and State agencies will be managed for the MDT in perpetuity. Please provide additional analyses of funding sources and expenditures to address this absence of assurances. In addition, the HCP says, "…the value of its remaining lands within the Reserve may roughly total approximately $60 to $70 million." If this is correct, the Funding section of the HCP should show how many acres of private land remain within the Reserve boundary and how the Applicants propose to raise sufficient funds to purchase these lands as habitat acquisition in the Reserve is their primary conservation action. Page 120 of the HCP shows Total Expenses (future value with inflation) for Land Acquisition of less than $650,000.
212	124-125	8.2.1	NA	NA	**Comment**: The Permittee's portion for the costs of implementing the 2020 HCP are small when compared to those of the BLM and state agencies as acquisition and management is left to the land holder. Most lands with the Reserve

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					boundary are under BLM or state agency management. This avoidance of mitigation responsibility by the Permittee should be changed with the responsibility for funding mitigation and minimization in perpetuity with the Permittee. This means that the source of funding should not be limited to development fees. The Permittee must demonstrate that they have funds available or have the authority to and will implement fees to entities of Washington County to fully fund a substantially revised HCP that takes responsibility for habitat acquisition, enhancement of habitat, and management of that habitat in perpetuity for the benefit of the tortoise. We request this section be substantially modified to demonstrate this funding availability.
213	124	8.2.1	NA	NA	**Text in footnote**: "The 1995 HCP also established a fee assessed by the Municipal Partners on new plat approvals for subdivision, condominium, town home, or public utility district developments." "this platting flat fee did not adjust with inflation and only generated approximately 10% of the HCP revenue collected over the term of the Original ITP. The County has simplified the funding mechanism for this Amended HCP by eliminating the assessment of this flat fee, in favor of relying on the 0.2% fee on building permits." **Comment**: From this language, it appears that the County has a fixed fee for funding the HCP. We found no language in the HCP that suggests this percentage can or would be increased as needed to fully fund the implementation of the HCP. This flexibility language should be added as should identification of other funding sources if the fee from building permits is not adequate (e.g., slowdown in development, etc.).
214	125	8.3	NA	20	**Text**: "Nonetheless, the County assures that the general level and distribution of funding illustrated in Table 20 will be available to implement its commitments under this Amended HCP through the Renewed/Amended ITP Term." **Comment**: As presented above in comments concerning pages 118 through 125 of the Amended HCP, the funded items and amounts are inadequate. They do not approach the USFWS standard of minimizing and mitigating to the maximum extent practicable by offsetting the impacts of the incidental take.
215	126	8.3	NA	NA	**Text**: "In the event that the County is unable to meet all or part of its funding obligation, the County will enter into discussions with USFWS to discuss feasible alternatives which can accomplish the requirements as stated in this Amended HCP. In the event that funding cannot continue at committed levels, then an amendment procedure may be initiated to reduce the scope of this Amended HCP. In the event that the County cannot continue to make payments as specified in this Amended HCP or worked out through an amendment procedure, then the County's obligation to fund

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					the HCP as described in Chapter 8.1 shall terminate and the County shall thereafter have no obligation to make further payments and the USFWS may initiate action to revoke the ITP." **Comment**: The presence of this paragraph indicates that the Applicants cannot provide assurances to fund the HCP. We find this unacceptable and not meeting the requirements for issuing an ITP. The Applicants have the authority to implement additional funding sources through various means (e.g., increase the fee above 0.2%, assess other fees as all who reside in Washington County benefit from the Reserve, etc.). If the Applicants truly want to implement the HCP and demonstrate good faith, they will remove this paragraph from the HCP.
216	126	8.3	NA	NA	**Text**: "The USFWS and BLM intend to fulfill their responsibilities completely and expeditiously, as confirmed with the execution of the Implementation Agreement. Both BLM and USFWS will, to the maximum extent practicable, allocate sufficient staff and financial resources as may be necessary to accomplish these responsibilities. USFWS shall include in annual budget requests sufficient funds to fulfill its obligations under this Amended HCP. BLM shall likewise include in annual budget requests sufficient funds to fulfill its obligations under the Implementation Agreement and this Amended HCP." **Comment**: This paragraph should be removed from the HCP. It has no relevance with respect to the Applicant's HCP activities. Furthermore, the Applicants cannot speak for these agencies, have no management authority over these agencies, and cannot promise that these actions will happen in the future or for how long.
217	127	Chapter 9	NA	NA	**Comment**: We are dismayed to read the proponent-biased rhetoric given at the top of page 127 that "a deal is a deal," in favor of the HCP Partner beneficiaries, when that part of the "deal" that should guarantee tortoise conservation and recovery – the Red Cliffs Desert Reserve – is expressly no longer part of the deal. We construe that such a statement appearing in this Amended HCP is evidence that the authors have not fully considered the significant ramifications of gutting the 1995 HCP by facilitating freeway development as part of the 2020 revised HCP. That, and the County is confident of achieving its desired results to develop the Northern Corridor with most of the burden being mitigated on SITLA and the BLM lands in pursuing the Zone 6 compromise. It would seem that No Surprises, as used in this planning process and resulting Amended HCP, applies only to the proponent and not to the tortoise.
218	127	9.1	NA	NA	**Comment**: We note that the two examples given for Changed Circumstances on page 127 – "(e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)" and a third on page 136 "(i.e.,

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					delisting the desert tortoise)" – are unforeseen, stochastic events, and unlikely but desirable results, respectively, that cannot be anticipated. We ask that the authors of the Amended HCP expand this discussion to document examples of previous Changed Circumstances that were used as a mechanism to promote foreseeable projects that would not occur *but for* a completely discretionary action like the Northern Corridor. We believe that the intent of the Changed Circumstance clause was to deal with circumstances that are beyond the control of the Permittee and Applicant, that it was never intended – as is currently being proposed – to accommodate actions that undermine conservation and recovery of covered species.
219	127	9.1.1	NA	NA	**Text**: "The proposed Northern Corridor is described in a Plan of Development submitted to the BLM with an application for a ROW across BLM-managed lands within Reserve Zone 3." **Comment**: Please update this information to include that there are now several alternatives including avoiding the Reserve.
220	127-141	9.1	NA	NA	**Comment**: Changed Circumstances Rule Federal Register 2-23-1998 - "Many changes in circumstances during the course of an HCP can reasonably be anticipated and planned for in the conservation plan (*e.g.,* the listing of new species, or a fire or other natural catastrophic event in areas prone to such events), and the plans should describe the modifications in the project or activity that will be implemented if these circumstances arise." We know fires will continue to occur until non-native invasive species are eliminated and human-caused fires are curtailed. In addition, recurring fires should be a Changed Circumstance with fire prevention, fire suppression, and habitat restoration of recently burned areas a biological objective. Unfortunately, human-caused and lightning-caused fires should be expected to occur in the UVRRU because of ongoing human actions that introduce non-native invasive plant species to the area , recurring actions that promote their growth, and failure of land management agencies to implement actions to suppress their growth/reproduction.
221	128	9.1.1	NA	NA	**Text**: "The County and the HCP Partners would establish a new Reserve Zone 6 in the vicinity of the former Bloomington incidental take area located to the west of Interstate 15 and south of the Santa Clara River. The new Reserve Zone 6 would include approximately 6,813 acres of primarily SITLA-owned or BLM-managed lands. The

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					County would fund the acquisition of a portion of the non-federal lands within Reserve Zone 6. The funding would be enough to acquire three times the acreage of land within the proposed Northern Corridor roadway ROW." **Comment**: Issues with this statement that need to be clarified, as it is currently unclear what actions would be taken to implement this Changed Circumstance, follow: What does "a portion of non-federal lands" mean? How much of the 49 percent of the non-federal lands would be acquired? Acquiring three times the acreage of the ROW does not begin to minimize and mitigate the indirect adverse effects to the tortoise from the construction, use, and maintenance of this freeway. These effects extend far beyond the ROW of the roadway. These include: • road effect zone; • new sources of food for ravens from wildlife "roadkill" on a new highway that attracts more ravens to the Reserve and likely increasing tortoise mortality; • spread and proliferation of nonnative plant species transported along highways, thus requiring more management and funding by Washington County in Zone 3 to control these species; • fragmentation of the tortoise population south of the new highway and its eventual loss because of its small size and stochastic events; • increase in fire frequency because of the presence of vehicles that start many fires in the Mojave Desert (Brooks and Matchett 2006) (e.g., Turkey Farm Road and Cottonwood Trail fires); • increase in fire size because of the proliferation of non-native invasive plant species; • increased, planned-for availability and ease of human access to Zone 3 of the Reserve providing new opportunities for tortoise collection, vandalism, and source of human-caused fire; and, • increased levels of nitrogen from vehicle operation along the Northern Corridor contributing to the growth and proliferation of non-native invasive plant species over native species. The presence of one or more of these factors will result in much greater incidental take of MDT and tortoise habitat than from highway construction (i.e., the footprint of the highway). The HCP needs to demonstrate how it is minimizing and mitigating to offset these impacts.

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					Issues with information provided on management of Zone: 6 - More than 90 percent of the land is state or BLM owned and is outside the NCA. The BLM land is an ACEC, which means little with respect to managing the lands for the benefit of the tortoise. The BLM in the California Desert Conservation Area (CDCA) designated ACECs for the tortoise with some land use limitations in 2006 (and earlier), then designated them as Tortoise Conservation Areas in 2016.They continue to experience dramatic declines in density and numbers. Despite these data, BLM amended their CDCA Plan in 2019 to expand the number and miles of authorized routes for OHV use. This history by BLM provides little assurance that BLM's management would result in a measurable benefit for the tortoise and its habitat in Zone 6. To ensure a measurable benefit, the land management designation for BLM land would need to be changed to include a conservation easement to manage the land for the benefit and recovery of the tortoise in perpetuity because the development is long term. In the absence of revised RMPs, the HCP is promising conservation that we, the affected public, cannot assess. Issues with adverse effects information provided on Zone 6 Currently the language is vague regarding the specific commitments for acquisition and management of Zone 6. This means it is unenforceable. The following information as a minimum should be added to this Changed Circumstance to better define what would be implemented: - What are the current and future uses that would be allowed in Zone 6 regardless of ownership? To be managed for the benefit and recovery of the tortoise, activities that adversely affect tortoises and/or tortoise habitat (e.g., grazing, motorized and non-motorized OHV use, shooting, long-term camping, competitive events, events attracting a large number of people, any form of surface disturbance, etc.) would need to be prohibited in Zone 6, existing surface disturbance restored to native habitat, and management sufficiently funded to improve, then maintain the habitat and restore any habitat degraded or destroyed directly or indirectly by human-caused activities (e.g., fire, nonnative plant species, human subsidized predation, etc.).

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					- Where are the data and detailed maps (e.g., size, shape and edge effects/connectivity to other occupied habitat that would be acquired by Washington County) that support Washington County's planned acquisition and management in perpetuity of Zone 6? For example, although the size (i.e. total acres) of the Reserve would increase by 10 percent, if there is limited or no connectivity to the actual Reserve, if the land is a patchwork of undeveloped and developed acres, etc. so there is much edge effect, if the area has and would continue to have uses that are incompatible with management of tortoises and tortoise habitat (e.g., shooting, OHV activity, etc.), and there is no permanent guarantee of management for the benefit of the tortoise (e.g., current ACEC designation can be changed and funding is not guaranteed), then the total acres have little contribution to tortoise recovery and likely do not minimize and mitigate to the maximum extent practicable all the direct and indirect effects from construction, use, and maintenance of the highway through Zone 3 of the Reserve (e.g., mortality and injury from vehicle collisions, creating a wildlife road-kill food source to subsidize and grow a raven population that preys on tortoises, increased spread of nonnative plant species promoting their growth in the Reserve, increasing occurrence of fires because of the increase presence of vehicles and people, fragmentation of the largest contiguous portion of tortoise habitat in the Reserve and creating an isolated population of tortoises south of the proposed road that would likely succumb to stochastic events and disappear), much less the take of tortoises from 60,000 more acres. - Where is the demographic data on tortoise genetics, population size, density, size class, sex ratio and trend for these demographic parameters for Zone 6? - Where is the map of habitat quality including abundance and density of nonnative plant species, extent of human-caused surface disturbance, and woody plant cover and species composition for Zone 6? - How does the habitat in Zone 6 compare to Zone 3 habitat (i.e., is it typical Mojave desert scrub habitat or habitat unique to the Red Cliffs area)? - Will endowment and enhancement funds be established to provide for its management for the tortoise in perpetuity? - Where is the comparison of all acres impacted from the road effect zone by the construction and use of the Northern Corridor and fragmentation of tortoises/tortoise habitat in Zone 3 with the acres to be acquired by the County in Zone 6? Absent this information, it is impossible to determine if these proposed actions by the County are adequate to mitigate for the short-term and long-term loss of tortoises (the small isolated population between the proposed Northern Corridor

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					route and existing development to the south is likely to result in the loss of all tortoises and miscellaneous other wildlife species south of the freeway). The Changed Circumstances section of the HCP should answer the questions asked above, clearly state in quantifiable terms the specific actions that would be implemented under the HCP, and analyze how they would minimize and mitigate all adverse effects of the Northern Corridor. This information is needed by the USFWS for their analysis in the Biological Opinion and Findings documents.
222	130	9.1.1.1	NA	NA	**Comment**: We found no information in this section on the habitat for the MDT. Please describe the habitat including topography, soils, cover and density of woody and native annual vegetation, density and cover of nonnative annual plant species, and map areas that are degraded and damaged by surface disturbance and structures. Although presented in the Draft EIS, it is essential that this information also appear in the 2020 Amended HCP document, particularly since it is not addressed in the 1995 HCP document.
223	130	9.1.1.1	NA	NA	**Comment**: This section provides data on the number and density of MDTs from survey results. However, these data are reporting total numbers of tortoises for surveys with no information on the survey method(s) used. The HCP is providing data that are unclear and therefore not comparable to other data in the HCP. Consequently, any conclusions from these data are not supported. Please standardize all data results presented in the HCP and describe the methods used to collect the data. Please do not extrapolate data collected "in the vicinity of the proposed Reserve Zone 6" for the MDT to lands in Zone 6.
224	131	9.1.1.1.2	NA	NA	**Text**: "The County and the HCP Partners will expand the target acquisition area for the Reserve to include the proposed Reserve Zone 6 boundary." **Comment**: Would it not be better for the MDT to acquire lands within Zone 6 and not just the boundary? The word "boundary" needs to be deleted.
225	131	9.1.1.1.2	NA	NA	**Text**: "The County and the HCP Partners anticipate that the acquisition of SITLA-owned lands within Reserve Zone 6 will use the same mechanisms and be subject to the same provisions as described in Chapter 6.3.1.2."

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					Comment: Unfortunately, Section 6.3.1.2 Reserve Acquisition Strategy, does not provide information on or a commitment to acquire lands prior to or commensurate with the indirect impacts to the MDT from implementation of construction, use, and maintenance of the Northern Corridor. This commitment needs to be added to Section 9.1.1.1.2.
226	131	9.1.1.1.2	NA	NA	**Text**: "The County and the USFWS acknowledge that the use of ESA Section 6 funds to support the acquisition of Reserve Zone 6 is an acceptable use of this federal grant program, since this conservation measure is in response to a Changed Circumstance affecting the conservation value of the original Reserve, rather than a mitigation measure necessary to address incidental take from a Covered Activity." **Comment**: We cannot agree with this statement given the combined efforts of UDOT, Washington County, and BLM to allow dedicated conservation lands to accommodate the Northern Corridor. Until there is a requirement that these lands purchased for conservation purposes must remain for this purpose and cannot be changed, this is not an appropriate use of federal grant monies.
227	131	9.1.1.1.3	NA	NA	**Text**: "…the County and the HCP Partners will restrict the Covered Activities applicable to Reserve Zone 6 to only those allowed uses described in Chapter 2.2 with respect to recreation uses and related facilities when performed in accordance with the PUP (to be amended as described below); utilities, access roads, water development, and flood control when performed in accordance with the Development Protocols; and general Reserve management when performed in accordance with this Amended HCP or long-term management guidance (e.g., BLM RMPs). In addition, the following zone-specific allowed uses will be established for the proposed Reserve Zone 6: • existing state and local government infrastructure and uses; and • competitive use events that have the approval of a special recreation permit issued by the appropriate land management entity or the HCP Administrator, as applicable." **Comment**: This section is unclear. Does it only apply to recreation uses? Competitive events are not allowed in the Reserve because of their impacts on tortoise/tortoise habitat. This would further reduce the ability of these lands to minimize and mitigate the incidental take outside the Reserve from construction, use, and maintenance of the Northern Corridor and all take associated with it from indirect impacts (road effect zone, new source of nitrogen to promote the growth of non-native invasive plants, increasing the likelihood of fires from the presence of vehicles (see Brooks and Matchett 2006), fragmentation of the tortoise population such that the small population created and isolated south of

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					the Northern Corridor would likely become extirpated from genetic, demographic, and environmental stochastic events, and the growth-inducing impacts of a new roadway to surrounding areas. One could argue the lands cannot be developed because they are mostly managed by BLM. However, most of California City, California was BLM land at one time. BLM has a history of divesting itself of lands it finds difficult to manage. The HCP fails to demonstrate how it is minimizing and mitigating to the maximum extent practicable the impacts of the taking of the tortoise requirements in the 1994 Recovery Plan and reiterated in the 2011 Revised Recovery Plan from the implementation of the Northern Corridor.
228	131-134	9.1.1.1.4	13	NA	**Comment**: All of our concerns relative to fencing, law enforcement, community outreach and education, development protocols, recreation management, and fire management also apply to this section under Conservation Actions.
229	132	9.1.1.1.4	NA	NA	**Text**: "The amount of MDT Habitat within the Reserve that may be permanently lost to Covered Activities will not exceed 200 acres over the duration of the Renewed/Amended ITP Term (page 57 of the Amended HCP)." **Comment**: We note on page 3-12 of the DEIS Volume 2 in Table 3.2-2 that the impact acreage identified for the UDOT proposal is 240 acres, compared to 150 acres cited on page 132 of the Amended HCP. A third impact acreage of 200 acres is given above. What is the explanation for these discrepancies? Table 3.2-3 on page 3-13 of the DEIS estimates that the indirect effects of this proposal would affect 3,879 acres of tortoise habitats. The naïve reader may be led to believe that acquisition of 450 acres (which should be 720 acres if the 240-acre figure in the DIES is to be believed) sounds adequate, but more informed readers understand that acquiring 450 acres of SITLA lands that have not been targeted for development in the last 24 years is a minimal commitment by the County, and dismisses that the actual impacts of the Reserve are far more than either 150, 200, or 240 acres (whichever figure turns out to be accurate). And since the County has clearly stated it is not responsible to acquire the SITLA lands, its good faith effort to minimize the impact of the Northern Corridor is in question.
230	132	9.1.1.1.4	NA	NA	**Text**: "Both of these alternatives [in the NCA RMP] would modify REC-5 to manage a **600-foot-wide area** along the selected Northern Corridor as part of the Rural RMZ, which allows for operational components such as paved roads where visitors **'can expect a steady stream of highway auto and truck traffic'**" (**emphasis added**). **Comment**: We note the above statement given on page 3-132 of the DEIS. We interpret this statement to mean that an area 600 feet wide – not 300 feet wide – would be directly impacted. If perimeter fences will be installed to encompass

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					a width of 600 feet for the 4.0-mile-long freeway, it is our calculation that 298 acres would be removed from tortoise use, not 150 (or 200, or 240, or some other acreage). Please clarify.
231	132	9.1.1.1.4	NA	NA	**Comment**: Both the DEIS (see page 2-15) and the Amended HCP (page 57) state that the compensation ratios derived from the 1991 Desert Tortoise Management Oversight Group (DTMOG) formula are being used to determine compensation. However, neither document reveals that the HCP Partners have, in fact, not chosen to implement the multiplying factor sum resulting from the compensation formula. As given on page 7 of that formula, there are five variables, the sum of which is used to multiply the acreage of impact to determine compensation. (Note: Nowhere else in the listed range of the tortoise does *anyone* still use this 1991 DTMOG formula. In all four states where Critical Habitats or acreage within DWMAs are impacted, the standard compensation ratio is 5:1). These variables and the numbers applicable to the Northern Corridor follow: C = Category of Habitat = Category 1, which is synonymous with Critical Habitat = 3 T = Term of Effect = > 10 years = 1 E = Existing Disturbance Onsite = Little or no disturbed habitat = 1 G = Growth Inducing = None = 0, Yes = 0.5 A = Adjacent Habitat Impacts = Direct or Indirect Effects in Adjacent Areas = 0.5 **Total = 5.5** Since it can be argued that the Northern Corridor is growth-accommodating rather than growth-inducing, that value may very well equal zero for Variable G, but that still leaves an undisputed multiplying factor of 5.5. Although we have persuasively argued that the Northern Corridor is not compatible with tortoise conservation and recovery on Critical Habitats inside the Reserve and that it violates the assumptions of the 1995 HCP, we see here that the HCP Partners are promoting a compensation ratio of 3:1, claiming to use the DTMOG formula as the basis for that calculation, but failing to follow the calculated ratio of a minimum of 5.5:1. As given above, there are already conflicting estimates of the direct impacts of the Northern Corridor (300 feet versus 600 feet wide areas), but no explanation why the HCP Partners are choosing to claim adherence to the DTMOG formula, not doing so, and promoting a compensation ratio of 3:1 rather than 5.5:1; offering to acquire 450 acres, when in fact the formula they reference indicates a compensation ratio of 5.5:1, which would be a minimum of 825 acres (for a 300-foot wide impact) to as much as 1,639 acres (for a 600-

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					foot wide loss of tortoise habitat). Failure to divulge this dynamic (and numerous other instances given herein) strongly suggest that the HCP Partners do not fully acknowledge the impact of the freeway through the Reserve (and to public trust), and whether they do or not, are looking for every means possible to develop the freeway with a minimum cost to the County.
232	132	9.1.1.1.4	NA	NA	**Comment**: With regards to reserve fencing discussed in the 3rd bullet on page 132, we note that although this section relates to Zone 6, there is no discussion in this section that the new Northern Corridor would also be fenced, which would have deleterious effects in terms of fragmentation and "beneficial" effects in minimizing road-killed tortoises (which would not occur *but for* the Changed Circumstance/Northern Corridor the HCP Partners are now promoting).
233	135	9.1.1.1	NA	NA	**Text**: "Upon the triggering of this Changed Circumstance, the County will retire approximately 3,338 acres of incidental take previously authorized by the USFWS and otherwise renewed with this Amended HCP and Renewed/Amended ITP." **Comment**: Though not directly revealed, we understand this statement is referring to the SITLA lands in Zone 6. Given that these lands have remained intact for many years, and presumably since the 1995 drafting of the HCP (please confirm), there has been no intent to sell them. We ask that the Amended HCP (or perhaps more appropriately in the DEIS?) document the acreage of SITLA lands within the Plan Area and how many SITLA lands have actually been sold since 1995. These data will reveal the actual threat, and therefore conservation benefit, of including these lands in Zone 6. If there is no actual likelihood that these lands will be purchased and subsequently developed, we question the conservation value of retiring these lands from take authorization. Furthermore, it is our understanding that SITLA is under NO legal obligation to sell or "give" lands to HCP partners like the BLM or UDWR; there are still SITLA lands within the core of the Reserve (since 1995) and the only way they will be sold to HCP partners is under congressional legislation. So, we ask that the Final EIS provide more discussion as to how exactly SITLA is obligated to participate as envisioned and as they pertain to our comments.
234	135	9.1.1.2	NA	NA	**Text**: "To compensate for fragmentation effects of the proposed Northern Corridor, the County and the HCP Partners will provide technical assistance to UDOT for the design and construction of tortoise-crossing culverts under Cottonwood Road within Reserve Zone 3."

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					Comment: With regards to the above statement, we ask that more detail be provided. How long has this road been fenced? And, depending on the answer, why haven't the HCP Partners not already implemented this action? We understand from elsewhere in the Amended HCP (e.g., page xi in the Executive Summary) that as of January 2020, there are in excess of seven million dollars available to implement conservation actions such as this one. The Council does not recognize this as a measure that will offset development of the Northern Corridor, because existing science should have dictated this action be implemented already. We feel that this is an important consideration, as this conservation action is in a section that is intended to address the Changed Circumstance. There is no conservation credit in linking this overdue action with development of the Northern Corridor, as there is no clear nexus between the Changed Circumstance and this long overdue action.
235	135	9.1.1.2	NA	NA	**Text**: "The County will also provide funding to support the construction, maintenance, and/or monitoring of tortoise-crossing culverts under Cottonwood Road." **Comment**: Maintenance, monitoring, and adaptive management (we note no commitment to adaptive management of culverts) are needed after construction to ensure that this action is effective in accomplishing its purpose. This is another example of the Applicants' failure to fully fund implementation of conservation actions including monitoring, maintenance, and adaptive management.
236	137	9.1.4	NA	NA	**Comment**: Another Changed Circumstance from the Northern Corridor would be the frequency of fire in the Reserve. As presented earlier, Brooks and Matchett (2006) reported car fires along roadsides are frequent causes of fires in the Mojave Desert. The County should develop and implement conservation actions, mitigation, and appropriate funding to efficiently and effectively implement actions to prevent fires, quickly extinguish fires, and quickly restore native habitat for areas in the Reserve that may experience fires in the future. For example, if constructed, multiple phone call stations could be constructed along the Northern Corridor to facilitate early reporting of fires in adjacent habitats. Restoration activities should also occur for areas that have experienced fire in the Reserve. Some of these actions include substantial reduction in nonnative plant species, increased law enforcement and education about this issue, modifications to the fire management plan to address ways these types of fires can be prevented and quickly extinguished, and effective habitat restoration of burned areas using only native plants (both woody perennial and herbaceous annual plants). The commitment in this section of the HCP only deals with one aspect of this Changed

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					Circumstance, which is restoration. It is far less expensive economically and ecologically to prevent fires than to fight a fire and restore areas after a fire. Consequently, this Changed Circumstance should identify and adequately fund fire prevention in and near the Reserve with implementation of on-the-ground management actions, law enforcement, and public education, and prohibitions of activities such as campfires, firework, etc. in the Reserve. During high fire danger the Reserve should be closed to public access.
237	137	9.1.4	NA	NA	**Comment**: The first paragraph in this section that summarizes potential incidences of wildfire in the Reserve fails to divulge that roads, particularly highways, are what Brooks and Matchett (2006) designate as "Ignition Point Locations," as mapped in Figure 1 on page 151 of their document. This is an essential part of the analysis that is missing, as development of the Northern Corridor, itself, based on these data and research, is likely to contribute to the incidence of fire in the Reserve in a location where that threat is absent *but for* the new freeway. Clearly, this section in the Amended HCP needs to be modified to include the ramifications of two wildfires occurring in July 2020, including the Turkey Farm Road and Cottonwood Trail fires, as existing Changed Circumstances since drafting the document.
238	129 139	9.1.1 9.1.7	NA	NA	**Comment**: Since Section 9.1.1 of the Amended HCP claims that it intends to enlarge the Reserve by 10% (redesignating the satellite reserve in Zone 6 is implied), shouldn't Section 9.1.7 reveal that it is possible that SITLA lands in Zone 6 can still be purchased and developed? It is not clear from our reading of the Amended HCP or the DEIS that SITLA is expressly prohibited from selling these lands even if within the proposed Zone 6 satellite reserve. Please confirm in the Final EIS.
239	139	9.1.6	NA	NA	**Text**: "Therefore, this Changed Circumstance will be triggered if a new MDT disease is detected within the Plan Area or if the observed incidence of URTD among MDT Reserve-wide exceeds 25% of the population." **Comment**: According to the 2016 HCP Handbook, "Changed circumstances are circumstances that can be reasonably anticipated." They can be anticipated because of past and current scientific knowledge about the species and the Plan Area. This section only describes two of the recently identified diseases that occur in the MDT. It should include all known diseases of the MDT (e.g., herpesvirus, shell disease, etc.). Otherwise this selected approach appears to be arbitrary and purposefully ignoring some diseases in the MDT, and should not be considered an informed Changed Circumstance.

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
240	139	9.1.6	NA	NA	**Text**: "The County, UDWR, and the USFWS will meet and confer to discuss alternative translocation options and possible treatment for affected tortoises, subject to financial constraints and practicability." **Comment**: Thus, in dealing with the Changed Circumstance of disease for the tortoise, the Permittee is only concerned about the tortoises it needs to move to allow for development. There is no Changed Circumstance to implement appropriate management actions for MDT in the Reserve that are outside translocation zones. We are not sure how the Permittee's commitment in this Changed Circumstance is minimizing and mitigating the impacts of the taking for tortoises in the development areas. Please add a commitment of what minimization and mitigation action the Permittee will implement if "a new MDT disease is detected within the Plan Area (this includes the Reserve) or if the observed incidence of URTD among MDT Reserve-wide exceeds 25% of the population." In addition, why was 25% of the population selected? This selected number appears to be arbitrary, as we found no epidemiological reference to support it. Please revise this Changed Circumstance to reflect what is known about current tortoise diseases as they all suppress the tortoise's immune system and leave it more vulnerable to mortality from the disease of other sources of mortality (i.e., it is a contributing factor to mortality).
241	141	9.2	NA	NA	**Comment**: Although the Amended HCP has not convinced us that the Northern Corridor is a Changed Circumstance (because the HCP Partners have postponed ITP issuance for four years for the sole purpose of developing this compromise, and our understanding is that Changed Circumstances are beyond the control of the HCP Partners), we fully believe that the Northern Corridor is an Unforeseen Circumstance relative to the 1995 HCP, which until it is revised, remains enforce (e.g., the words "northern corridor" do not appear in the 503-page 1995 HCP, unless it was referred to under a different title?). We support our conclusion based on the clauses used in the second paragraph on page 141 of the Amended HCP: The Northern Corridor, which was not envisioned by the 1995 HCP represents "…modifications within conserved habitat areas" and it expressly does not "…maintain the original terms of the conservation plan to the maximum extent possible." So, please explain why the Northern Corridor is not an Unforeseen Circumstance relative to the 1995 HCP.
242	141	9.2	NA	NA	**Comment**: The HCP Handbook says "The 'unforeseen circumstances' section of the HCP should discuss the process for figuring out how to address those future changes in circumstances surrounding the HCP [the USFWS] may not

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
					reasonably anticipate." We found no such discussion in this section of the Amended HCP. We found one sentence that said "The USFWS shall notify the County in writing of any Unforeseen Circumstances the USFWS believes to exist." The County can and should include a discussion of the process they will conduct with the USFWS and others to address unforeseen circumstances. As stated in the 2016 Handbook, "There may be other approaches [the USFWS] can use to respond to the needs of the affected species, including increasing the effectiveness of the HCP's operating conservation program (without raising costs), Government actions [the USFWS] can take to meet species needs, or voluntary conservation measures the permittee can take." We request a discussion of the process be added to the Amended HCP.
243	143	10.2	NA	NA	**Comment**: For the purposes of full disclosure, we ask that the following sentence be modified to indicate that the Northern Corridor would also result in the adverse modification of designated tortoise Critical Habitat, or, at least, the USFWS needs to consider this aspect of the Changed Circumstance (see suggested wording in bold font). "Therefore, even under this alternative, the Northern Corridor involves federal actions that may affect, and would be likely to adversely effect, the MDT (with incidental take **and adverse modification of Critical Habitat)** and would trigger the need for formal interagency consultation under Section 7 of the ESA." " "The Service [USFWS] expects that proposed actions that are inconsistent with land management recommendations for DWMAs in the Draft Recovery Plan would likely be considered to adversely modify critical habitat. Proposed actions that are consistent with the recommendations within the Draft Recovery Plan would not be likely to result in destruction or adverse modification of critical habitat (59 Federal Register 26:5835)."
Development Protocols, Appendix A to the Amended HCP					
244	C-5	App A	NA	NA	**Comment**: We appreciate that the Development Protocols as they pertain to tortoise surveys, findings, and dispositions are well written and should prove effective. With regards to the following sentence on page C-5, we recommend adding the bold regular-font words for clarification: "A qualified biologist shall excavate any winter dens or burrows which the HCP Biologist has concluded cannot be avoided and will be disturbed by construction, **checking for nests and viable eggs as the burrows are excavated**."

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
245	C-6	App A	NA	NA	**Comment**: With regards to the following prescription, "GC-11 The area shall be restored as determined during the preconstruction process, consistent with restoration/reclamation standards approved by the Washington County Commission. [Document in progress]," in 2016 the Council completed Best Management Practices in a peer-reviewed document relative to restoration of tortoise habitats (Abella and Berry 2016), and has included those BMPs for consideration and use by the HCP Partners in Attachment E.
246	C-7	App A	NA	NA	**Comment**: We suggest that the following statement on page C-7 be supplemented with the bold-font wording that follows, "If tortoises are found in the drainage area and are determined to be in harm's way, a qualified biologist will move the tortoises to a sheltered location within 250 feet outside the wash. **If there is a burrow of an adult tortoise that will be flooded, a knowledgeable biologist should consider the potential for the occurrence of a viable tortoise nest and take necessary precautions (e.g., reroute the flow water or excavate the burrow) to avoid losing the eggs.**"
247	C-4 C-8	App A	NA	NA	**Comment**: It is advisable that the PC-6 prescription given on pages C-4/C-5 with regards to an educational brochure and signed affidavit also be applied to prescription M-2 on page C-8 as it pertains to an annual refresher course administered for maintenance personnel.
248	C-9	App A	NA	NA	**Comment**: With regards to freshly dead tortoises, it is advisable that UDWR and/or USGS be contacted to see if they can use fresh specimens for research. If this recommendation is followed, it would be appropriate to add the nearest USGS office (likely Las Vegas area?) contact information to page C-12. Also, since the HCP is intended to function for 25 years, we question if the inclusion of named biologists is prudent? Finally, we recommend that the section clarify the disposition of *dead* animals (as stated, final disposition pertains only to injured, living tortoises). Leaving freshly-dead tortoises in place may attract predator-scavengers.
249	C-13	App A	NA	NA	**Comment**: With regards to the clearance survey protocol revisions since 1997 given on page C-13, we recommend that Chapter 6 in the USFWS (2009) Field Manual be consulted to be sure the County is implementing the most recent guidance.
Red Cliffs Desert Reserve Public Use Plan, Appendix B to the Amended HCP					

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	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
250	14	App B	NA	NA	**Text**: "The Red Cliffs Desert Reserve Public Use Plan is designed to be flexible and subject to revision through adaptive management. After management prescriptions are implemented, monitoring will ensure the success of habitat management by evaluating and updating prescriptions when necessary to continue to meet conservation goals. If the Plan fails to meet conservation goals, the County, BLM and Reserve administrators will assess and refine management prescriptions using adaptive management provisions on page 17." **Comment**: Because the conservation goals of the 1995 HCP have not been met (i.e., resulted in stable or increasing populations of tortoises within the Reserve), and this has been known for several years (e.g., results of bi-annual desert tortoise surveys by UDWR since 1998; see Attachment B), please provide information the HCP regarding what adaptive management actions have been implemented to address the results of each monitoring effort for the MDT/tortoise habitat.
251	25	App B	NA	NA	**Text**: "Members of the Technical Committee and the Public Use Planning Team have recognized and recommended that a human impact monitoring plan be launched after careful analysis and design that both quantifies and documents human impacts in the Reserve." **Comment**: Since it was identified in the 2000 PUP, 20 years ago, we question why this monitoring plan is not included in the 2020 HCP.
252	29	App B	NA	NA	**Text**: "The HCP Administrator, in coordination with Reserve managers, USFWS, UDWR, and Wildlife Services, can authorize appropriate persons or groups to conduct programs to manage predators, nuisance animals, and exotic, noxious plant and wildlife species. Examples include authorizing qualified hunters to control coyote, mountain lion, raven and beaver populations, or authorizing the use of herbicides for noxious weed control. Administrative control of certain species is important for protecting tortoise populations, protecting other beneficial wildlife and plant species, and for human safety reasons." **Comment**: Since this statement was taken from the 2000 PUP, the Applicants recognized the threats to the MDT cause by excessive predation and invasive plants 20 years ago. Please explain why management of these threats is not included in the 2020 HCP. Please add these as biological objectives and specific conservation actions.
253	33-46	App B	NA	NA	**Comment**: The PUP, adopted in 2000, should be revised based on information collected about threats to the MDT and their impacts on tortoise/tortoise habitat. For example, the 2000 PUP allows for campfires in the lowland zone of the

Draft Environmental Impact Statement Northern Corridor EIS, HCP, and RMP Comment Tracking Form					
	Page Number	**Section Number**	**Figure Number**	**Table Number**	**Comment and/or Reference**
					Reserve but in the upland zone, this area is subject to closures during times of high fire danger. Because of the recent fire history in the lowland zone, it appears this closure should apply to the lowland zone too. Organized and Competitive Events – "Organized competitive and recreational sporting events found to be low-impact to habitat are only permitted in the Reserve with a special use permit issued by the BLM or State Parks in coordination with the HCP Administrator." We were under the impression that these events were no longer allowed in the Reserve. If correct, please update the 2000 PUP to reflect current management practices and restrictions. Otherwise, this incorrect document should not be included as an appendix of the 2020 HCP. It is confusing.
254	65	App B	NA	NA	**Comment**: We were unable to find Appendices A through F of the PUP. Please include the following in the Amended HCP: Designated Roads Within the Red Cliffs Desert Reserve; HCP Directives by Zone; Recreation Ecology and Human Impacts to Resources: A Primer, the Ecology of the Desert Tortoise; Impacts of Recreation on the Desert Tortoise and Other Wildlife in the Red Cliffs Desert Reserve; and Comments on the Public Use Plan Draft March 14, 2000. This information is relevant to the development of the 2020 HCP.
Reserve Habitat and Fire Management Plan, Appendix D to the Amended HCP					
255	NA	App D	NA	NA	**Comment**: Although written in 2019, it appears that the authors did not consult with persons who have studied fires in the southwestern deserts of the United States. We contend that past methods for containing fires in one environmental area (e.g., fire breaks) are not appropriate or effective in a desert fire fueled by dried annual grasses and wind. We suggest consulting with experts (e.g., the U.S. Geological Survey's Wildland Fire Science in Forests and Deserts, etc.) to determine the most effective methods to prevent the occurrence and spread of fire in the Mojave Desert and effective restorations efforts and updating this plan periodically as research continues to provide new information.
Translocation Management Plan, Appendix E to the Amended HCP					
256	NA	App E	NA	NA	Please see Comment 197 above, with regards to Section 6.3.2.4 Tortoise Translocation of the 2020 HCP.

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[2] Here we retain the "2019**d**" because that is how it appears in the quote.

Attachment A - List of Acronyms Used in Our Comment Tables

ACEC – Area of Critical Environmental Concern
AUM – Animal Units per Month (relative to grazing)
BLM – Bureau of Land Management
BO – Biological Opinion
CDCA – California Desert Conservation Area
CFR – Code of Federal Regulations
DEIS/Draft EIS – Draft Environmental Impact Statement
DOI – Department of Interior
DTMOG – Desert Tortoise Management Oversight Group
DTRP - Desert Tortoise Recovery Plan
DWMA – Desert Wildlife Management Area
ERMA - Extensive Recreation Management Area
FESA/ESA – Federal Endangered Species Act
FLMPA – Federal Land Management Policy Act
GPS - global positioning system
HCAC – Habitat Conservation Advisory Committee
HCP – Habitat Conservation Plan
IA – Implementation (Implementing) Agreement
ITP – [Section 10(a)(1)(B)] Incidental Take Permit
LE – Law Enforcement
LWCF - Land and Water Conservation Fund Act Lands
MDT – Mojave desert tortoise
NA – Not Applicable
NCA – National Conservation Area
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
OHV – Off-Highway Vehicle
OPLMA - Omnibus Public Land Management Act of 2009
PEP Index - potassium excretion potential index
PUP – Public Use Plan
RCDR – Red Cliffs Desert Reserve
RCNCA – Red Cliffs National Conservation Area
Reserve – Red Cliffs Desert Reserve
RMP – Resource Management Plan
ROW – Right-of-way
SGFO – St. George Field Office of the Bureau of Land Management
SHC – Strategic Habitat Conservation
SITLA – Utah School and Institutional Trust Lands Administration
SMART – specific, measurable, achievable, result-oriented, and time-fixed
SWCA – Southwest Environmental Consultants
TCA – Tortoise Conservation Area
UDNR – Utah Department of Natural Resources
UDOT – Utah Department of Transportation
UDWR – Utah Department of Wildlife Resources
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey
UVRRU – Upper Virgin River Recovery Unit
WCHCP – Washington County Habitat Conservation Plan
WUI - Wildland Urban Interface

Attachment B

McLuckie, A. M., N.L. Fronk, and R.A. Fridell. 2020. Regional Desert Tortoise Monitoring In The Red Cliffs Desert Reserve, 2019. Publication Number 20-06, Utah Division of Wildlife Resources, Salt Lake City, Utah.

It is important to note the declines in tortoise densities in Zone 3 from 33.4 per km^2 in 1998 to 12.3 per km^2 in 2019 and in Zones 2, 3, and 5 from 29.1 per km^2 in 1999 to 17.2 per km^2 in 2019.

Table 5. Sample size of truncated data (n), total line length (L), number of transects (k), density (D; tortoises per km^2) and abundance (N; total animals per area sampled) estimates with associated 95% confidence interval, and coefficient of variation (%) for adult desert tortoises (>180 mm) encountered within Zone 3 as well as across the Reserve (Zones 2, 3, and 5), 1998 to 2019, Red Cliffs Desert Reserve, Washington County, Utah.

Zone 3

Year	n	L	K	D (95%CI)	N (95%CI)	CV(%)
1998	124	193.4	99	33.4 (24.4-45.6)	3199-(2343-4369)	15.85
1999	137	215.5	110	33.1 (23.2-47.2)	3173 (2225-4523)	18.09
2000	136	209.3	106	33.8 (24.1-47.5)	3243 (2308-4558)	17.34
2001	147	218.9	111	35.0 (25.9-47.2)	3351 (2481-4525)	15.30
2003	73	215.6	109	17.6 (13.1-23.8)	1690 (1252-2280)	15.26
2005	116	230.7	117	26.2 (19.8-34.5)	2509 (1902-3309)	14.10
2007	76	239.8	122	16.5 (12.2-22.3)	1582 (1168-2142)	15.44
2009	54	241.5	123	11.6 (8.2-16.6)	1116 (782-1592)	18.14
2011	85	239.0	122	18.5 (14.0-24.4)	1775 (1346-2340)	14.09
2013	74	241.0	123	16.0 (11.9-21.4)	1532 (1144-2053)	14.90
2015	63	238.7	123	13.7 (9.9-19.1)	1317 (946-1835)	16.89
2017	71	207.2	105	17.8 (13.1-24.3)	1710 (1256-2327)	15.69
2019	50	211.2	107	12.3 (8.7-17.5)	1181 (830-1682)	18.01

Zones 2, 3, & 5

1999	175	296.0	152	29.11(21.4-39.6)	3404(2504-4627)	15.67
2000	177	290.0	147	30.5 (22.9-40.7)	3568 (2675-4757)	14.68
2001	175	301.8	153	30.7 (23.5-40.2)	3591 (2744-4700)	13.72
2003	97	298.8	151	16.5 (12.6-21.5)	1926 (1476-2512)	13.55
2005	158	293.7	149	26.2 (20.2-34.0)	3067 (2364-3979)	13.28
2007	98	296.4	151	16.7 (12.6-22.0)	1948 (1475-2573)	14.18
2009	85	298.5	152	13.7 (10.1-18.6)	1603 (1183-2172)	15.49
2011	116	298.9	153	19.1 (14.9-24.6)	2238 (1742-2874)	12.76
2013	104	302.6	155	16.9 (12.7-22.3)	1971 (1490-2608)	14.28
2015	92	300.2	155	15.0 (11.2-20.1)	1751 (1308-2345)	14.90
2017	105	266.2	136	19.1 (14.7-24.8)	2231 (1716-2900)	13.36
2019	96	262.0	133	17.2 (12.3-24.1)	2011 (1433-2821)	17.28

Attachment C to the Desert Tortoise Council's September 2020 Comments on the May 2020 Revised Habitat Conservation Plan for Washington County, Utah Final Draft Restated and Amended May 2020 and Associated Implementing Agreement

MAY 2020 REVISED HABITAT CONSERVATION PLAN FOR WASHINGTON COUNTY, UTAH

[Comments on Pages 28-31 of 2020 HCP, Section on U.S. Geological Survey Model with Approximate 1995 Development Conditions, Figures 4 and 5, and Table 5: related sections throughout the HCP, and other sections in the Habitat Conservation Plan where the model is used]

The U.S. Geological Survey (USGS) habitat model (Nussear et al. 2009) was developed for what was thought at the time to be the much of the range of the Mojave desert tortoise species in 2009. It is a model that was developed to map potential tortoise habitat in the Mojave and Sonoran deserts of California, Nevada, Utah, and western Arizona. Since then, we have learned that this area provides habitat for two species of desert tortoises, the Mojave desert tortoise and Sonoran desert tortoise (*Gopherus morafkai*). These two species have some overlapping but some different ecological preferences and thus habitat preferences.

For the Mojave desert tortoise: In 2008, a year before the publication of the Nussear et al. (2009) report and model, the U.S. Fish and Wildlife Service (USFWS) said "Desert tortoises are most commonly found within the desert scrub vegetation type, primarily in creosote bush scrub. In addition, they occur in succulent scrub, cheesebush scrub, blackbrush scrub, hopsage scrub, shadscale scrub, microphyll woodland, Mojave saltbush-allscale scrub and scrub-steppe vegetation types of the desert and semidesert grassland complex (USFWS 2008).

For the Sonoran desert tortoise: In 2011, the USFWS said, the Sonoran distinct population segment of the desert tortoise occurs "most commonly on rocky, steep slopes and bajadas in paloverde-mixed cacti associations. Washes and valley bottoms may be used in dispersal and, in some areas, as all or part of home ranges. Most Sonoran desert tortoises in Arizona occur between 904 to 4,198 feet (275 to 1280 meters) in elevation." In 2015, the USFWS, acknowledged the Sonoran desert tortoise as a separate species and refined this species habitat description to say, "Sonoran desert tortoises primarily inhabit rocky, steep slopes and bajadas of Mojave Desertscrub and the Arizona Upland and Lower Colorado River subdivisions of Sonoran desertscrub. Ninety-five percent of all Sonoran desert tortoise records in Arizona are located between elevations ranging from approximately 900 to 4,200 feet (ft) (275 to 1,279 meters (m)). They most often occur in the paloverde-mixed cacti associations."

Furthermore, the ecological conditions in the Upper Virgin River Recovery Unit vary from those of other tortoise recovery units for the Mojave desert tortoise. The USFWS (1994) said the following of the Mojave desert tortoise in the Upper Virgin River Recovery Unit, "The desert tortoise population in the area of St. George, Utah, is at the extreme northeastern edge of the species' range and experiences long, cold winters (about 100 freezing days) and mild summers, during which the tortoises are continually active. Here the animals live in a complex topography consisting of canyons, mesas, sand dunes, and sandstone outcrops where the vegetation is a

transitional mixture of Sagebrush Scrub, Creosote Bush Scrub, Blackbush Scrub, and a psammophytic (sandy soil) community. Desert tortoises use sandstone and lava caves instead of burrows, travel to sand dunes for egg laying, and use still other habitats for foraging. Two or more desert tortoises often use the same burrow." One example of this difference in habitat characteristics is provided in the table below.

Table 3. Topography, substrate, winter burrow site preference, and denning behavior of the desert tortoise (Gopherus agassizii) in each recovery unit (USFWS 1994).

Recovery Unit	**Physical Attributes of Habitat**	**Burrow Sites**	**Denning Behavior**
Upper Virgin River	Rock caves, sandstone crevices	Burrows in sand, and in sandstone crevices; (Do not use habitat like NE Mojave, even if available)	Multiple

Nussear et al. 2009. Modeling habitat of the desert tortoise (Gopherus agassizii) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona

[Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (Gopherus agassizii) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.]

The 16 environmental variables the authors (Nussear et al. 2009) selected to use in their model were:

CLIMATE
Mean dry season precipitation for 30-year normal period
*Dry season precipitation, spatially distributed coefficient of variation
Mean wet season precipitation for 30-year normal period
*Wet season precipitation, spatially distributed coefficient of variation

TOPOGRAPHY
Elevation (derived from a USGS model)
*Slope (derived from a USGS model)
*Northness (aspect) (derived from a USGS model)
*Eastness (aspect) (derived from a USGS model)
Average surface roughness (derived from a USGS model)
Percent smooth (derived from a USGS model)
*Percent rough (derived from a USGS model)
SOILS

Average soil bulk density (derived from Natural Resources Conservation Service (NRCS) STATSGO database)
Depth to bedrock (derived from NRCS STATSGO database)
Average percentage of rocks > 254 mm B-axis diameter (Derived from NRCS STATSGO database)

BIOLOGICAL CHARACTERISTICS
Perennial plant cover
Annual growth potential (this is a "proxy for annual plant biomass, which reflects potential forage for tortoises")
The variables with an "" were dropped from the final model.

"[T]he performance of the model at all possible thresholds and is summarized by a single number ranging from 0 to 1, where 1 indicates perfect model performance, 0.5 indicates the equivalent of a random guess, and less than 0.5 indicates performance worse than random." Because the model did not use presence and true absence of tortoises, but rather presence and random background points, perfect model performance would be slightly less than 1."

Assumptions and Limitations in the Nussear et al. (2009) report:
The authors discuss some of the limitations of their data "in quotes." Others are not discussed in the report.

1. Results of the mapping of potential habitat "do not include factors that affect habitat quality." Please see discussion below on this.

2. Using the literature and experiences of the authors, 16 environmental variables were selected to predict desert tortoise habitat. In the selection process, the variables "were hypothesized to influence tortoise ecology/habitat potential through a variety of mechanisms." Ultimately, 6 variables were dropped from the model indicating the selection process of the environmental variables did not have a high level of success.

3. Data were lacking. For example, for the four variables on climate, winter precipitation and summer precipitation, the authors say, "Owing to relatively sparse climatological data for the study area, the range in temperatures and precipitation within the current desert-tortoise habitat is only generally known." Because data were lacking across the entire study area for some environmental variables, the authors used "spatial interpolation" to cover areas with missing data.

4. Interpolated data may be incorrect. One environmental variable likely affects another. For example, for the environmental variables for climate (e.g., winter precipitation and summer precipitation), the authors say, "[b]oth precipitation and temperature are strongly and complexly related to elevation, aspect, and position within this desert." Given the variability and localized pattern of rainfall in the Mojave Desert from one location to the next especially in the current drought period (beginning around 2000), this would mean that any interpolation of precipitation occurrences or amounts to fill in areas with missing data were likely not accurate for many locations in the study area unless a complex model was developed and tested.

5. Modeled data for some environmental variables may be untested/incorrect. The absence of data for some environmental variables throughout the study area would suggest the authors may have developed models to produce these completed data layers. For example, total perennial plant cover data were modeled using remote imagery from the "Moderate Resolution Imaging Spectroradiometer (MODIS) Enhanced Vegetation Index (EVI) collected by the MODIS satellite and composited over 16-day intervals." These data were "combined with field measurements of total perennial cover, estimated from line intercept transects at locations across the Mojave Desert, …and the resulting model was used to extrapolate cover estimates for the remaining study area." In summary, this model was developed using various sources and types of data at different spatial scales to develop a model that was then extrapolated to calculate total perennial plant cover estimates for the study area.

There is no indication in the report that the models developed or modified by the authors were validated/verified in the field for accuracy prior to their use as environmental data layers. The report indicates that the authors "used a series of innovative techniques… to develop environmental data layers." Thus, the data layers developed using "a series of innovative techniques" were an extrapolation or modification of existing sparse data. Another way of saying this is untested models/unverified data may have been used to produce a model of potential desert tortoise habitat.

6. One environmental variable was used as a proxy for another. The annual growth potential variable was used as a "proxy for annual plant biomass, which reflects potential forage for tortoises." The annual plant growth potential data layer was derived by calculating the difference in greenness (a measure of plant growth) between two highly contrasting years of annual plant production using remote sensing imagery." There is no information in the report on whether the authors were able to discriminate between the greenness of native annual plant production and nonnative annual plant production. This difference is crucial as nonnative annual plants have recently invaded much of the habitat of the Mojave desert tortoise, especially in areas with surface disturbance, and have been documented to dominate the annual plant cover in these areas in some years. In addition, nonnative annual plants have lower nutritive values than native annuals and promote a cycle of wildfires in desert vegetation communities not adapted to fire. Consequently, when identifying potential habitat for the tortoise, it is important to discern the difference between an area with high greenness that is dominated by native annual plants versus an area dominated by nonnative annual plants. Thus, using remote imagery to measure the greenness of an area does not provide data on the availability of native high nutritional quality annual plants species versus nonnative low nutritional quality annual plant species for forage for tortoises.

7. Mapping of potential habitat does not consider the basic tenets of conservation biology regarding the size, shape, and connectivity of patches of habitat to be able to support a viable population. (please see USFWS 1994 below).

<u>Summary of Limitations and Assumptions of Nussear et al. (2009) Report and Model</u>:
According to Nussear et al. (2009), the "quality of the spatial data used in this report is strongly dependent on the accuracy of previously reported presence points for desert tortoises and on the data used to calculate the environmental layers (emphasis added). Though all possible efforts were made to create a seamless and robust dataset, discrepancies are unavoidable since data were

collected by different groups using different measurement techniques and sampling frequencies. Model scores reflect a hypothesized habitat potential (emphasis added) given the range of environmental conditions where tortoise occurrence was documented. As such, there are likely areas of potential habitat for which habitat potential was not predicted to be high, and likewise, areas of low potential for which the model predicted higher potential. Finally, the map of desert tortoise potential habitat that we present does not account either for anthropogenic effects, such as urban development, habitat destruction, or fragmentation, or for natural disturbances, such as fire, which might have rendered potential habitat into habitat with much lower potential in recent years."

Because of these many limitations and assumptions, we conclude that the Nussear et al. (2009) report and model does not provide definitive information on whether tortoises would be able to survive long-term at all newly identified habitat locations. We have no data that these locations provide tall their life requisites (food, shelter, reproduction, adequate recruitment and low mortality). Consequently, we request that the information on newly identified/potential tortoise habitat and related calculations including associated figures and tables, be removed from the HCP. These data give the reader an inflated perception of available habitat, when there is no verification of this.

Why only looking at acres of habitat is not an indication of adequate management for a species [Tracy, C.R., R.C. Averill-Murray, W.I. Boarman, D. Delehanty, J.S. Heaton, E.D. McCoy, D.J. Morafka, K.E. Nussear, B.E. Hagerty, and P.A. Medica. 2004. Desert Tortoise Recovery Plan Assessment. Report to the U.S. Fish and Wildlife Service, Reno, Nevada.]

Types of Habitat Alteration

Habitat Degradation, Reduced Habitat Quality, Fragmentation, and Loss

Habitat Degradation: "Whereas the most obvious threats directly result in tortoise mortality (e.g., road mortality and poaching), the cumulative, interactive, and synergistic impacts of multiple threats is often manifested through indirect impacts that reduce survivorship and fecundity. Habitat degradation and the resulting reduced nutrition are two of those indirect impacts. Habitat degradation takes many forms, and often the occurrence of one form of degradation is correlated with the occurrence of other forms."
"Three kinds of habitat degradation are centrally important to tortoise conservation and tortoise population decline: habitat fragmentation, habitat loss, and habitat degeneration."

Fragmentation: "Fragmentation refers to the parsing of habitat into separate segments. This is a spatial phenomenon, but does not refer to habitat loss per se. For example, a fence or road that forms a barrier to tortoise movement divides a tortoise population into two units without significant habitat loss. Habitat fragmentation is an issue of scale and has been shown to cause population declines in other reptiles (Fisher et al. 2002)."

Habitat Loss: “Habitat loss refers to the destruction or conversion of previously suitable habitat into a form that is no longer suitable to tortoises. For example, urbanization leads to habitat loss for desert tortoises. Animals with large home ranges, such as the desert tortoise, typically are sensitive to habitat fragmentation and habitat loss. Both lead to population decline. Among the deleterious effects of habitat fragmentation are reduced movement and gene flow among breeding populations. Fragmenting a population increases the likelihood of local population extinction from a range of demographic and catastrophic events (Opdam 1988, Hanski and Gilpin 1991). Habitat loss does not necessarily fragment a population, but habitat loss invariably leads to population decline due to net loss of space and resources available to tortoises.”

Reduce Habitat Quality: “[H]abitat can degenerate, meaning its value for desert tortoise survival and reproduction is reduced, even if the habitat is not fragmented or destroyed. Reduced habitat quality can be a particularly insidious problem for wildlife managers because it can be difficult to recognize that seemingly suitable habitat is actually deficient in some important way. Habitat fragmentation, loss, and degeneration are all occurring throughout the Mojave Desert.”

Managing Threats

“Focusing on individual threats has resulted in little positive change for desert tortoise populations. The individual threats approach has not contributed to a general recovery of the desert tortoise for several reasons. For example, the individual threats approach generally does not account for compensatory mortality in which one mortality factor takes tortoises that were “saved” from another mortality factor.”

“A particularly troublesome consequence of using the individual threats approach is a problem we term “elevating the expedient to the important.” A simple listing of individual threats may prompt managers to attend first to those threats they view as most tractable, in light of available resources and political exigencies, but managing those threats may not necessarily produce the best results. For example, raven depredation of tortoises appears to be an important problem and raven control is a straightforward management action that can be quickly and easily implemented. However, raven control may not be the highest priority management action for every tortoise population.”

“Finally, focusing on individual threats suffers from Leibig’s Law of the Minimum (Berryman 1993). By focusing on and removing only the one or two threats considered the most important, no response may be realized because the next most important threat becomes the limiting factor for population recovery (Leibig’s Law). Thus, we believe the most effective management will be based on recognizing the importance of addressing the multiplicity of threats impacting specific populations.”

Managing for the long-term viability of a desert tortoise population
[U.S. Fish and Wildlife Service. 1994. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon.]

The total number of acres of potential or occupied habitat alone does not guarantee the habitat will be able to support viable populations in a recovery unit for the tortoise for the long-term.

The following recovery strategy was presented in the USFWS (1994) Recovery Plan (for the Mojave desert tortoise:

"1. Maintenance of distinct population segments.

The Upper Virgin River Recovery Unit is a distinct population segment. "Preserving viable populations of desert tortoises within each of these units is essential to the long-term recovery, viability, and genetic diversity of the species. Identification of these recovery units also facilitates the tailoring of recovery strategies to the varying biological requirements and management needs of each recovery unit."

"2. Genetic considerations in population viability.

In small populations, short-term genetic deterioration occurs from inbreeding and loss of genetic heterozygosity (Frankel and Soule 1981, Ralls and Ballou 1983). This genetic deterioration can cause problems in individual fitness and in the population's ability to increase. In the longer-term, inbreeding depression and loss of heterozygosity can limit the ability of the population to respond adaptively to changes in environment Both of these problems can contribute to the probability of population extinction."

"3. Demographic considerations in population viability.

In addition to genetic deterioration that can occur at very small population sizes, numerous negative demographic effects can occur when population sizes are small or when their densities are low. When population densities are very low, random variations in sex ratios, age distributions, and birth and death rates among individuals (called demographic stochasticity) can cause the population to fluctuate widely and potentially go extinct (Richter-Dyn and Goel 1972). In very sparse populations, males and females may have problems finding mates. This phenomenon is called the Allee effect, and it also can result in population declines or extinction (Ehrlich and Roughgarden 1987). In desert tortoises, the population densities below which demographic stochasticity and the Allee effect become a matter of concern are estimated to be approximately 10 adults per square mile (See Appendix C). Below this density extinction becomes increasingly possible."

"Even at much larger sizes, populations can go extinct from a variety of random (stochastic) events, although large populations have a much lower probability of extinction than small ones. Recovery targets should be set at population levels that have comfortable extinction probabilities." "A population viability analysis (PVA" provides an estimate of how large a population has to be to have a given probability of persistence over a certain period of time."

"The first PVA modeled population persistence as a function of the discrete population growth rate (lambda) and its variance. Using data from 13 study plots (see Appendix C), the average lambda was calculated to be 0.985 and its variance 0.08. Using these figures, the model predicted

that 50% of the populations starting with 20,000 adult animals would go extinct within about 500 years, or 20 tortoise generations. This prediction was based upon observed variability in population growth rates during 1979-89, relatively equitable years for desert tortoises, at least with respect to food production. Even so, the average lambda of 0.985 shows that populations declined during these years, although not drastically. However, during 1990 and 1991, population growth rates declined substantially because of the cumulative effects of drought and disease. Thus, an additional analysis was conducted which incorporated greater variability in population growth rates on the assumption that droughts and epizootics are likely to recur during the next few centuries. Increasing the variation in the 1979-89 growth rates by 50% resulted in the model predicting that a minimum population size of approximately 40,000 to 60,000 adult desert tortoises would be required in order for the population to persist for a 500-year median extinction time."

"4. Comprehensive considerations in population viability.

These analyses of minimal viable populations and population persistence probabilities suggest several things. First, tortoise populations at minimum densities (10 adults per square miles) require at least 200 to 500 square miles to be genetically viable (see Sections ll.A.2 and IL.A3). Second, if lambdas are slightly below 1.0 but vary over a range of approximately 25%, extremely large reserves (5,000 square miles to support 50,000 adults at minimal density) are necessary to support populations that are relatively resistant to extinction within the next half century. Third, if lambdas are below 0.975 on average, no population size is large enough for persistence to 500 years."

"The utility of large reserves in preventing extinction is one of the best established tenets of conservation biology (e.g., Terborgh and Winter 1980; Soule and Simberloff 1986). And, all else being equal, large reserves will conserve more species than small ones (Wilcox 1980; Simberloff and Abele 1982; Wilcove et al. 1986)."

"Large reserves will also facilitate managing desert tortoise populations within the DWMAs to maintain average lambdas of 1.0 or more during the recovery process. Large reserves are more likely to have sufficient internal environmental heterogeneity and enough isolated areas in their interiors to ensure that some subpopulations will be growing even if others are declining. In summary, genetic, demographic, and other considerations point to the inescapable conclusion that small reserves in a highly fragmented habitat are a recipe for extinction of the desert tortoise."

"5. Reserve architecture

DWMA size is not the only important consideration in determining the probability of success in preserving desert tortoise populations. Principles of reserve design dictate that the shape of DWMAs is also very important (see Section II.D.l.d). Population persistence will be maximized in a recovery unit if the unit has several large DWMAs (each of which is at least 1,000 square miles; see Section ll.A.3). Furthermore, these DWMAs should be designed to minimize perimeter relative to area (emphasis added)." (emphasis added)"

"1. Size and number of reserves.

The key to this recovery strategy is timely establishment of at least one DWMA in each recovery unit and prompt implementation of reserve-level protection within them. DWMAs must be located in areas with good desert tortoise habitat currently supporting a minimum of several hundred adult animals at a density of no fewer than 10 per square mile (See Section ll.A). More than one DWMA within each recovery unit will increase the probability that a population within a recovery unit will recover."

"(a) Reserves that are well-distributed across a species' native range will be more successful in preventing extinction than reserves confined to small portions of a species' range. Preservation of one or more viable populations within each of the recovery units will ensure that the full range of variation within the species is maintained, enhancing the desert tortoise's ability to adapt or adjust to future environmental changes."

"(b) Large blocks of habitat, containing large populations of the target species, are superior to small blocks of habitat containing small populations. While the persistence of all desert tortoise populations is subject to the effects of environmental stochasticity and catastrophes, the persistence of small populations is additionally threatened by demographic and genetic stochasticity (see Section II.A. and Appendix C). This means that the largest possible blocks of good desert tortoise habitat in an area, containing the most dense desert tortoise populations, should be included within DWMA boundaries."

"(c) Blocks of habitat that are close together are better than blocks far apart. This arrangement facilitates dispersal of desert tortoises among habitat patches. Connecting habitat segments should be of medium to high quality and be wide enough to accommodate several desert tortoise home-range widths (several miles)."

"(d) Habitat that occurs in less fragmented, contiguous blocks is preferable to habitat that is fragmented. The desert tortoise does best in undisturbed environments where the presence of edge species, such as ravens, is minimized. Highly fragmented habitat is mostly edge (because small patches maximize the ratio of edge to interior area) and should be avoided to the extent possible within DWMAs."

"(e) Habitat patches that minimize edge to area ratios are superior to those that do not. This means that round or square patches of habitat are more likely to retain desert tortoise populations than elliptical or rectangular ones. Long, linear strips are the least desirable."

"(f) Interconnected blocks of habitat are better than isolated blocks, and linkages function better when the habitat within them is represented by protected, preferred habitat for the target species. Interpopulation dispersal, as mentioned above, is important for population persistence." "Maintaining linkages among habitat patches within DWMAs and among the DWMAs themselves is considered here to be important. This will require maintaining connecting segments of habitat that are at least marginally acceptable to the desert tortoise."

"(g) Blocks of habitat that are roadless or otherwise inaccessible to humans are better than blocks containing roads and habitat blocks easily accessible to humans. Because declines in desert tortoise populations are associated with high densities of access routes, vehicular traffic, and human access

(Appendix D, Schoenwald-Cox and Buechner 1992), the access must be limited in the DWMAs. Populations within DWMAs that are inaccessible to motorized recreation or similar activities will have a much better chance of recovery than those in DWMAs where human access is prevalent."

Delineation of DWMA boundaries should be guided by the above concepts and will be integral to development of recovery unit management plans.

"1.d. Develop reserve-level management within DWMAs.

Because the factors causing the decline of the desert tortoise are primarily human-related (see Section LB.), many human activities within DWMAs will need to be strictly regulated or eliminated." "Section II.E. describes recommended recovery actions in DWMAs which should become part of recovery unit management plans if DWMAs are selected and delineated as described here. Recommended management actions should be tailored to the needs of specific DWMAs and include activities such as eliminating burro, horse, and domestic livestock grazing; limiting vehicular access, including prohibiting new vehicular access and reducing existing access; and prohibiting new surface disturbances, except to improve the quality of wildlife habitat, watershed protection, or improve opportunities for non-motorized recreation; among others (see Section ll.E.)."

Evolutionarily significant units of the desert tortoise within the Mojave region.

"Upper Virgin River Recovery Unit
This recovery unit encompasses all desert tortoise habitat in Washington County, Utah, except the Beaver Dam Slope, Utah population. The desert tortoise population in the area of St. George, Utah, is at the extreme northeastern edge of the species' range and experiences long, cold winters (about 100 freezing days) and mild summers, during which the tortoises are continually active. Here the animals live in a complex topography consisting of canyons, mesas, sand dunes, and sandstone outcrops where the vegetation is a transitional mixture of Sagebrush Scrub, Creosote Bush Scrub, Blackbush Scrub, and a psammophytic (sandy-soil) community. Desert tortoises use sandstone and lava caves instead of burrows, travel to sand dunes for egg laying, and use still other habitats for foraging. Two or more desert tortoises often use the same burrow."

In contrast, below is a description of the Northeastern Mojave Recovery Unit.

"Northeastern Mojave Recovery Unit
This recovery unit is found primarily in Nevada, extending into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern Arizona. Desert tortoises here are generally found in Creosote Bush Scrub communities of flats, valley bottoms, alluvial fans, and bajadas, but they occasionally use other habitats such as rocky slopes and Blackbush Scrub."

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MAY 2020 IMPLEMENTATION AGREEMENT

● **Page 2 - 2. Recitals**

Text: "C. The Service issues incidental take permits under Section 10(a)(1)(B) of the ESA authorizing take of endangered or threatened wildlife that is incidental to otherwise lawful and non-federal activities (i.e., an incidental take Original ITP or "ITP"), after opportunity for public comment, if it finds that certain statutory criteria are met by the applicant. To obtain an ITP, an applicant submits to the Service an application that includes, among other things, a Habitat Conservation Plan ("HCP")."

Comment: We suggest adding the following italicized language to clarify the requirements. "To obtain an ITP, *according to the regulatory requirements (50 CFR 17.22(b)(1),* an applicant submits to the Service…"

● **Page 5 - 6. Assurances and Commitments to Perform and Comply with the Amended HCP**

Text: B. Cooperative Effort: "In order that the requirements set forth in this IA are fulfilled, each Party hereby acknowledges and accepts its role and responsibilities described in the Amended HCP and this IA, and will perform the actions described in, and otherwise comply with, the Amended HCP."

Comment: We are unclear how the Terms and Conditions of the ITP that would be issued to Washington County as the Permit Holder, would be performed or otherwise complied with by other entities through the certificate of inclusion process. Would implementation of all ITP Terms and Conditions be the responsibility of the permit holder? If not, under what legal mechanism would these ITP Terms and Conditions be distributed among certificate holders with obligations for implementing the HCP and enforced?

● **Page 6 - 7. Severability Remedies, Enforcement, and Effects of Default**

Text: B. Effect of a Certificate Holder Default: "Additionally, the Service agrees that a breach by a Certificate Holder of its obligations will not be considered a breach by any other Certificate Holder. In the event a Certificate Holder has materially breached its obligations and, after reasonable notice and opportunity to cure, such Certificate Holder fails to cure, remedy, rectify, or adequately mitigate the effects of such breach, then the County or the Service may terminate the Certificate Holder's assurances under the New ITP."

Comment: This section of the IA needs to be removed. This HCP is a cooperative effort. All parts must function correctly to obtain the desired benefit. As written, the major certificate holder can default and the other holders would not be affected; they could continue with development. While this may seem sensible, but from a biological application it does not. By including this wording, there is no incentive for a certificate holder to fully comply or comply in a timely manner with the HCP and Terms and Conditions of the ITP. If this section is removed, there is much incentive to fully comply and in a timely manner. When this section is removed, if one holder defaults, it affects all certificate holders. This provides incentive to all certificate holders to comply with their obligations. We strongly urge that this section of the IA be removed to provide incentive to the certificate holders and parties with interlocal agreements to fully comply with the HCP and Terms and Conditions and comply in a timely manner.

● **Page 6 - C. Effect of Federal Default**
Text: "Failure to comply with or perform the applicable commitment and requirements of this IA or the Amended HCP on the part of a Federal Party shall not result in the suspension or revocation of the New ITP as to any other Parties or any Certificate Holder that is in compliance with the requirements of this IA. Likewise, such a failure will not negatively affect the renewal, amendment, or any other type of extension sought by the applicant."

Comment: While we agree in theory that a non-federal entity should not be penalized for the failure of a federal entity to perform the applicable commitment and requirements of this IA or the Amended HCP, this section should be removed to provide incentive for the federal entity to comply. This is the only leverage for the federal entity to comply with the ITP/HCP.

● **Page 6 - D. Loss of Original ITP Benefits**
Text: "The County shall have the right to revoke, terminate, or suspend a Municipal Partner's or Certificate Holder's right to enjoy or have the benefit, rights and privileges under the Original ITP if the Municipal Partner or Certificate Holder does not comply with the terms and conditions of its Interlocal Agreement or Certificate of Inclusion, as applicable. The County shall promptly notify the Service in writing of any action which would provide the basis for such revocation, termination, or suspension."

Comment: We do not understand why language is included in this new IA when the Original ITP is being superseded by an amended ITP to be issued presumably in future. Please see language in Section 8. Miscellaneous Provisions, A. Nullification of Agreement – "In the event that the New ITP is…"

Page 6 - D. The term "Municipal Partner" is used in this section but it is not defined in Section 4. Terms Used. Please define this term.

● **Page 7 - 8. Miscellaneous Provisions**
Comment: A. Nullification of Agreement – The term "New ITP" is used in this section, but it is not defined in section 4. Terms Used. Please define this term.

Page 7 - C. Notices
The draft IA says "Utah School and Institutional Lands Trust Administration." Please correct this to read "Utah School and Institutional Trust Lands Administration."

● **Page 8, E. Availability of Funds**:
Comment: This section allows the federal and state partners to avoid implementation of their responsibilities identified in the HCP and IA by invoking the Anti-deficiency Act for federal partners and Utah Code§ 63G-6a-1204 for State partners. "Federal and state agency support of the conservation measures in the HCP is contingent on having sufficient funding over the term of the HCP."

Congress has a history of not fully funding Department of the Interior agencies (e.g., BLM, USFWS) for a few decades, and some DOI agencies have exercised "latitude" in deciding which agency projects to fully fund, partially fund, or not fund when passing out funds from congressional appropriations. Consequently, this "escape clause" in the IA is likely to be used frequently by BLM and USFWS. With respect to the HCP, this inadequate funding means the actions that the HCP commits BLM and the USFWS to implement would have a low probability of being implemented because of funding limitations. We argue this situation is likely to happen with State agencies in Utah during the 25-year permit term. Because the HCP relies heavily on BLM and the State of Utah to fund/implement most of the land acquisition in the Reserve and management of these lands for the tortoise (please see Table 1 of the 2020 HCP), there is uncertainty that the HCP would minimize and mitigate to the maximum extent practicable without sufficient funding to ensure that Reserve lands are acquired and managed as recommended in the 1994 Recovery Plan and supported in the 2011 Revised Recovery Plan. This uncertainty would likely continue during the requested 25-year permit term. Consequently, we believe the HCP should provide funding assurances that when BLM and State agencies are unable to fulfill their obligations under the HCP because of funding limitations, funding from the Applicants should make up for this shortfall.

Attachment D to the Desert Tortoise Council's September 2020 Comments on the Habitat Conservation Plan for Washington County, Utah Final Draft Restated and Amended May 2020

Status of the Mojave Desert Tortoise (*Gopherus agassizii)*

The Desert Tortoise Council (Council) has serious concerns about direct, indirect, and cumulative sources of human mortality for the Mojave desert tortoise given the status and trend of the species range-wide, within each of the five recovery units, within the Tortoise Conservation Areas (TCAs) that comprise each recovery unit.

Densities of Adult Mojave Desert Tortoises: A few years after listing the Mojave desert tortoise under the Federal Endangered Species Act (FESA), the U.S. Fish and Wildlife Service (USFWS) published a Recovery Plan for the Mojave desert tortoise (USFWS 1994a). It contained a detailed population viability analysis. In this analysis, the minimum viable density of a Mojave desert tortoise population is 10 adult tortoises per mile2 (3.9 adult tortoises per km2). This assumed a male-female ratio of 1:1 (USFWS 1994a, page C25) and certain areas of habitat with most of these areas geographically linked by adjacent borders or corridors of suitable tortoise habitat. Populations of Mojave desert tortoises with densities below this amount are in danger of extinction (USFWS 1994a, page 32). The revised recovery plan (USFWS 2011) designated five recovery units for the Mojave desert tortoise that are intended to conserve genetic, behavioral, and morphological diversity necessary for the recovery of the entire listed species (Allison and McLuckie 2018).

Range-wide, densities of adult Mojave desert tortoises declined more than 32% between 2004 and 2014 (Table 1) (USFWS 2015). At the recovery unit level, between 2004 and 2014, densities of adult desert tortoise declined, on average, in every recovery unit except the Northeastern Mojave (Table 1). Adult densities in the Northeastern Mojave Recovery Unit increased 3.1% per year (SE = 4.3%), while the other four recovery units declined at different annual rates: Colorado Desert (4.5%, SE = 2.8%), Upper Virgin River (3.2%, SE = 2.0%), Eastern Mojave (11.2%, SE = 5.0%), and Western Mojave (7.1%, SE = 3.3%)(Allison and McLuckie 2018). However, the small area and low starting density of the tortoises in the Northeastern Mojave Recovery Unit (lowest density of all Recovery Units) resulted in a small overall increase in the number of adult tortoises by 2014 (Allison and McLuckie 2018). In contrast, the much larger areas of the Eastern Mojave, Western Mojave, and Colorado Desert recovery units, plus the higher estimated initial densities in these areas, explained much of the estimated total loss of adult tortoises since 2004 (Allison and McLuckie 2018).

At the population level, represented by tortoises in the TCAs, densities of 10 of 17 monitored populations of the Mojave desert tortoise declined from 26% to 64% and 11 have a density that is less than 3.9 adult tortoises per km2 (USFWS 2015). The Chuckwalla population is near the proposed Project and has a population below the minimum viable density, and an 11-year declining trend (-37.4%)(USFWS 2015). We are concerned that the proposed Project would bring additional indirect and cumulative impacts to this population and its density and trend would further decline.

Population Data on Mojave Desert Tortoise: The Mojave desert tortoise was listed as threatened under the Federal Endangered Species Act (FESA) in 1990. The listing was warranted because of ongoing population declines throughout the range of the tortoise from multiple human-caused activities. Since the listing, the status of the species has changed. Population numbers (abundance) and densities continue to decline substantially in most of the recovery units and populations (please see Table 1).

Table 1. Summary of 10-year trend data for 5 Recovery Units and 17 Critical Habitat Units (CHU)/Tortoise Conservation Areas (TCA) for Agassiz's desert tortoise, Gopherus agassizii (=Mojave desert tortoise). The table includes the area of each Recovery Unit and Critical Habitat Unit (CHU)/Tortoise Conservation Area (TCA), percent of total habitat for each Recovery Unit and Critical Habitat Unit/Tortoise Conservation Areas, density (number of breeding adults/km2 and standard errors = SE), and the percent change in population density between 2004-2014. Populations below the viable level of 3.9 breeding individuals/km2 (10 breeding individuals per mi2) (assumes a 1:1 sex ratio) and showing a decline from 2004 to 2014 are in red (USFWS 2015).

Recovery Unit Designated Critical Habitat Unit/Tortoise Conservation Area	Surveyed area (km^2)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km^2 (SE)	% 10-year change (2004–2014)
Western Mojave, CA	**6,294**	**24.51**	**2.8 (1.0)**	**–50.7 decline**
Fremont-Kramer	2,347	9.14	2.6 (1.0)	–50.6 decline
Ord-Rodman	852	3.32	3.6 (1.4)	–56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	–61.5 decline
Colorado Desert, CA	**11,663**	**45.42**	**4.0 (1.4)**	**–36.25 decline**
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	–29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	–37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	–64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	–52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	–60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
Northeastern Mojave	**4,160**	**16.2**	**4.5 (1.9)**	**+325.62 increase**
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase

Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
Eastern Mojave, NV & CA	**3,446**	**13.42**	**1.9 (0.7)**	**–67.26 decline**
El Dorado Valley, NV	999	3.89	1.5 (0.6)	–61.14 decline
Ivanpah, CA	2,447	9.53	2.3 (0.9)	–56.05 decline
Upper Virgin River	**115**	**0.45**	**15.3 (6.0)**	**–26.57 decline**
Red Cliffs Desert	115	0.45	15.3 (6.0)	–26.57 decline
Total amount of land	**25,678**	**100.00**		**–32.18 decline**

Density of Juvenile Mojave Desert Tortoises: Survey results indicate that the proportion of juvenile desert tortoises has been decreasing in all five recovery units since 2007 (Allison and McLuckie 2018). The probability of encountering a juvenile tortoise was consistently lowest in the Western Mojave Recovery Unit. Allison and McLuckie (2018) provided reasons for the decline in juvenile desert tortoises in all recovery units. These included decreased food availability for adult female tortoises resulting in reduced clutch size, decreased food availability resulting in increased mortality of juvenile tortoises, prey switching by coyotes from mammals to tortoises, and increased abundance of common ravens that typically prey on smaller desert tortoises.

Declining adult densities through 2014 have left the Western Mojave adult numbers at 49% (a 51% decline) and in the Eastern Mojave at 33% (a 67% decline) of their 2004 levels (Allison and McLuckie 2018, USFWS 2015). Such steep declines in the density of adults are only sustainable if there were suitably large improvements in reproduction and juvenile growth and survival. However, the proportion of juveniles has not increased anywhere in the range of the Mojave desert tortoise since 2007, and in the Western and Eastern Mojave recovery units the proportion of juveniles in 2014 declined to 91% (a 9 % decline) and 77% (a 23% decline) of their representation in 2004, respectively (Allison and McLuckie 2018).

Abundance of Mojave Desert Tortoises: Allison and McLuckie (2018) noted that because the area available to tortoises (i.e., tortoise habitat and linkage areas between habitats) is decreasing, trends in tortoise density no longer capture the magnitude of decreases in abundance. Hence, they reported on the change in abundance or numbers of the Mojave desert tortoises in each recovery unit (Table 2). They noted that these estimates in abundance are likely higher than actual numbers of tortoises and the changes in abundance (i.e., decrease in numbers) are likely lower than actual numbers because of their habitat calculation method. They used area estimates that removed only impervious surfaces created by development as cities in the desert expanded. They did not consider degradation and loss of habitat from other sources, such as the recent expansion of military operations (753.4 km2 so far on Fort Irwin and the Marine Corps Air Ground Combat Center), intense or large scale fires (e.g., 576.2 km2 of critical habitat that burned in 2005), development of utility-scale solar facilities (so far 194 km2 have been permitted) (USFWS 2016), or other sources of degradation or loss of habitat (e.g., recreation, mining, grazing, infrastructure, etc.). Thus, the declines in abundance of Mojave desert tortoise are likely greater than those reported in Table 2.

Habitat Availability: Data on population density or abundance does not indicate population viability. The area of protected habitat or reserves for the subject species is a crucial part of the

viability analysis along with data on density, abundance, and other population parameters. In the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994a), the analysis of population viability included population density and size of reserves (i.e., areas managed for the desert tortoise) and population numbers (abundance) and size of reserves. The USFWS Recovery Plan reported that as population densities for the Mojave desert tortoise decline, reserve sizes must increase, and as population numbers (abundance) for the Mojave desert tortoise decline, reserve sizes must increase (USFWS 1994a). In 1994, reserve design (USFWS 1994a) and designation of critical habitat (USFWS 1994b) were based on the population viability analysis from numbers

Table 2. Estimated change in abundance of adult Mojave desert tortoises in each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Decreases in abundance are in red.

Recovery Unit	Modeled Habitat (km^2)	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
Total	**68,501**	**336,393**	**212,343**	**-124,050**	**-37%**

(abundance) and densities of populations of the Mojave desert tortoise in the early 1990s. Inherent in this analysis is that the lands be managed with reserve level protection (USFWS 1994a, page 36) or ecosystem protection as described in section 2(b) of the FESA, and that sources of mortality be reduced so recruitment exceeds mortality (that is, lambda > 1)(USFWS 1994a, page C46).

Habitat loss would also disrupt the prevailing population structure of this widely distributed species with geographically limited dispersal (isolation by distance; Murphy et al. 2007; Hagerty and Tracy 2010). Allison and McLuckie (2018) anticipate an additional impact of this habitat loss/degradation is decreasing resilience of local tortoise populations by reducing demographic connections to neighboring populations (Fahrig 2007). Military and commercial operations and infrastructure projects that reduce tortoise habitat in the desert are anticipated to continue (Allison and McLuckie 2018) as are other sources of habitat loss/degradation.

Allison and McLuckie (2018) reported that the life history of the Mojave desert tortoise puts it at greater risk from even slightly elevated adult mortality (Congdon et al. 1993; Doak et al. 1994), and recovery from population declines will require more than enhancing adult survivorship (Spencer et al. 2017). The negative population trends in most of the TCAs for the Mojave desert tortoise indicate that this species is on the path to extinction under current conditions (Allison and McLuckie 2018). They state that their results are a call to action to remove ongoing threats to tortoises from TCAs, and possibly to contemplate the role of human activities outside TCAs and their impact on tortoise populations inside them.

Densities, numbers, and habitat for the Mojave desert tortoise declined between 2004 and 2014. As reported in the population viability analysis, to improve the status of the Mojave desert tortoise,

reserves (area of protected habitat) must be established and managed. When densities of tortoises decline, the area of protected habitat must increase. When the abundance of tortoises declines, the area of protected habitat must increase. We note that the Desert Tortoise (Mojave Population) Recovery Plan was released in 1994 and its report on population viability and reserve design was reiterated in the 2011 Revised Recovery Plan as needing to be updated with current population data (USFWS 2011, p. 83). With lower population densities and abundance, a revised population viability analysis would show the need for greater areas of habitat to receive reserve level of management for the Mojave desert tortoise. In addition, we note that none of the recovery actions that are fundamental tenets of conservation biology has been implemented throughout most or all of the range of the Mojave desert tortoise.

Definition of an Endangered Species: In 2011, Murphy et al. stated that the "recognition of G. morafkai reduces the range of G. agassizii to occupying about 30% of its former range." Given this reduction in species distribution and numbers and the "…drastic population declines in G. agassizii during the past few decades, it might be endangered."

In 2018, Agassiz's desert tortoise was added to the list of the world's most endangered tortoises and freshwater turtles. It is in the top 50 species. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers Agassiz's desert tortoise to be Critically Endangered (Turtle Conservation Coalition 2018).

The IUCN places a taxon in the Critically Endangered category when the best available evidence indicates that it meets one or more of the criteria for Critically Endangered. These criteria are 1) population decline - a substantial (>80 percent) reduction in population size in the last 10 years; 2) geographic decline - a substantial reduction in extent of occurrence, area of occupancy, area/extent, or quality of habitat, and severe fragmentation of occurrences; 3) small population size with continued declines; 4) very small population size; and 5) analysis showing the probability of extinction in the wild is at least 50 percent within 10 years or three generations.

In the FESA, Congress defined an "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range…" Given the information on the status of the Mojave desert tortoise and the federal definition of an endangered species, the Council believes the status of the Mojave desert tortoise is that of an endangered species.

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Attachment E.

The following resource is provided as a PDF attachment, and therefore not physically included in this document.

Abella S.R. and K.H. Berry. 2016. Enhancing and restoring habitat for the desert tortoise (*Gopherus agassizii*). Journal of Fish and Wildlife Management 7(1):xx–xx; e1944-687X. doi: 10.3996/052015-JFWM-046.

Scoping Comments on the Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah, December 2023

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Via email and BLM NEPA ePlanning Portal

December 28, 2023

Attn: Dawna Ferris-Rowley, Project Manager
Bureau of Land Management
Attn: Northern Corridor SEIS
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St. George, UT 84790
BLM_UT_NorthernCorridor@blm.gov

RE: Scoping Comments on the Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah

Dear Ms. Ferris-Rowley,

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an "environmentally friendlier way" of receiving correspondence and documents rather than "snail mail."

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats known to be occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include

recommendations intended to enhance protection of this species and its habitat during activities authorized by the Bureau of Land Management (BLM), which we recommend be added to project terms and conditions in the authorizing document (e.g., right of way grant, etc.) as appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed project.

The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), "… based on population reduction (decreasing density), habitat loss of over 80% over three generations (90 years), including past reductions and predicted future declines, as well as the effects of disease (upper respiratory tract disease/mycoplasmosis). *Gopherus agassizii* (sensu stricto) comprises tortoises in the most well-studied 30% of the larger range; this portion of the original range has seen the most human impacts and is where the largest past population losses have been documented. A recent rigorous rangewide population reassessment of *G. agassizii* (sensu stricto) has demonstrated continued adult population and density declines of about 90% over three generations (two in the past and one ongoing) in four of the five *G. agassizii* recovery units and inadequate recruitment with decreasing percentages of juveniles in all five recovery units."

This status, in part, prompted the Council to join Defenders of Wildlife and Desert Tortoise Preserve Committee (Defenders of Wildlife et al. 2020) to petition the California Fish and Game Commission in March 2020 to elevate the listing of the Mojave desert tortoise from threatened to endangered in California. The decision is still pending at the time of this writing.

It is apparent from our reading of the final environmental impact statement (FEIS) that neither the BLM nor USFWS have responded in a substantive way to many of our scoping comments of January 6, 2020[3] (Desert Tortoise Council 2020a) or our formal comments of September 28, 2020[4] (Desert Tortoise Council 2020b), which are provided as links and incorporated by reference in these new scoping comments.

Importantly, we asked then, and continue to ask now, how the BLM and U.S. Fish and Wildlife Service (USFWS), in conjunction with Washington County planning Department, endeavor to undermine implementation and steady function of the 1995 Habitat Conservation Plan (HCP) where protection of the Red Cliffs Desert Reserve (Reserve) within the Red Cliffs National Conservation Area (NCA) was the primary offsetting conservation benefit of the plan by an after-the-fact decision to allow construction of a freeway through the Reserve and NCA? We believe that the recent wildfires and continuing declines in tortoise abundance are sufficiently changed and persisting circumstances that our previous questions and concerns should be reconsidered and newly answered in the SEIS.

There is no way to reverse the development that has been authorized throughout Washington County since 1996, so conservation of the Reserve cannot now be compromised by allowing development of the Northern Corridor. The 22,822 acres of tortoise habitats developed since 1996

[3] https://www.dropbox.com/s/hjoudfpr7qvb787/Northern%20Corridor%20Scoping%20Comments.1-6-2020.Final.pdf?dl=0
[4] https://www.dropbox.com/scl/fi/rq7ul8d8q84jkapuoqymj/Northern-Corridor-EIS-HCP.9-8-2020.pdf?rlkey=w66q5y22q2bfb2xbfrg9rlty7&dl=0

have been offset by the conservation of the Red Cliffs Desert Reserve, and more than 500 tortoises [excluding those that were tested positive for Upper Respiratory Tract Disease (URTD), which were not translocated] have been displaced in exchange for protecting tortoises within the Reserve. To now undermine that protection by running a freeway through the densest tortoise concentrations in the Reserve is a violation of the 1996 permit's function, which was to provide for conservation and recovery *in perpetuity*.

The structure of this comment letter is to address our persisting concerns that (1) the deficiencies of the FEIS need to be addressed in the SEIS, and (2) the inconsistencies of the remanded 10(a)(1)(B) incidental take permit must be addressed in the SEIS.

Final Environmental Impact Statement

Unless otherwise noted, the page numbers referenced below pertain to the FEIS, prepared by the BLM and USFWS, dated November 2020.

On page 1-1, we read the following statements (bold emphasis added): "The Red Cliffs NCA was designated by Congress through the Omnibus Public Land Management Act of 2009 (OPLMA) (16 U.S.C. 460www; Public Law 111-11, Title 1, Subtitle O, Section 1974). The Congressionally defined **purpose** of the 45,000-acre NCA is **to conserve, protect, and enhance** for the benefit and enjoyment of present and future generations the **ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources** of the Red Cliffs NCA and **to protect each species** that is located in the NCA and **listed as a threatened or endangered** species under the Endangered Species Act (ESA). Section 1974 states that the NCA shall be managed by the Secretary of the Interior through the BLM and that the Secretary **shall only allow uses of the NCA that the Secretary determines would further a purpose for which the NCA** was designated." We note that there is no provision for facilitating enhanced vehicular transportation within an NCA. Nor do we see how constructing a new freeway through the NCA that has functioned to allow extensive albeit regulated human development throughout Washington County in exchange for protection of the NCA "furthers the purpose" of the NCA designation.

Our concern, then as it is now, is that the Northern Corridor proponents, which seem to include the BLM and USFWS, which should be neutral parties, and Washington County, which is a beneficiary party, claim that enhanced protection of the Zone 6 area will somehow offset development of the freeway through the NCA, which would not happen *but for* the Utah Department of Transportation's (UDOT) proposed development of the freeway through the conservation area. Please be sure that the SEIS explains the apparent discrepancies between the Congressionally-intended function of NCAs and how development of a freeway through the NCA would further the purpose of that designation.

Since the 46,098 acres of critical habitat within the boundaries of the Red Cliffs NCA are deemed to be too small to promote population viability (page 3-48 of the DEIS), we assert that the addition of 6,760 acres of mostly occupied tortoise habitat within Zone 6, which is neither critical habitat nor contiguous to the Reserve or NCA, cannot be considered a realistic mitigation to offset the avoidable impact of bisecting the existing Reserve with the Northern Corridor. Since the BLM, USFWS, and HCP Partners are obligated to perform analyses and base prudent management

decisions on the results, only increased conservation management within the Red Cliffs Desert Reserve without the new freeway is warranted.

We appreciate that OPLMA Subtitle O, Section 1977 directs the Secretary to develop a transportation plan, but we also believe that proponents have interpreted that directive to allow consideration of alternatives that would undermine and counteract the conservation purposes of the NCA establishment. We believe that there are valid alternatives outside the NCA – not including the BLM/UDOT preferred alternative – that would satisfy the intended function of the NCA (and HCP, discussed in the next main section below) and accomplish the intent Subtitle O. In order to be consistent with all intents, we ask that the BLM use the SEIS to deny UDOT's application, which the BLM adopted as its preferred alternative in the FEIS, and select an alternative that accomplishes ALL aspects of the 2009 OLPMA without undermining its intended conservation function.

Further on page 1-1, we read: "Fully evaluating UDOT's ROW application and potential amendments to the Red Cliffs NCA RMP will also further the Department of the Interior's policy goals, as stated in the Strategic Plan for Fiscal Years 2018-2022, to "enhance conservation stewardship whereby all levels of government and private landowners work cooperatively together in an atmosphere of mutual respect to achieve shared natural resource management goals across landscapes" and to "[develop] and [maintain] strong partnerships with State, local, and private stakeholders in shared conservation stewardship." Clearly these policy goals have not been met, otherwise the collective environmental community would not have filed a lawsuit in response to the January 15, 2021 approval of the issuance of the right-of-way (ROW) through the NCA.

We read the following statements in the fifth bullet on page 1-8: "After reviewing the scope, nature, and intensity of the impacts of the fires and the relevance of these changes to the BLM and USFWS's decisions to be made using the EIS, it was determined that the 2020 wildfires do not represent a significant new circumstance or information for the consideration of the ROW, ITP applications, Red Cliffs NCA RMP Amendments, or SGFO RMP Amendments, and a supplemental Draft EIS is not necessary." We contended in our comments (pages 13-14 and elsewhere, Desert Tortoise Council 2020a) that fires are often associated with well-traveled roads, such as the freeway envisioned by the BLM's preferred alternative.

The 2020 fires demonstrate that the NCA is vulnerable to wildfires, which deserves more consideration in the SEIS than was given in the FEIS, as stated above. We ask that the SEIS document tortoise density information before and after the 2020 wildfires so that we can determine independently if the 2020 fires represented a significant new circumstance. Given the extent of these wildfires, we ask that the SEIS document if the Zone 6 management area may not be similarly vulnerable to wildfires and how the BLM plans to avoid similar impacts to that management area in addition to those listed under Fire Management in Table 2.5-1 on page 2-27.

The Council does not believe that establishing reserve-level management in Zone 6 adequately offsets the impacts of the new freeway. Rather, we believe that the area should be established as a reserve to counteract the loss and degradation of habitats resulting from the 2020 wildfires and to provide for conservation in light of the declines throughout much of the listed range. The BLM, even without the freeway, is obligated to protect the desert tortoises on our public lands,

particularly those lands occurring within the Red Bluff Area of Critical Environmental Concern (ACEC) that lies within the proposed Zone 6 satellite reserve. And although we support the retention of federal lands, minimizing threats of mineral extraction, developing target-specific predator controls, enhancing wildfire management, removal of recreational target shooting, and removal of grazing threats, as tabulated in Table 2.5-1, we do not support these new protections at the expense and loss of tortoises and tortoise habitats from the NCA, which is THE essential part of the functioning conservation strategy of the 1995 HCP.

In Desert Tortoise Council (2020a), we asked with regards to the following statement in the Federal Register Notice (dated 12/5/2019), "Specifically, the County has proposed creating a new habitat Zone 6 in the Reserve to **provide additional desert tortoise habitat** and to offset habitat loss potentially occurring from a ROW, [bold emphasis added]" we take exception to the phrase "…to provide additional desert tortoise habitat…" These cannot be construed as "additional habitats" because they are "existing habitats," and most importantly, portions of them are already supposed to be managed by the BLM in the Red Bluffs ACEC. Given this assumption, we ask that the SEIS provide tangible evidence missing from the FEIS that BLM has been managing the Red Bluffs ACEC for tortoise conservation and recovery in a mandated manner. How many citations for noncompliance issues like cross-country vehicle travel and illegal target practice have been issued in the ACEC by BLM rangers? How many monitoring studies, including focal tortoise surveys, have been implemented by the BLM or other entities? Has there been any vertical mulching or other methods employed to close redundant routes within the Red Bluffs ACEC?

We note in the 10th bullet on page 2-3 that, "A connection to the Washington Parkway at Green Spring Drive" would be facilitated. It was our contention in 2020 (Desert Tortoise Council 2020a) and remains our current concern that the decision to develop the Washington Parkway to its current dead end configuration that happens to coincide with the continuation of the Northern Corridor freeway is an indication that UDOT and Washington County have always planned for and assumed that the Northern Corridor would be developed, and BLM/USFWS's concurrence in all of its action alternatives through the NCA connecting to the Washington Parkway in the FEIS has not alleviated our concerns.

At the top of page 2-31, we read the following: "Under Alternative 1, the BLM would deny UDOT's application for a ROW grant across the Red Cliffs NCA for the Northern Corridor, and the USFWS **would deny Washington County's application for an ITP** [bold emphasis added]." We made this point in our comments on the DEIS, which was not clarified in the FEIS, that BLM and USFWS have failed to explain why the ITP must be denied if the freeway is denied. These are only connected actions because of the BLM's planning process, to date, has linked the two together. In our previous comments and again in these scoping comments, we contend that Washington County may pursue Section 10 take authorization in the absence of the Northern Corridor freeway. Somewhere in the planning process, the consortium of proponents, now including the BLM and USFWS, have chosen to link these entirely separate actions together. The SEIS needs to clarify what the FEIS did not: Why can't Washington County apply for 10a permit renewal AND the BLM deny UDOT's ROW application? Why are BLM and USFWS obligated to approve both actions and not only 10 permit renewal minus freeway construction?

This concern was expressed as follows in Desert Tortoise Council (2020b): "The DEIS (see

Attachment A for a list of acronyms used in our letter) [and now the FEIS] has failed to substantiate or demonstrate a clear nexus between Washington County pursuing the HCP/ITP and UDOT's proposal for the Northern Corridor. The ITP has functioned for 24 years, between 1996 and 2020, and only provisionally since 2016. Since the USFWS would issue the 10a permit, not the BLM, the documents have failed to convince us that the BLM's No Action Alternative (a NEPA requirement) necessarily precludes USFWS from issuing the ITP (a FESA requirement)."

"The trigger to revise the HCP and reissue the ITP is the 2016 expiration date, not UDOT's desire to develop the Northern Corridor. In the absence of UDOT's proposal, the HCP could have been revised and the ITP reissued in response to the expiration date, and 66,301 acres of occupied and potential tortoise habitats could have been identified as available for development. Linking the reissuance of the ITP to the Northern Corridor is contrived to create a fatally flawed relationship between two unrelated actions, where ostensibly one action cannot occur but for the other, which is neither explained nor clearly supported in the DEIS' analyses (Desert Tortoise Council 2020b)."

On page 3-5, we read: "The best available data were used in the preparation of the analysis contained in the [F]EIS. The data have been gathered from a variety of sources, including the BLM and the USFWS staff, other agencies, field investigations completed to support the analysis, published and unpublished reports, databases, and websites." Please be sure that the SEIS provides all additional data collected since publication of the FEIS, including new surveys in areas affected by wildfires. We would like the SEIS to confirm or refute the following statement on page 3-80 of the FEIS based on any, particularly post-2020-fire, new data: "This [kernel density data] reveals there is an important desert tortoise population cluster located within the path of the T-Bone Mesa Alignment, UDOT Application Alignment, and Southern Alignment Alternatives within the Reserve. Map 3.5-1 shows this clustering within Zone 3. This may be the most important high-density cluster of desert tortoises in the recovery unit (USFWS 2020a)."

We note on page 3-51, the following statements: "Surveys have identified raven predation on hatchling and juvenile Mojave desert tortoises, including two individuals in 2015 (Washington County 2015), eight in 2017 (Washington County 2017a), four in 2018 (Washington County 2018b), and fourteen in 2019 (Washington County 2019c) [all cited references are given in the FEIS]." Please be sure that the SEIS publishes the available raven predation data observed since 2019.

The following statements are taken from page 5-53: "Mojave desert tortoise within the Reserve have both URTD and shell disease (UDWR 2018). Shell disease was observed in relatively high-density Mojave desert tortoise areas. In addition, URTD has been observed throughout the Reserve, and the presence of desert tortoise with URTD clinical signs has increased since 2013 (UDWR 2018)." By "Reserve," we assume BLM is referring to Zone 3 areas within the NCA. There is no discussion in this section about the prevalence of URTD in Zone 6 areas. We ask that the SEIS amend this section to divulge what is or is not known about the incidence of URTD in the proposed Zone 6 satellite reserve. We are concerned about the stated intent to release translocated tortoises into the Zone 6 area and the potential to introduce URTD-positive individuals that are not detected in mandatory disease screening procedures.

As with earlier comments, we feel that the decision to translocate tortoises to Zone 6, which has yet to be codified as a satellite reserve to Red Cliffs Reserve, rather than Zone 4, which has been the acceptable method under the existing HCP/ITP for decades, is pre-decisional and demonstrates that, regardless of public input, the regulatory agencies and other local planning entities have already decided to construct the Northern Corridor despite any new evidence the public can provide. For example, it is our understanding that results of recent surveys, which we assume will be included in the SEIS, have revealed even more tortoises in Zone 6 than previously estimated. If this is true, does BLM still plan to translocate tortoises into Zone 6 rather than Zone 4, which is already functioning to accommodate the importation of tortoises into that area?

We read the following statement on page 3-54: "Surveys have not been completed for the Turkey Farm Road fire or the Lava Ridge fire as of the publication of this document." Have these or any other areas been surveyed since publication of the FEIS? Please address this question in the SEIS. If, "Future surveys may be done to refine the abundance estimate for proposed Zone 6," cited at the top of page 3-63 have occurred, please include those results as well.

Throughout the FEIS, we read that the BLM has opted to consider indirect impacts out to a 508-meter buffer, as follows on page 3-71: "The 508-meter buffer is based on the annual home range size of an adult male Mojave desert tortoise of 200 acres (Franks et al. 2011, USFWS 2011a). The annual home range was applied because of the short-term indirect effects of noise, vibration, and other construction-related disturbances, as well as the continued noise and vibrations from traffic and maintenance of the road." We noted in out comment letter (Desert Tortoise Council 2020a, page 10) that von Seckendorff Hoff and Marlow (2002) documented indirect impacts that degrade habitats out to 4,000 meters from the roadside. In the SEIS, please provide is the scientific rationale for restricting indirect impacts to the home range of a male tortoise, which we judge to be arbitrary, when there is documented evidence of a much wider indirect impact area associated with roads, alone?

At the top of page 13 (Desert Tortoise Council 2020a), we specifically asked that, given our understanding that both BLM and USFWS have in previous planning efforts denied ROW authorization for the Northern Corridor, that the FEIS fully disclose all previous decisions denying development of the Northern Corridor and the reasons for those decisions. We reiterate this request, and ask that it be addressed in the SEIS.

Habitat Conservation Plan – 10(a)(1)(b) Considerations

Compliance Issues for the Development of a Habitat Conservation Plan (HCP) and Issuance of an Incidental Take Permit (ITP) under the Federal Endangered Species Act

Clarification of terms - In the comments below, we have used the following terms to distinguish among the three HCPs:

- 1995 HCP refers to the multi species HCP prepared for Washington County;
- 2020 HCP refers to the Habitat Conservation Plan for Washington County, Utah Restated and Amended, October 2020
- draft amended HCP refers to the HCP to be developed as a result of the current public scoping period.

1. <u>Explain changes in HCP/ITP policies since issuance of the ITP to Washington County in 1996</u>: The U.S. Fish and Wildlife Service (USFWS) issued a multi-species Incidental Take Permit (ITP) to Washington County, Utah in 1996. This ITP was issued before the USFWS and National Marine Fisheries Service (NMFS) issued the first Habitat Conservation Planning and Incidental Take Permit Processing Handbook (HCP Handbook) dated November 4, 1996 and issued in final form on December 2, 1996 (61 *Federal Register* 63854). The 1996 ITP was issued before the USFWS and NMFS codified the ''No Surprises'' assurances as a final rule, 50 CFR 17.22(b)(5), 17.32(b)(5) and 222.307(g), on February 23, 1998 (63 *FR* 8859). It was issued before the USFWS and NMFS issued the Five-Point Policy (65 *FR* 35242) as a final addendum to the 1996 HCP Handbook, and the Habitat Conservation Planning and Incidental Take Permit Processing Handbook. December 21, 2016 by the USFWS and NMFS.

The draft amended HCP should explain these changes to requirements of an HCP since the 1995 HCP and 1996 ITP were implemented. The draft amended HCP should also explain that "once the amendments associated with a permit renewal are finalized, No Surprises assurances would then apply to the amended HCP and permit for the duration of the renewal period" (USFWS and NMFS 2016) and not beyond that permit duration.

For the tortoise, please provided data on the number of tortoises and acres where covered activities occurred under the 1996 HCP (both were named in the ITP), locations of the covered activities, the number of acres acquired and managed for the conservation of the tortoise at a reserve level using HCP funds and their locations, the monitoring required, the monitoring implemented and its results, and the changes in management/adaptive management implemented in response to the monitoring results. Thus, the draft amended HCP should provide a clear connection between the information in the 1995 HCP, 1996 ITP, and the draft amended HCP.

2. <u>Determine the success of implementation of the 1995 HCP with respect to conserving the tortoise to determine what is needed for success for the draft amended HCP</u>: According to the Washington County HCP (2020), "Washington County, Utah, (the County) prepared a Habitat Conservation Plan (HCP) in 1995 that provided for the conservation of the Upper Virgin River population of the Mojave desert tortoise (*Gopherus agassizii*)."

The 1995 HCP relied on the government agencies providing reserve level management for the tortoise in the Red Cliffs Reserve. The draft amended HCP should provide information on the activities since 1996 that BLM and the State of Utah implemented to manage for the tortoise in the Red Cliffs Reserve, management actions that BLM and the State of Utah have approved or allowed that adversely affect the tortoise/tortoise habitat, monitoring and enforcement conducted, changes in the types, frequency and locations of threats to the tortoise in the Red Cliffs Reserve since the 1996 ITP was issued, and changes in the tortoise population and habitat quantity and quality in the Red Cliffs Reserve and Zone 6 since the 1996 ITP was issued. Those management actions that were paid for by HCP funding should be identified as well as any changes to their funding in the draft amended HCP.

The draft amended HCP should provide data the success in providing for the conservation of the Upper Virgin River population of the tortoise from implementation of the 1995 HCP. Results that

would demonstrate success in providing for the conservation of the tortoise would include (1) increases in tortoise numbers and densities from natural recruitment, (2) increased diversity of population age structure; (3) increases in acres protected and managed at a reserve level for the tortoise (excluding lands set aside by Congressional action and purchased with Land and Water Conservation Funds), (4) arrangement of protected habitats such that they are connected/do not impeded tortoise movement, minimize edge effects, and (5) increases in habitat quality especially in providing native nutritious forage plants required by tortoises for survival, growth/recruitment and reproduction. If these data indicate that past management actions of the conservation lands have not been successful, then other conservation measures should be added to/required in the HCP to provide for the conservation of the tortoise. Conservation measures should be science-based and have a demonstrated record of successful results for the tortoise.

3. Comply with Requirements for Issuance of Incidental Take Permits listed in the ESA and Explained in the 2016 HCP Handbook: Section 10 (a)(2) of the Federal Endangered Species Act (FESA) requires that the applicant will submit a conservation plan with certain requirements (3.a. through 3.f below). The USFWS should ensure that the draft amended HCP complies with the Habitat Conservation Planning and Incidental Take Permit Processing Handbook (HCP Handbook) (USFWS and NMFS 2016). The HCP Handbook includes information on how to comply with regulations and policies on implementation of section 10(a)(2) of the FESA, implementing agreements, findings and recommendations, section 7 consultation, and other relevant environmental legislation.

3.a. "the impact which will likely result from such taking" – Impacts of the taking is defined as an analysis of the impact which will likely result from the taking of the covered species. The impact of the taking may have population or species-level effects substantially greater than just the number of individuals or acres of species habitat (USFWS and NMFS 2016). For the tortoise, the impact of the taking will have population and species level effects much greater than just the acres of the species' habitat lost to covered activities.

Please explain how the USFWS calculated the impacts of the taking of the tortoise. This would include direct, indirect, and cumulative impacts to the tortoise that likely resulted in take in the Red Cliffs Reserve, Upper Virgin River Recovery Unit, and rangewide for the tortoise.

To begin this process, the HCP needs to clearly describe the covered activities that would constitute take (e.g., grading; mowing; blading; fire; herbicide use; activities that result in establishment or increases invasive plant species abundance, subsidized predation, loss of forage needed to meet nutritional requirements, etc.). It should also include mortality, injury, capture, etc. What would be the extent of that "take," that is, the impacts of the taking with respect to location where the covered activity is to occur? It is larger than the project footprint and if so, by how much? What is it for a linear project (e.g., road, pipeline, etc.) that has a larger edge effect (and greater area of adverse impacts) than a project such as a house, or strip mall.

One example of indirect impacts of the taking with respect to development projects is it would provide a subsidized food source for common ravens. Construction projects, including road construction, in/near the Red Cliffs Reserve would kill or injure fossorial animals that would

become a human subsidized food source for common ravens. This would increase their numbers in the area of the Red Cliffs Reserve and predation pressure on the tortoise. The operation of the new roads through/near undeveloped lands would result in ongoing road kill. Although the tortoise mitigation for construction projects including roads may be fenced to exclude tortoises, it would not exclude other wildlife species. The roads would act as a sink for the various wildlife species in the nearby undeveloped land and become a subsidized food source of roadkill and road injury for common ravens, This ongoing food subsidy would result in two forms of increased predation by common ravens to tortoises (Holcomb et al.2021), "hyper-predation" from breeding ravens and "spillover-predation" from non-breeding ravens (Kristan and Boarman 2003).

Please analyze this and the many other indirect impacts of the taking of the tortoise from the construction, use, and operations and maintenance of all covered activities.

Tortoises are not distributed uniformly within their habitat; they do not always breed, lay eggs, forage, or shelter in the same area; their needs for connectivity have recently been described (Averill-Murray et al. 2021). Please explain how the location of areas authorized for covered activities were considered to determine their function(s) in the impacts of the taking of the tortoise. When conducting this complex analysis, please use current information on tortoise numbers and densities in the Red Cliffs Reserve and Upper Virgin River Recovery Unit; relevant scientific information on population ecology, conservation biology, climate change, and spatial analysis; and incorporate the expertise of the university researchers on the Mojave desert tortoise, tortoise habitat, conservation biology, population ecology, and the Desert Tortoise Recovery Office**.**

As part of this analysis, the 2020 HCP applied to use unrealized take from the 1995 HCP. In the 1995 HCP, the number of tortoises taken was counting but the counting was incomplete. In addition, the 2020 HCP stated "the takings did not outpace the conservation actions." We remind eh County that the number of tortoises that were directly taken (e.g., killed, translocated), which is what the County provided in the 2020 HCP is not the same as the impacts of the taking; this number would be higher. The draft amended HCP should revise its calculations of the impacts of the taking from implementation of the 1995 HCP, and describe this revised methodology used to comply with the statute. We suggest using the method described in the 2016 HCP Handbook (USFWS and NMFS 2016). For another example of how the impacts of the taking differ from the taking, please see the scenario under #5 below.

3.b. "the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking" –

To meet this issuance criterion, the applicant must:

1. estimate the type and amount of take expected from covered activities, and the impacts of such taking on the species and/or its habitat;
2. determine from a biological perspective how conservation measures in the HCP will minimize the impacts of the taking on the species' status and/or its habitat; and
3. determine from a biological perspective how conservation measures in the HCP will mitigate the remaining impact of the taking on the species' status and/or its habitat.

Using the analyses in steps 1-3 above, the applicant must show that their HCP will minimize and mitigate the impacts of the taking to the maximum extent practicable because either:

- The combination of minimization and mitigation in the HCP leaves no remaining impacts of the taking on the species that could be further mitigated or minimized, that is all impacts will be fully offset.

OR

- If the applicant cannot fully offset the impacts of the taking, they must demonstrate that it is not practicable to carry out any additional minimization or mitigation (USFWS and NMFS 2016).

The 2020 HCP contained the following mitigation information – To mitigate the loss of these 66,301 acres, the HCP would ***seek*** (emphasis added) to acquire "665 acres of private land and 6,426 acres of SITLA-owned land (7,091 acres total)" that remain within the Reserve boundary from willing sellers.

What other mitigation would be required if this seeking did not result in the successful acquisition?

The HCP should provide documentation on how this mitigation fully offsets the impacts of the taking from the development of 66,000+ acres of tortoise habitat, that is, all tortoise habitat in Washington County that is not on federal or tribal lands that would be permanently developed.

The conservation program for the 1996 and 2020 HCPs relied on the management of lands inside the Red Cliffs Reserve boundary to mitigate the impacts of the taking, and assumed this mitigation to be in perpetuity with no legal assurances. Most of these lands are under BLM and State of Utah management. Consequently, the applicant has no control over how these lands are managed or their funding.

The courts have found that the conservation program including the mitigation lands must be under the control of the applicant. For example, in one court case, Klamath-Siskiyou Wildlands Center et al. v. NOAA et al., Case No. 13-cv-03717 (2015 U.S. Dist. LEXIS 44872 & 2015 U.S. Dist. LEXIS 70622) (N.D. Cal. 2015) (Challenge to Fruit Growers Supply Co. Habitat Conservation Plan and Incidental Take Permits), the court held that the USFWS improperly relied on mitigation provided by the U.S. Forest Service in making its "maximum extent practicable" (MEP) finding under FESA section 10(a)(2)(B)(ii) in violation of the requirement that only mitigation and other conservation measures provided by the applicant may be considered in making the finding. The court held that USFWS violated that section by "crediting" Fruit Growers Supply with mitigation provided by the Forest Service for the Northern spotted owl. Because USFWS took into account the conservation value provided by intermingled Forest Service lands in its MEP analysis, the court faulted the USFWS for relying on FS lands as mitigation under the HCP. Please ensure that the conservation program for the HCP occurs on land that the applicant has management authority over.

Because the loss of tortoise habitat would be permanent from the covered activities, any lands considered as mitigation for the impacts of the taking from covered activities including translocation lands should be managed for the tortoise in perpetuity. This designation should be assured by a legal instrument such as a permanent conservation easement. Special management

designation of federal lands such as Zone 6 proposed in the 2020 HCP are not permanent designations, as they can be changed with the next Resources Management Plan amendment. In addition, as demonstrated by BLM's approval of the development of lands acquired using land and water conservation funds, these lands are not protected from future development even though they were acquired to help conserve the tortoise. Until BLM and other land management agencies have the ability to place permanent conservation easements or similar protections on lands they manage, mitigation lands managed by these agencies should not be considered as offsetting the impacts of taking because the mitigation may be temporary.

The HCP should provide documentation on why additional minimization and mitigation cannot be implemented. The courts have noted that USFWS should not rely on the applicant's word that additional minimization and mitigation is not practicable.

HCP Conservation Program

Biological goals, objectives, and conservation measures – These identify and carry out the minimization and mitigation that the applicant will implement.

The biological objectives in the draft amended HCP should be specific, measurable, achievable (not be experimental but proven to be effective/successful), result-oriented, and time-fixed. The effects of climate change now and likely effects in the future should be added when developing the biological goals, objectives, and conservation measures.

The HCP should provide specific requirements or protocols on how the 200 acres will be used within the Red Cliffs Reserve (e.g., rights-of-ways, etc.) including access; timing; methods; measures to avoid, minimize, and mitigate impacts; effectiveness and compliance monitoring conducted by a third party not affiliated with the entities responsible for the development/use/maintenance of this acreage; and adaptive management. In addition, these entities should provide the funding for these activities and meet the funding requirements imposed on the applicant. Funded activities would include but are not limited to effectively preventing public access to access roads and ROW acreage; promptly removing invasive nonnative plants; constructing, regularly monitoring, and promptly maintaining tortoise exclusion fencing around utility facilities; and restoring tortoise habitat in areas that will receive temporary disturbance.

Habitat connectivity should be a focus of the biological goals, objectives, and conservation measures. This focus is because the Red Cliffs Reserve is the smallest of the Tortoise Conservation Areas (TCAs). To provide for the effective long-term conservation of the tortoise, this small TCA must be intensively managed for the tortoise to ensure genetic diversity and sufficient population size to minimize extirpation from genetic, demographic, and environmental stochastic events (USFWS 1994a). Currently, the various zones in the Red Cliffs Reserve are not well connected, nor is there any assurance in the 2020 HCP of implementation of future conservation measures to provide for effective connectivity among Zones 1 through 5 in the Red Cliffs Reserve and between the Reserve and Zone 6. Please provide information in the draft amended HCP on the actions that were implemented under the 1995 HCP that provide for increased connectivity among the tortoise habitats in the Red Cliffs Reserve, and the additional connectivity conservation measures that the draft amended HCP would implement to provide this connectivity among all lands that are managed for the tortoise in the Upper Virgin River Recovery Unit.

In addition, please explain the analysis conducted to ensure that implementation of the HCP would not impede the connectivity among the remaining Mojave desert tortoises and tortoise habitat in Washington County, and linkage habitats needed to move in response to climate change (i.e., to the west to the Beaver Dam Slope Tortoise Conservation Area in the Northeastern Mojave Recovery Unit, to the east to tortoises near Zion National Park, and to the north). Linkage habitats should be analyzed considering the following – "managing the entire remaining matrix of desert tortoise habitat for permeability may be better than delineating fixed corridors. These concepts apply, especially given uncertainty about long-term condition of habitat, within and outside of TCAs under a changing climate" (Averill-Murray et al. 2021).

Sources of direct and indirect mortality should be a focus of the biological goals, objectives, and conservation measures. For example, tortoise habitat in the Red Cliffs Reserve has been severely degraded or destroyed and tortoises have been killed because of human-caused activities (e.g., proliferation of invasive plant species; increase in size, intensity, and frequency of fires). Increased predation by common ravens has been identified as a growing source of mortality. Tortoise mortality on roads in the Red Cliffs Reserve not only continues to occur but recently has increased.

The draft amended HCP should include a timetable for completing Reserve acquisitions" (Washington County Commission 2020) and other avoidance, mitigation, and mitigation measures so they are commensurate with impacts of the taking of the tortoise.

HC with long permit durations "require robust and scientifically sound monitoring and adaptive management provisions to address uncertainties that increase with the duration" (USFWS and NMFS 2016). Please include monitoring and adaptive management plans in the HCP so it complies with this requirement.

To manage and monitor the lands being conserved for the tortoise, funds are needed to ensure they maintain their biological value. Conserved lands should either have their own management plans or follow the HCP if it is specific enough. We remind USFWS that permit applicants must ensure sufficient control of the land considered as mitigation to achieve mitigation objectives. Please demonstrate how Washington County has sufficient control over the mitigation lands (managed by BLM and Utah State Parks) to implement and achieve the biological goals, objectives, and implement the conservation measures in the HCP.

The HCP should document and analyze how past translocation of tortoises removed from lands with covered activities is affecting the population density, numbers, and reproduction for the recipient population of tortoises. Translocation is a form of mitigation. We presume that monitoring of the recipient populations has continuously occurred to determine changes in these population parameters including genetics (please see Mulder et al. 2017). If past translocation efforts are not resulting in a benefit to the recipient population, translocation plans should be modified and implemented. We suggest consulting with university researchers with expertise on tortoise genetics and translocation and the Desert Tortoise Recovery Office in conducting this analysis of effectiveness.

What is BLM's record for managing for the tortoise/tortoise habitat in the Red Cliffs NCA? What is Utah State Parks record for managing for the tortoise/tortoise habitat in the Red Cliffs NCA? Have they managed effectively for native vegetation including annual forbs and perennial grasses, removed invasives and prohibited activities that introduce and spread nonnatives? Have they fenced roads and conducted timely maintenance of the fences to exclude tortoises? Have they effectively closed rights-of-way roads to the public, effectively enforced ORV restrictions, etc.? This information should be provided in the draft amended HCP along with the biological goals, objectives, and conservation measures that would be implemented on BLM and State Parks lands.

Effectiveness Monitoring and Compliance Monitoring – "Monitoring is a mandatory element of all HCPs (See 50 CFR 17.22, 17.32, and 222.307). When properly designed and implemented, monitoring programs for HCPs should provide the information necessary to assess compliance and project impacts, and verify progress toward the biological goals and objectives. Monitoring also provides the scientific data necessary to evaluate the success of the HCP's operating conservation programs with respect to the possible use of those strategies in future HCPs or other programs that contribute to the conservation of species and their habitat." (USFWS and NMFS 2016).

What are the monitoring requirements under the draft amended HCP? For example, we understand that Utah Division of Wildlife Resources (UDWR) is no longer receiving funds to monitor the tortoise population in some of the zones in the Red Cliffs Reserve. If this effectiveness monitoring is not occurring regularly under the draft amended HCP, how does the absence of this part of effectiveness monitoring meet ITP issuance criteria? The draft amended HCP should provide a table that itemizes the impacts of the taking, the conservation measures that would fully offset the impacts of the taking, and the effectiveness and compliance monitoring actions that would be implemented for all conservation measures.

Changed Circumstances – If the draft amended HCP relies heavily on improvements to the tortoise population and habitats in the Red Cliffs Reserve (we assume this because the 2020 HCP identified development of the remaining tortoise habitat in Washington County (i.e., more than 60,000 acres of tortoise habitat on non-federal lands with acquisition of about 10 percent of this area for conservation), the changed circumstances section of the HCP needs to include any changes that adversely affect the tortoise population and/or tortoise habitat in this conservation area. This means that any habitat degradation (e.g., invasive plants, etc.), habitat loss (e.g., fire, surface disturbance, etc.), increases in mortality (e.g., predation by wildlife or humans, pathogens, genetic inbreeding, etc.), impeding/disrupting connectivity, etc., that occur as a result of direct or indirect human actions whether authorized or not must be included in the changed circumstances section of the HCP. Absent this assurance, Washington County would be authorized to develop all remaining tortoise habitat on non-federal lands, and the tortoise is placed on a trajectory of certain extirpation in the Red Cliffs Reserve. A draft amended HCP with these covered activities and this limited conservation program would not be a conservation plan for the tortoise.

Although the 2020 HCP proposed to add Zone 6 as part of the conservation program, it does not have the same assurances of management for the conservation of the tortoise/tortoise habitat as the Red Cliffs Reserve. For example, its size, location, unknown information on tortoise population demographics, and allowance for and increase of certain human activities that adversely affect the

quantity and quality of tortoise habitat would provide little to no long-term assurance for the survival and recovery of the tortoise in the Upper Virgin River Recovery Unit.

Please ensure the Changed Circumstance section on the HCP includes an explanation of this heavy reliance on improvements to the tortoise population and tortoise habitat in the Red Cliffs Reserve, and identifies that any authorized or unauthorized actions that result in a decline in the quantity, quality, connectivity of tortoises and configuration of tortoise habitat would be considered a changed circumstance. Without this assurance, an

Exclusion of conservation measures funded by federal, state and local agencies – The Anti-deficiency Act prohibits Federal agencies from incurring obligations or making expenditures (outlays) in excess of amounts available in appropriations or funds (31 U.S.C. § 1341 (a)(l). Agencies of the State of Utah are likewise enjoined in Utah Code§ 63G-6a-1204 from entering into contracts or incurring obligations that commit funding beyond that appropriated. Therefore, Federal and state agency support of the conservation measures in the HCP is contingent on having sufficient funding over the term of the HCP. Because this funding is not assured, the HCP should not include the conservation measures these agencies *may* implement as part of the conservation program of the HCP.

All plans (public education, enforcement, habitat restoration, recreation, etc.) that may be part of the HCP to avoid, minimize, and mitigate the impacts of the taking should be included in the HCP, not merely referred to in the HCP.

3.c. "the applicant will ensure that adequate funding for the plan will be provided" – This has been the area that the USFWS has the least experience in ensuring as it not a biological requirement. Frequently, the funding for implementation of the HCP's conservation program is underestimated by the applicant especially when there is a set fee for implementing covered activities.

The USFWS usually relies on the applicant to calculate costs of the conservation program and provide the sources of funding to cover those costs. For the 1996 HCP, the per acre fee is based on the estimated costs submitted by the applicant. The HCP handbook direct the USFWS to "conduct an independent review" of the funding assurances. Because the USFWS lacks the expertise to conduct such a review (i.e., no long-term financial planners, or long-term project planners with financial expertise on staff), the USFWS should use a neutral third party with expertise in financial planning of long-term projects to determine whether the funding will be adequate to successfully implement the biological goals and objectives, conservation measures, effectiveness and compliance monitoring, adaptive management, and changed circumstances of the finalized Red Cliffs HCP and ITP. This information should be added to the table mentioned above that tracks the impacts of the taking, all conservation measures to be implemented to fully offset the impacts of the taking, the effectiveness and compliance monitoring actions, etc. Please include this table in the draft amended HCP so the public may review this information to determine whether the funding amount proposed are adequate for the 25+year permit term.

For example, for dealing with changed circumstances, the HCP should discuss specific financial remedies by including a reasonable estimate with a buffer of their cost and a description of how they will be funded. Applicants must build funding strategies with the long term in mind to ensure

sufficient resources are available to respond to changing climates, economic changes, and *uncertainty in management effectiveness* (emphasis added), among other things. Long-term HCPs should build rising costs into their estimates. For plans that collect fees, one approach would be to establish a process in the HCP with regular adjustments so the fees keep pace with costs of the conservation program (USFWS and NMFS 2016).

Because of the 2020 HCP's requested 25-year permit term and the economic history of substantial inflation occurring at least every 20 years, the funding (e.g., development fee, annual tax, etc.) should not be a fixed amount. It should be adjusted annually using an appropriate economic index for the goods and services identified as the conservation measures and monitoring to be implemented (e.g., construction materials, construction equipment, construction labor, labor for scientific monitoring, equipment for scientific monitoring, etc.).

Additional assurances of funding are needed when there is risk the applicant will complete their development project without completing their functional mitigation requirements. The 2020 HCP was for a 25-year permit term. If the conservation program includes restoration of habitat degraded/destroyed by human activities so it provides the functions and values needed by tortoises for feeding, breeding, and shelter, this restoration period can take several decades or longer (Abella 2010) – much longer than the requested permit term. Funding of the HCP should include this and similar discrepancies in the timelines between the permit term and the completion of effective conservation measures. Stay-ahead provisions, where conservation occurs or where fees are collected before impacts, should be implemented to ensure minimization and mitigation measures occur as planned. This method should be described and included in the HCP.

The Washington County HCP is a development HCP. "The conservation land is assembled into a preserve with management requirements into perpetuity. Cost of management, both short and long-term, must be estimated in the plan. Applicants should identify costs born during development activities to minimize effects (e.g., exclusion fencing) separately from costs associated with those requiring additional funding, such as acquisition of mitigation land and associated restoration, management, and monitoring costs. The latter category requires additional assurances of funding" (USFWS and NMFS 2016). Please ensure that these requirements are included in the draft amended HCP.

There are likely to be indirect effects attributable to implementation of the proposed HCP covered activities. One example is fragmentation from development: development may take place later that could impact the connectivity of the tortoise population in the Upper Virgin River Recovery Unit in a substantial way because that effect is unknown at this time. The HCP should incorporate contingency measures that address how those impacts will be remediated and provide the funding assurances for such measures.

Ongoing management of the Red Cliffs Reserve and Zone 6 will outlast the permit term. Consequently, long term management, including funding for it, must be described and in place when the permit is issued.

The USFWS should receive legally binding assurances from Washington County that annual appropriations to sufficiently fund the draft amended HCP will occur.

Funding for effectiveness monitoring – We understand that Utah Division of Wildlife Resources (UDWR) is no longer receiving funds to monitor the tortoise population in some of the zones in the Red Cliffs Reserve under the 2020 amended HCP. If this effectiveness monitoring is not being funded by the applicant, how does the absence of funding this part of effectiveness monitoring meeting ITP issuance criteria? In addition, we understand that other sources of funding for conservation measures (e.g., construction/maintenance of tortoise exclusion fencing in the Red Cliffs Reserve, etc.) has been removed from the 2020 HCP. Please include these funding assurances in the draft amended HCP.

3.d. "what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized"

Because this is a draft amended HCP from Washington County, the County should consider setting aside more private lands for conservation of the tortoise and less land for development. These lands should connect with the Red Cliffs Reserve. When designed properly, this alternative would result in less take. It would increase the likelihood of success of the conservation of the smallest population of tortoises and TCA in the range of the species. It would reduce the impacts of climate change and genetic, demographic, and environmental stochasticity. It would improve connectivity of populations within the Upper Virgin River Recovery Unit and connectivity with the adjacent Northeastern Recovery Unit. The County should not rely on federal lands and tribal lands for the survival and recovery of the tortoise in the Upper Virgin River Recovery Unit. One possibility would be to expand Zone 6 so it is of sufficient size to provide long-term conservation of the tortoise/tortoise habitat (please see conservation biology's principles of reserve design in USFWS 1994a).

3.e. "the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild"

Although the following factors are used to determine whether unforeseen circumstances would occur for the draft amended HCP, they should be used to assess whether the taking will appreciably reduce the likelihood of survival and recovery of the tortoise in the wild.

The USFWS "shall consider, but not be limited to, the following factors (50 CFR 17.22(b)(5)(iii)(C) and 17.32(b)(5)(iii)(C); 50 CFR 222.307(g)(3)(iii)):

1. The size of the current range of the affected species;
2. The percentage of the range adversely affected by the covered activities;
3. The percentage of the range that has been conserved by the HCP;
4. The ecological significance of that portion of the range affected by the HCP;
5. The level of knowledge about the affected species and the degree of specificity of the conservation program for that species under the HCP; and
6. Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the species in the wild."

For the tortoise, these six factors would be modified to address the tortoise in the Upper Virgin River Recovery Unit. This modification is because the recovery of the tortoise can only be

achieved if it is recovered in all five recovery units (USFWS 2011). The USFWS should work with the applicant to ensure that these factors are considered when developing the draft amended HCP including using all relevant and current scientific information. The answers to these factors should be provided in the HCP to demonstrate compliance with section 10(a)(2) of the FESA.

The USFWS should consult with experts in the fields of desert tortoise biology, ecology, population ecology, conservation biology etc. Their concerns and recommendations should be provided to the public and included in the USFWS's analysis. This approach would represent the best available biological information and provide an unbiased forum for making this determination. We recommend that most researchers should be university researchers that are not affiliated with federal, state, and local agencies that are involved with making this decision or would be affected by it. Employees/affiliates of these agencies directly involved with the decisionmaking process have a perceived or stronger obligation to not disagree with an agency's position. In the federal government, sister agencies do not contradict each other (e.g., USFWS does not contradict BLM).

3.f. "such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan" –

"Other measures" include such things as ensuring the covered activities avoid jeopardy of listed plant species, destruction or adverse modification of designated critical habitat, jeopardy or take of listed wildlife species not covered by the HCP or incidental take permit, and avoid take of migratory birds or eagles. The USFWS should work closely with the applicant to design a HCP that includes these measures. In addition, we recommend coordinating with the Desert Tortoise Recovery Office to determine the measures they deem appropriate to include (e.g., specific research/studies to complement the HCP strategy or contributing funds beyond those needed for the HCP's adaptive management program.

In summary, the courts have said that the FESA requirement is that habitat conservation plans "conserve" listed species. The draft amended HCP should prove that it is doing this.

4. Complying with Section 7 Consultation –: "ESA section 7 must consider the range-wide scale for the tortoise, because under section 7 the USFWS analyzes effects to the tortoise and designated critical habitat, to ensure that the action is not likely to jeopardize the species' continued existence or destroy or adversely modify critical habitat.

4a. "Jeopardize the continued existence" of a species is defined as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild…"

For the tortoise to be achieve recovery, it must be recovered in all five recovery units (USFWS 2011). Please demonstrate with supporting scientific data, how after consideration of full implementation of the covered activities as described in the HCP (including direct, indirect, and cumulative effects), and implementation of proposed conservation measures proven effective, the implementation of the HCP would not preclude the survival **and** recovery of the tortoise in the Upper Virgin River Recovery Unit. We strongly recommend coordinating with the Desert Tortoise

Recovery Office and university researchers with current knowledge and expertise on the tortoise, population ecology and viability, and conservation biology in preparing the biological opinion for the HCP.

4.b. Destruction or adverse modification of designated critical habitat is defined as “a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical."

How have fires, human-caused fragmentation, and other human activities in and near the Red Cliffs Reserve affected the ability of this critical habitat unit to function? Please refer to the final rule that designated critical habitat for the tortoise (USFWS 1994b) when assessing whether the draft amended HCP would result in destruction or adverse modification of critical habitat for the tortoise in the Upper Virgin River Recovery Unit. In addition, we strongly recommend coordinating with the Desert Tortoise Recovery Office.

5. <u>Using Habitat as a Surrogate for Incidental Take</u> – The 1995 HCP tracked incidental take by numbers of tortoises. The 2020 HCP changed this from a numerical limit of individual tortoises on specified lands to acres of potential habitat tortoise habitat.

The draft amended HCP should describe the causal link between the surrogate and take of the tortoise. It heavily relied on tortoise habitat modelling Nussear et al. (2009). This modelling effort was remarkable at the time and noted several assumptions used in modelling tortoise habitat. These included limitations on the quality of the data used; the resulting model scores reflecting hypothesized habitat potential and therefore are not totally accurate; the map of desert tortoise potential habitat does not account for changes to habitat quality or loss of habitat from human activities including climate change and natural disturbance. In addition, it did not model habitat needed for connectivity among tortoise populations.

The HCP should use the best available information for determining the occurrence, location, and arrangement of tortoise habitat to identify/map it in Washington County. Since the Nussear (2009) publication, other researchers have published results on modelling tortoise habitat that update and refine the methods used by Nussear et al. (2009). For example, Feinberg et al. (2019) used methods with 30-meter resolution, in contrast to the 1-kilometer resolution of the USGS model (Nussear et al. 2009) and did not include occurrence data for the Sonoran desert tortoise (*Gopherus morafkai*).

Absent from these models is the identification and inclusion of linkage habitats needed/used by the tortoise to provide connectivity among populations within the Upper Virgin River Recovery Unit and to the adjacent Northeastern Mojave Recovery Unit. We recommend the HCP use the best available habitat model(s) for the Mojave desert tortoise and include in the analysis the linkage habitats. This should be the starting point for the analysis. The analysis process should include several interacting ecological factors that affect the functions and values of habitats used/needed by tortoises and the existing and likely future threats that would occur to tortoises on the remaining tortoise habitat. For example, for some tortoises the habitat at one location may provide native forage but not cover, or cover but not nesting habitat. Proposed covered activities may impede or

isolate tortoises and/or habitat needed (i.e., loss of connectivity), making the indirect impacts greater than the direct loss of habitat from covered activities. Thus, the functions, values, and configuration of areas needed by the tortoise population in the Upper Virgin River Recovery Unit were not fully considered, nor were the planned or likely future uses/changes of the remaining habitat for tortoises such as climate change, surface disturbance activities on BLM lands, etc.

We ask that the HCP describe what would happen if the following scenario occurred – At the end of the 25-year permit term, the tortoise habitat closer to existing development while tortoise habitat on the periphery was not. However, because of this spatial arrangement, the tortoise habitat/tortoises than remain on the periphery are now isolated cut from other tortoises. There numbers are too small to persist because of this isolation and they will shortly be extirpated by genetic, demographic, and environmental stochastic events. Because these tortoises are impacted by the taking from development of other lands that resulted in their small population size and isolation, and no required implementation of management actions to protect them from threats such as human subsidized predation from the nearby permitted development, would the applicant be required to mitigate the taking of these tortoises?

6. Requesting increase in tortoise habitat permanently lost to covered activities with no corresponding increase in minimization and mitigation with long-term effectiveness for the conservation of the tortoise – The 1996 ITP set a numerical cap on tortoise numbers and identified acreage and areas of tortoise habitat (i.e., 12,264 acres of non-federal land with tortoises and 31,282 acres of geographically isolated non-federal lands with no documented tortoise sign but potential tortoise habitat. The 2020 amended HCP proposed a substantial increase in lands to be developed – 200 acres in the Red Cliffs NCA and all remaining non-federal lands outside the Reserve that are considered potential tortoise habitat (66,101 acres), but with no increase in lands to be managed at a reserve level. Zone 6 is not managed at a reserve level. This issue is part of # 3.b. above in which issuance of an ITP requires minimizing and mitigating the impacts of the taking to the maximum extent practicable.

The HCP should demonstrate why additional acres cannot be acquired and managed at a reserve level to conserve the tortoise as specified in the 1994 Recovery Plan (USFWS 1994a). In this document, the USFWS stated that "enough habitat must be protected within a recovery unit, or the habitat and desert tortoise populations must be managed intensively enough to ensure long-term viability." Recovery requires "implementation of reserve level protection" within each TCA. The recommended that reserves be "at least 1,000 square miles." "The utility of large reserves in preventing extinction is one of the best established tenets of conservation biology." Specifically for the Upper Virgin River Recovery Unit, the USFWS said, "genetic, demographic, and other considerations point to the inescapable conclusion that small reserves in a highly fragmented habitat are a recipe for extinction of the desert tortoise." (USFWS 1994a).

Please provide data and the scientific analysis to support that the past and proposed management of the Red Cliffs Reserve will contribute to the recovery of the tortoise and will not contribute to its eventual extinction. Thes data and analysis should be conducted on invasive plant species, wildfires, climate change and population/habitat fragmentation. According to one court decision, the FESA requirement is that habitat conservation plans "conserve" listed species.

7. <u>Complying with Other Federal Laws –</u>

7.a. The Omnibus Public Land Management Act (OPLMA) was passed by Congress in 2009. Section 1974 created the Red Cliffs National Conservation Area (NCA). The purposes of this NCA are (1) to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and (2) to protect each species that is located in the National Conservation Area; and listed as a threatened or endangered species on the list of threatened species or the list of endangered species under of the Endangered Species Act. This NCA is to be managed in a manner that conserves, protects, and enhances the resources of the National Conservation Area. The only allowed uses in this NCA are those that would further those described under "Purposes."

Please provide information and supporting documentation from the scientific literature on how issuance of an ITP that would allow the construction, use, operation and maintenance of the Northern Corridor Highway in the Red Cliffs NCA would not violate the OPLMA. Please provide information and supporting documentation from the scientific literature on how permitting the development of 200 acres at unspecified locations and with unspecified mitigation and no guarantee of effectiveness within the Rd Cliffs NCA would comply with the OPLMA.

7.b. The National Historic Preservation Act, Section 106 (NHPA) requires Federal agencies to take into account the effects of their "undertakings" on cultural resources that are, or may be, eligible for inclusion on the National Register of Historic Places. The USFWS's issuance of an ITP is an undertaking. Therefore, the issuance of an ITP to develop large areas of land, other covered activities, and conservation measures stipulated as a condition of the permit and described in the HCP that have the potential to cause an adverse effect to historic properties are subject to further review under NHPA. The USFWS should demonstrate that it has complied fully with this statute and its implementing regulations (36 CFR 800). In the past, the USFWS has had limited experience and cultural resources staff to comply fully with this statute and its implementing regulations.

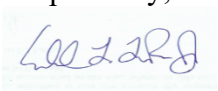
8. <u>Tracking Incidental Take</u> – The ITP issued in 2021 provided the following incidental take. Up to "62,960 acres of Mojave desert tortoise habitat associated with covered activities on specified non-Federal and non-tribal lands in the permit area and up to 200 acres of impacts to Mojave desert tortoise habitat may occur on the non-specified non-federal lands in the reserve (including Zone 6 under Northern Corridor circumstance)." Please explain why it was not included in the calculation of the surrogate of loss of tortoise habitat.

In conclusion, lost habitats and displaced tortoises from HCP-authorized development activities were considered allowable based on the understanding that protected and acquired habitats within the Reserve would be conserved. The Council finds that construction of a new highway through a conservation area whose function it is to offset tortoise losses attributed to authorized activities since 1995 is counterintuitive and counterproductive; it violates the intent of the federal take permit and undermines the efficacy of conservation within the Reserve. A new highway through the Reserve was not a foreseen event in the federal take permit, so it appears now the USFWS is willing to accommodate this unforeseen impact by amending the HCP and 10a permit at the

expense of tortoise conservation within the Reserve.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Desert Tortoise Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM that may affect desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this project.

Respectfully,



Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

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Draft Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah; Construction Costs Assumptions; and Traffic Analysis," dated July 2024.

DESERT TORTOISE COUNCIL
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Via BLM NEPA ePlanning webpage

9 July 2024

Dawna Ferris-Rowley, NCA Manager
Red Cliffs and Beaver Dam Wash NCAs
Attn.: Northern Corridor SEIS
Bureau of Land Management
345 East Riverside Drive
St. George, UT 84790

RE: Draft Supplemental Environmental Impact Statement to Reconsider a Highway Right-of-Way Application and Associated Amendment of an Incidental Take Permit, Washington County, Utah; Construction Costs Assumptions; and Traffic Analysis

Dear Ms. Ferris-Rowley,

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and northern Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an "environmentally friendlier way" of receiving correspondence and documents rather than "snail mail."

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats occupied by the Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities that may be

authorized by the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS), which we recommend be added to project terms and conditions in the authorizing document (e.g., management plan and decision document, lands and realty action, etc.) as appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed action.

The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), "… based on population reduction (decreasing density), habitat loss of over 80% over three generations (90 years), including past reductions and predicted future declines, as well as the effects of disease (upper respiratory tract disease/mycoplasmosis). *Gopherus agassizii* (sensu stricto) comprises tortoises in the most well-studied 30% of the larger range; this portion of the original range has seen the most human impacts and is where the largest past population losses have been documented. A recent rigorous rangewide population reassessment of *G. agassizii* (sensu stricto) has demonstrated continued adult population and density declines of about 90% over three generations (two in the past and one ongoing) in four of the five *G. agassizii* recovery units and inadequate recruitment with decreasing percentages of juveniles in all five recovery units."

Background

This Draft Supplemental Environmental Impacts Statement (Draft SEIS) supplements the information in the Final Environmental Impact Statement to Consider a Highway Right-of-Way, Amended Habitat Conservation Plan, Issuance of an Incidental Take Permit for the Mojave Desert Tortoise, and Proposed Resource Management Plan Amendments, Washington County, UT (FEIS) (BLM & USFWS 2020) regarding:

(1) the trend of increasing frequency and extent of wildfires in the Mojave Desert;
(2) the rise of noxious weeds and invasive species in post-burn areas; and
(3) the impacts that increased fires and noxious weeds and invasive species have on the Mojave desert tortoise.

The analysis also includes those resources that warrant reconsideration based on new information or changed conditions beyond what was presented in the Final EIS.

Amendments to the Red Cliffs National Conservation Area (NCA) and St. George Field Office Resource Management Plans (RMPs) are not considered in the SEIS. Changes to the Washington County Habitat Conservation Plan (HCP) are not considered in the SEIS.

Summary of Alternatives

In the Draft SEIS. BLM and USFWS (agencies) describe six alternatives.

- The Utah Department of Transportation (UDOT) ROW, T-Bone Mesa, and Southern Alignments would authorize the construction, use, and maintenance of a new highway in the Red Cliffs NCA.

- The Red Hills Parkway Expressway Alternative would authorize changing the existing Red Hills Parkway to an expressway. Part of this Parkway is currently located in the Red Cliffs NCA.
- The St. George Boulevard/100 South One-way Couplet would occur on existing roads in the City of St. George and outside the Red Cliffs NCA.
- Under the Terminate UDOT's ROW, UDOT would no longer hold the ROW grant for the Northern Corridor across the Red Cliffs NCA. Figure 1 shows the alignments for the five alternatives that would result in road construction or improvements.

Three alternative routes within the NCA that were previously considered in the 2020 Final EIS (UDOT Right-of-way (ROW) Alignment, T-Bone Mesa Alignment, and Southern Alignment) are carried forward in this Draft SEIS. Under any of these three alternatives, a new multi-lane highway would be constructed within the NCA, Zone 6 would remain as part of the Red Cliffs Desert Reserve (Reserve), and additional conservation obligations under the changed circumstance would still be in effect

Two alternative routes partially or completely outside the NCA that were previously considered in the 2020 Final EIS (Red Hills Parkway Expressway and St. George Blvd/100 South One-way Couplet) are carried forward in this Draft SEIS. For the Red Hills Parkway Expressway, the BLM would need to grant necessary ROW amendments to the City of St. George's existing Federal Land Policy and Management Act (FLPMA) Title V ROW for the Red Hills Parkway to accommodate the planned improvements. The St. George Boulevard/100 South One-way Couplet alternative lies entirely outside the NCA and consists of existing roadways that are under the purview of the City of St. George.

An alternative that would terminate the UDOT ROW is also considered. Under any of these alternatives, Zone 6 would not remain part of the Reserve.

Zone 6 of the Reserve, which is not part of the Red Cliffs NCA, includes approximately 6,813 acres of land, of which approximately 3,338 acres is non-federal land. The non-federal land is Utah School and Institutional Trust Lands Administration (SITLA) land, which is land that is to produce the maximum amount of money for the State of Utah. BLM says, "Adding Zone 6 to the Reserve represented a nearly 11% increase in the area covered by the Reserve to offset approximately 3.3% of desert tortoise habitat that would be fragmented by the Northern Corridor ROW." However, BLM does not manage about half of Zone 6, which is the half the is SITLA lands, and therefore cannot provide assurances that the SITLA land would be managed for the conservation of the tortoise, especially given SITLA's directive.

The agencies did not identity an environmentally preferred alternative.

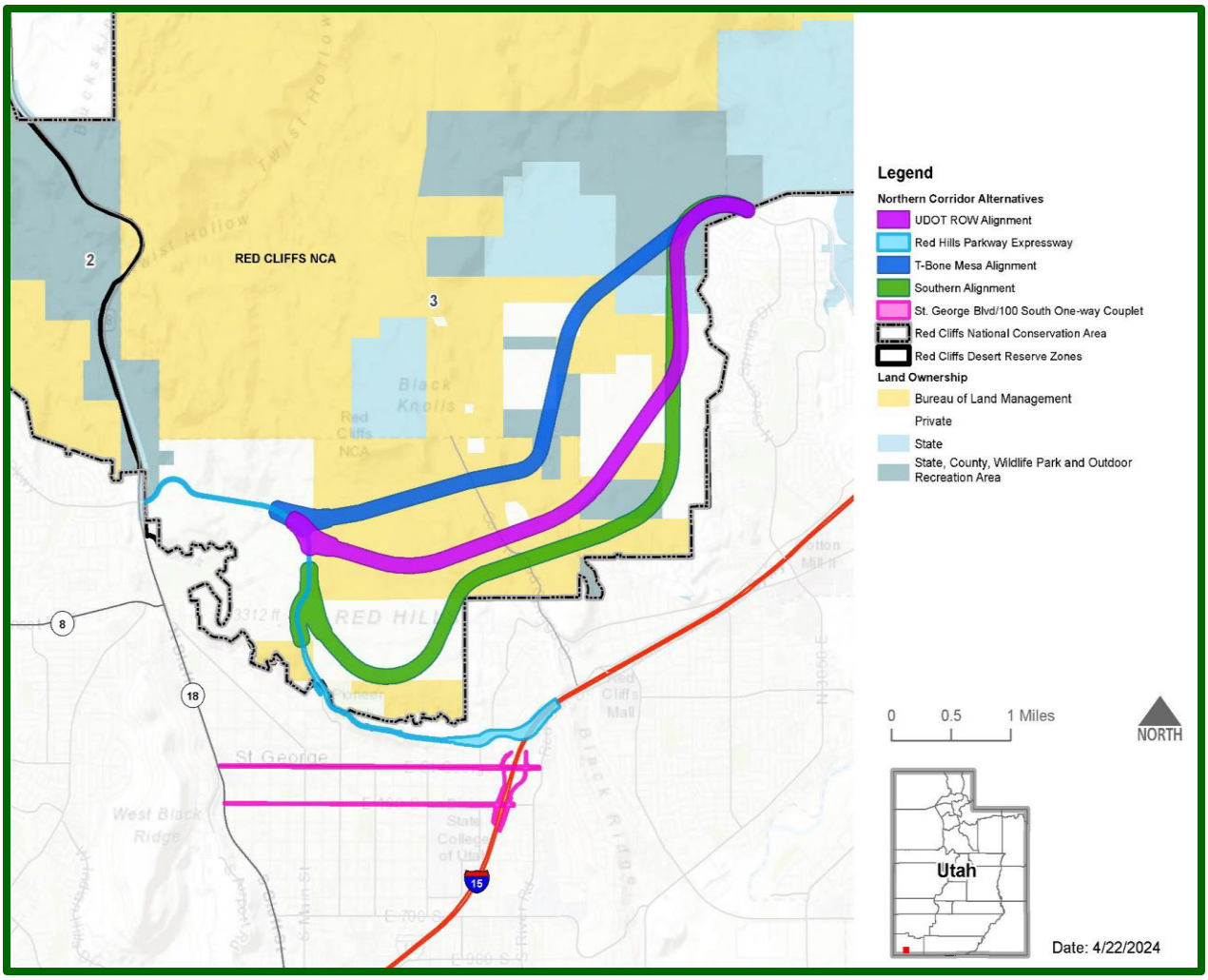


Figure 1. Locations of five of the six alternatives analyzed in the Draft SEIS.

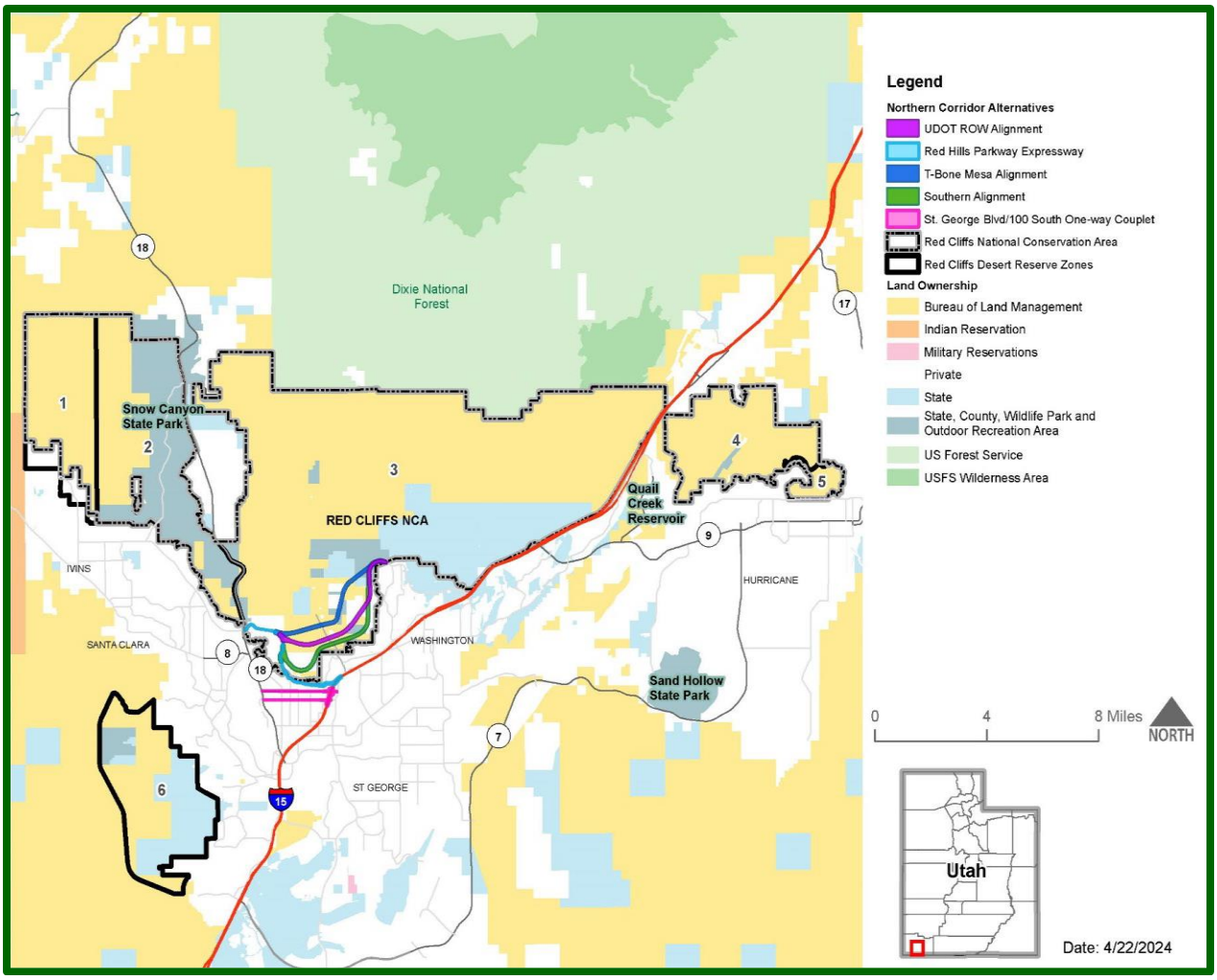


Figure 2. Location of the Red Cliffs National Conservation Area (NCA), the five management zones within the NCA and Zone 6.

The Reserve was established in 1996 when the Incidental Take Permit (ITP) was issued. It is described in the 1995 HCP as "61,022 acres in size and will be managed for the protection of the Mojave desert tortoise and other listed, candidate, and sensitive species found in these same habitat areas. The proposed reserve is consistent with that recommended in the DTRP [Desert Tortoise Recovery Plan], and its boundaries have been drawn with generally accepted reserve design criteria (see Chapter 7 for an in depth analysis of the reserve boundaries against these criteria)." In 2009, Congress established the Red Cliffs National Conservation Area (NCA) consisting of approximately 44,725 acres of public land in the Washington County.

"The Steering Committee has included, to the best of their ability, all of the DTRP's recommendations for this DWMA [Desert Wildlife Management Area = Tortoise Conservation Area] with the exception of closing Skyline Drive." "Preservation of existing ecological values is one of the foremost objectives of the HCP. The ecological values to be preserved comprise all of the features of the HCP areas which result from their unusual climate, varied topography, and relative freedom from urban development." "Approximately two-thirds of the proposed reserve is under BLM or State Park ownership. The remaining third comprises parcels currently under State or private ownership that are needed to make the reserve contiguous and effective."

Comments on the Draft Supplemental Environmental Impact Statement

USFWS Recommendations for Managing for the Tortoise

The USFWS (2011) recommends that new roads should not be established within tortoise conservation areas (TCAs), with a goal of ‘‘no net gain’’ of roads (Averill-Murray and Allison 2023). The Red Cliffs NCA is a TCA. The Federal Endangered Species Act (FESA) directs “all Federal departments and agencies… to conserve endangered species and threatened species.” Conserve and conservation are defined in the FESA as “to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.” This means to manage listed species and their habitats so they achieve recovery.

Given these clear directives, we assert that approval of a ROW in the Red Cliffs NCA would violate these directive, BLM should not grant a ROW in the NCA, and USFWS should not support it. Please assess these directives relative to the SEIS and explain using science and law why BLM and USFWS are not ostensibly complying with them.

BLM Mitigation Policy and Compensation for the Desert Tortoise

The amount of compensation for the direct loss of tortoise category 1 habitat/critical habitat through the establishment of Zone 6 is inadequate and ineffective in contributing to the long-term survival and recovery of the tortoise. If constructed, the Northern Corridor alignment is likely to remain a roadway for several decades or longer. Once constructed, major roadways are rarely removed and returned to their previous condition.

Establishing Zone 6 as mitigation does not comply with BLM’s Mitigation Policy and associated documents, precepts in the Recovery Plan (USFWS 1994a, 2011), or the compensation that BLM committed to under Management Oversight Group (MOG 1991). For example, the mitigation for the loss of critical habitat would be at least 5 to 1 (MOG 1991). Creating a “satellite reserve” that is neither contiguous to the NCA nor sufficiently large violates the characteristics of adequate reserve design given in the Recovery Plan (USFWS 1994a).

Additionally, this mitigation land is not guaranteed to be managed as mitigation land, that is, for the benefit of the tortoise, in perpetuity. Ironically, the Northern Corridor is a case in point; consider how the BLM and USFWS are now considering a new freeway through a sanctioned NCA in violation of Section 10 of the FESA, which established the reserve in 1996). Zone 6 is managed under the RMP and BLM can amend that document and change the management of Zone 6 at any time. BLM is not bound by the HCP and even if it were, the ITP that requires the implementation of the HCP is binding for only 25 years. After that time, the land could be disposed of and developed if the RMP is amended to allow this (e.g., current consideration of the Northern Corridor through the NCA). Thus, there are no legal assurances that BLM will manage all of Zone 6 for the long term conservation and recovery of the tortoise. The impacts to the tortoise/tortoise habitat from construction of the highway are permanent; the mitigation is not. Therefore, it should not be described as mitigation. BLM should ensure that whatever alternative is selected, mitigation for the impacts to the tortoise and other species must comply with BLM’s Mitigation Policy.

Please see our additional comments on this issue on Pages 9-10, Section 1.6, Relationship to Statutes, Regulations, and Other Plans.

Comparison of Mapped Data

"In the latest survey conducted in 2023, UDWR estimated a total of 2,425 adult tortoises within these zones, with most sightings concentrated in Zone 3 (1,681 adult tortoises).

> • Despite hosting higher densities than other areas, the UVRRU's [Upper Virgin River Recovery Unit] small size increases the population's vulnerability to threats like wildfire, habitat loss, and human activities.
> • This is the highest recorded abundance since 2005, likely influenced by various factors including high densities within Zone 2, translocation efforts into Zone 4, and favorable environmental conditions observed during 2023."

However, what is not written is that the tortoises in Zone 3 occur in much higher numbers in the native habitat and non-burned areas comprising the very areas through which the three ROW alignments would be located (see Figures 3 and 4 below).

Also not mentioned is that the number of tortoises in the Reserve (Zones 1 through 5) has decline substantially since it was established in 1996 and that the minimum number of adult tortoises for a Desert Wildlife Management Area (= Tortoise Conservation Area) should be at least 10,000 animals (USFWS 1994a). The NCA/Reserve has less than 25% of this minimum number of adult tortoises.

We request that the agencies provide in the Final SEIS a map that shows tortoise densities, history of fire, and highway alignments on <u>one</u> map. We believe this map will help the public and the decisionmaker to better visualize and understand the extent of the impacts from implementing the construction, use, and maintenance of any of the highway alignments in the NCA.

Page 4 – Omnibus Public Lands Management Act of 2009, Section 1977 – Please see our comments on page 16, National Conservation Area.

Page 7 – "The Red Cliffs NCA RMP Amendment allowed a one-time exception for a transportation ROW within the NCA…" The wording of a "one-time exemption" is not in the statute for establishing the NCA. This is language the agencies have created to assure the public that this action is not precedent-setting. The issue is if the RMP can be amended to build a major highway through the NCA, which is not in compliance with the purposes Congress listed for establishing the NCA and for management, then the RMP can be amended again to allow other activities that are not in compliance with the purposes of the NCA. This action will set a precedent for similar occurrences in other NCAs, and the approval of a ROW in the NCA does not comply with the purposes and management of this NCA as stated by Congress in the Omnibus Public Lands Management Act of 2009. Consequently, BLM and USFWS cannot approve a freeway alignment in the NCA without violating the intent of the Omnibus Act, and Section 10 of the FESA, which facilitated the establishment and conservation of the NCA while simultaneously authorizing thousands of acres of occupied tortoise habitat to be developed in Washington County.

Page 8 – The agencies say the court issued "a Settlement Agreement that requires the BLM and UFWS to complete a supplemental EIS and NHPA [National Historic Preservation Act] consultation (as necessary) and issue a new ROW decision, and updated Biological Opinion, incidental take statement, and ITP by November 2024."

Because the USFWS regulations on implementing the statute changed since the biological opinion (BO) on the FEIS and ITP were issued, the BO should be reissued with new analysis. Particularly, USFWS should revisit its analysis of the "impacts of the taking," and not just the taking (e.g., number of animals lost/number of acres of habitat lost), which USFWS has traditionally done. Analysis of the "impacts of the taking" is a statutory requirement, not a regulatory requirement. It encompasses more than a basic analysis of comparing the numbers of tortoises and numbers of acres of tortoise habitat that would be present before and after implementation of the proposed action. This was the analysis the USFWS implemented in the BO. We elaborate below on some of the biological and ecological factors USFWS should include in its new analysis of the effects to the tortoise and the jeopardy analysis.

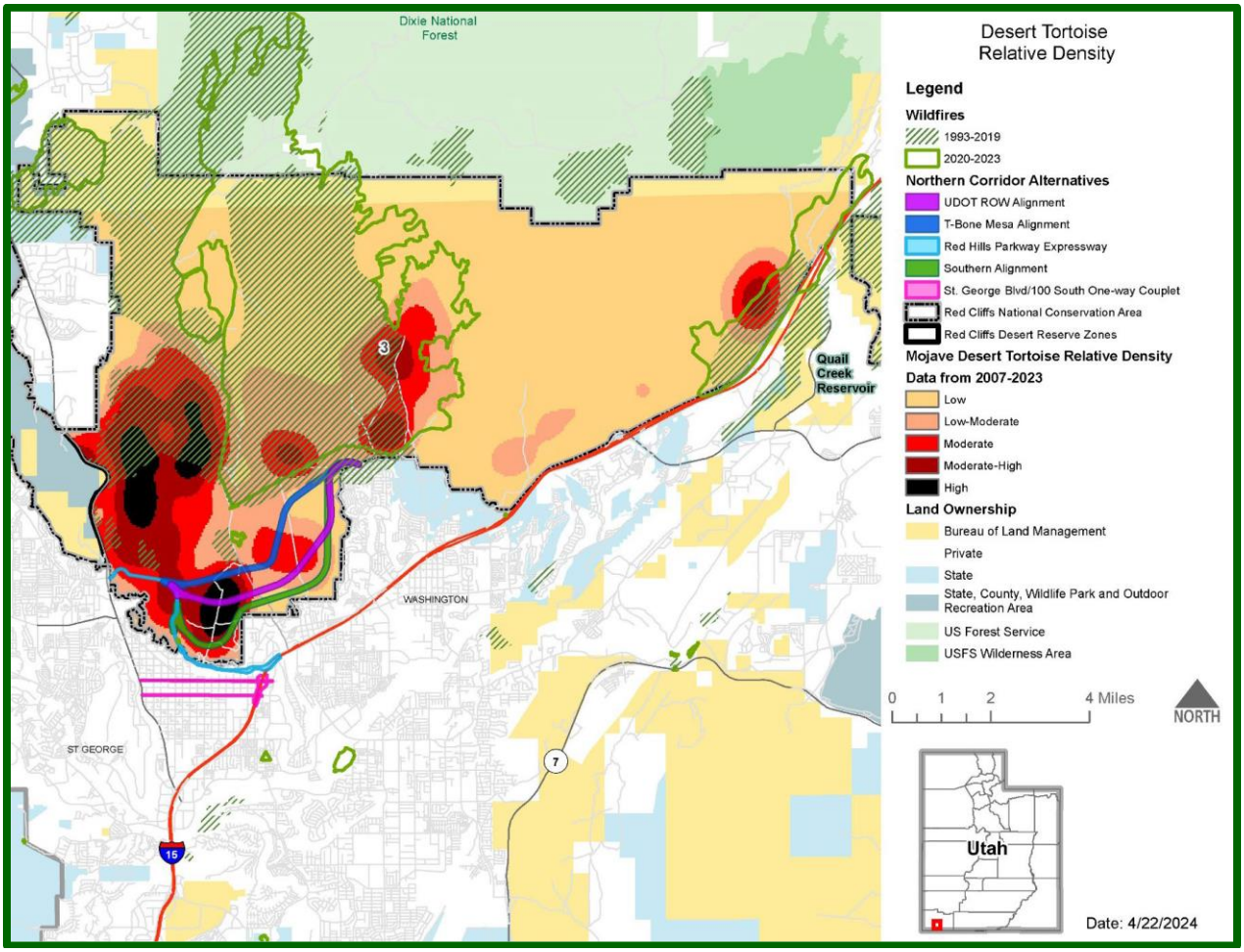


Figure 3. Estimated densities of Mojave desert tortoises in the Red Cliffs NCA using transect data and locations of the alternatives for the highway alignments.

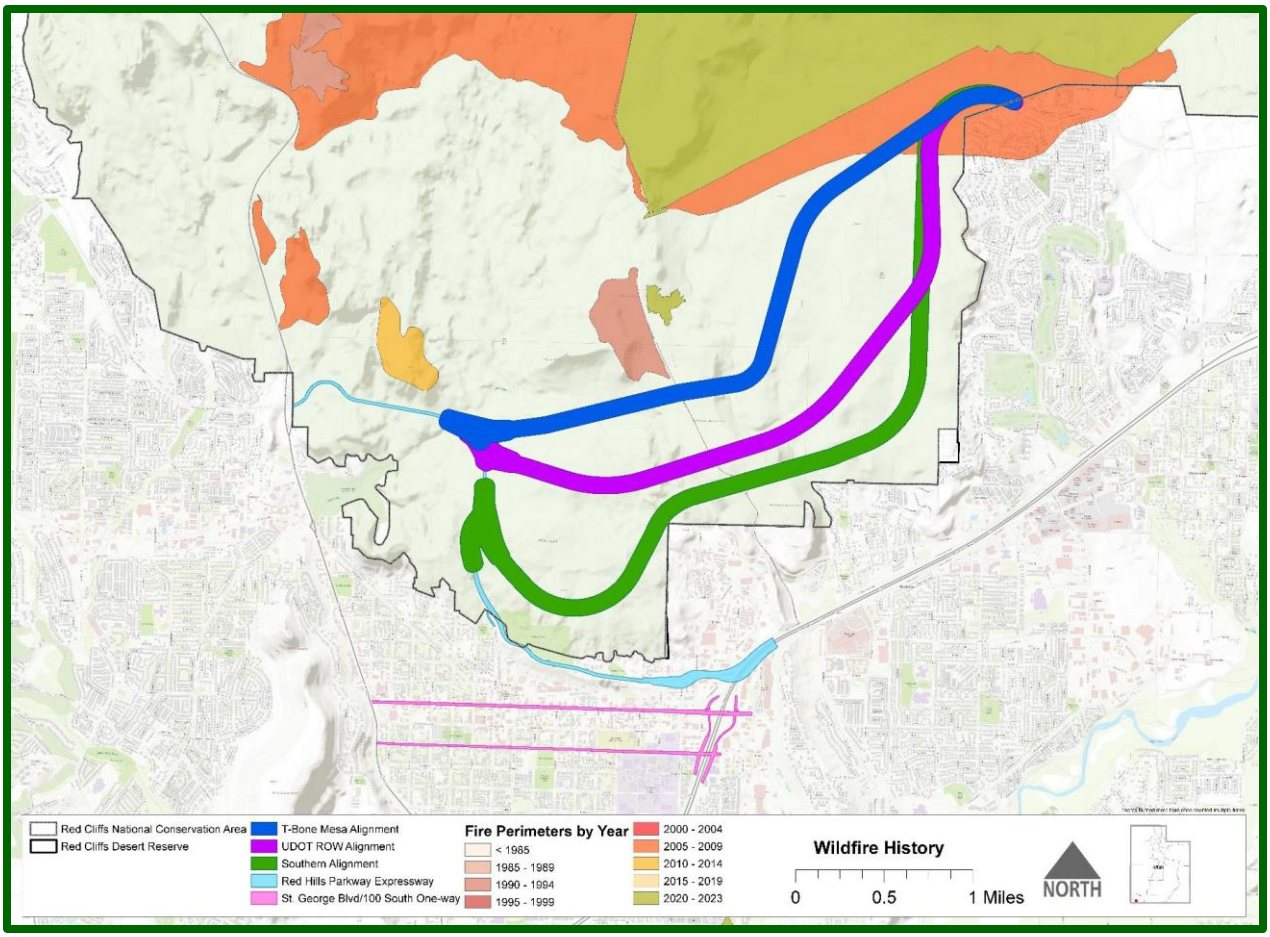


Figure 4. Locations of wildfires in the Red Cliffs NCA and locations of the alternatives for the highway alignments.

The numbers and age class distribution the USFWS reported for the tortoises in Zone 3 is substantially different than the data reported by Utah Division of Wildlife Resources (UDWR). USFWS (2021) states, "1,749 adult desert tortoises, 9,095 juveniles, and 2,274 hatchlings [are estimated to occur] in Reserve Zone 3." This is 13.3 % adults and 86.7% immature and juvenile tortoises. UDWR states, "[t]he majority of tortoises encountered during 2023 monitoring were reproductive adults (85%); 15% of the tortoises observed had a carapace length of less than 180 mm (McLuckie et al. 2024).

We acknowledge that when surveying for tortoises, juvenile and immature animals are not as readily observed because of their smaller size and that they likely represent a larger percentage of the populations than indicated by the survey data. However, the USFWS (2021) determined based on unknown data and calculations, that adults in Zone 3 represent 13.3% of the population. Somehow between 2021 and 2023, the demographic composition of the Zone 3 tortoise population changed substantially from adults representing 13.3 % of the population to 85% of the population. We recommend that the USFWS revisit its calculations and explain in a revised BO how it calculated the numbers of tortoises in the age classes in Zone 3 and why they are substantially different than the UDWR data. In addition, USFWS must determine in the BO whether the

proposed action would jeopardize the continued existence of the tortoise and other listed species. The USFWS defines "jeopardize the continued existence of" as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of **both** [emphasis added] the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."

The USFWS determined that the desert tortoises of UVRRU "are unique among populations in the Mojave Desert. First, they represent the northern-most extension of the geographic distribution of the species. Secondly, this area contains some the highest densities of desert tortoises known. Thirdly, the behavior of individuals of this population are similar to that of individuals from the Sonoran population east of the Colorado River" (USFWS 1994b).

Because of the genetic, ecological, and behavioral differences that occur across the distribution of the tortoise and their unique representation in the UVRRU, the USFWS in the 1994 and 2011 Recovery Plans identified the Upper Virgin River Recovery Unit as unique and needing special management. When analyzing the impacts of the taking in the BO, the USFWS must discuss the status of the tortoise in the UVRRU including the recovery unit's role in both the survival and recovery of the tortoise. If a proposed action precludes the capability of a recovery unit from providing both the survival and recovery function assigned it, that action may represent jeopardy to the species. If the tortoise is not able to meet recovery criteria in the UVRRU because of the issuance of a highway ROW and its construction, use, maintenance, and impacts usually occurring from and as a result of these activities, then the USFWS should issue a jeopardy opinion for the proposed action. Analysis of recovery should follow all the factors identified in the Recovery Plans and how they are integrated to provide for recovery.

The USFWS has information on:

1) The recovery objectives that must be met for the tortoise in the Upper Virgin River Recovery Unit to achieve recovery (USFWS 1994a, 2011)
    - Maintain self-sustaining populations of desert tortoises within each recovery unit into the future. [Recovery Criterion 1. Rates of population change (λ) for desert tortoises are increasing over at least 25 years (a single tortoise generation), as measured by extensive, range-wide monitoring across tortoise conservation areas within each recovery unit, and by direct monitoring and estimation of vital rates (recruitment, survival) from demographic study areas within each recovery unit.]
    - Maintain well-distributed populations of desert tortoises throughout each recovery unit. [Recovery Criterion 2. Distribution of desert tortoises throughout each tortoise conservation area is increasing over at least 25 years.]
    - Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations. [Recovery Criterion 3. The quantity of desert tortoise habitat within each desert tortoise conservation area is maintained with no net loss until tortoise population viability is ensured. When parameters relating habitat quality to tortoise populations are defined and a mechanism to track these parameters established, the condition of desert tortoise habitat should also be demonstrably improving.];

2) the spatial arrangement of the tortoise reserves identified in the USFWS Recovery Plans;
3) the quality, quantity, and configuration/connectivity of the remaining tortoise habitat that is not approved for development under the amended ITP issued in 2021 to Washington County;
4) the locations of high density pockets of tortoises where unburned habitat remains in the Red Cliffs NCA, some of it supplemented by the ongoing translocation of tortoises from areas to be developed (UDWR 2024);
5) the trend in tortoise numbers, densities, and recruitment since the Reserve (1996) and Red Cliffs NCA (2009) were established;
6) the locations, occurrence, and frequency of wildfires in the Red Cliffs NCA and areas that may provide connectivity to the Northeast Mojave Recovery Unit;
7) the modeled frequency of wildfire in this part of the Mojave Desert (Klinger et al. 2021);
8) the requirements of tortoise nutrition for neonate, juvenile, and adult female tortoises (Nagy et al. 1998, Oftedal 2002, Hazard et al. 2010, Drake et al. 2016);
9) the record of BLM's ability to manage the Red Cliffs NCA "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and to protect each species that is located in the National Conservation Area; and listed as a threatened or endangered species" (Omnibus Public Land Management Act of 2009), and to progress toward achieving the three Recovery Criteria for the tortoise; and
10) the current and future projected needs for managing traffic/providing roads and development plans for the western part of Washington County that will affect connectivity of Zone 6 tortoises with other tortoise populations and the Red Cliffs NCA tortoises with tortoises in the Beaver Dam Slope TCA.

The USFWS should use the past, current, and projected development plans and the past and current information listed above as well as other relevant biological factors and data when applying the tenets of conservation biology and population ecology to analyze and determine whether the proposed action would meet the definition of jeopardy (i.e., directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of the tortoise in the wild).

Pages 9-10 – Section 1.6, Relationship to Statutes, Regulations, and Other Plans – BLM did not include the Revised Recovery Plan for the Mojave Desert Tortoise (USFWS 2011) in this section. The Revised Recovery Plan incorporates the Desert Tortoise Mojave Population Recovery Plan (USFWS 1994a) including that for the tortoise to meet recovery requirements, recovery must occur in all recovery units. Please add these documents to the Final SEIS.

In addition, BLM should discuss and analyze how it will fully comply with its recently reinstated Instruction Memorandum (IM) No. 2021-046 on BLM's Manual and Handbook on Mitigation for the alternatives that would impact lands managed by BLM. This policy was not in effect when the Draft and Final EIS and Record of Decision (ROD) were issued. The IM states that BLM will provide policies that:

"1. Implement consistent principles and procedures for mitigation in the BLM's authorization of public land uses;
2. Apply mitigation to address reasonably foreseeable impacts to resources (and their values, services, and/or functions) from public land uses; and
3. Follow the mitigation hierarchy by first avoiding damage to the public lands and resources; second, minimizing damage that cannot be avoided; and third, compensating for any residual impacts to important, scarce, or sensitive resources or resources protected by law."

Specifically, in the IM, BLM is directed to "implement mitigation through a landscape-scale approach, utilize best management practices, maintain durability for mitigation measures, monitor mitigation measures for compliance and effectiveness, and adaptively manage mitigation measures, among several other policy provisions. These policies guide the BLM in the use of best science to support the Department's commitment to honor the Nation's trust responsibilities and conserve and manage the Nation's natural resources and cultural heritage."

The Council requests that BLM update the SEIS and analyze how the mitigation it is proposing to implement, especially for the tortoise, including monitoring and adaptive management for each alternative, does or does not comply with this IM and reinstated BLM policy.

Page 11 – 1.8, Issues Considered for Detailed Analysis – The agencies list the following issues:

- Vegetative Communities, including Noxious Weeds and Invasive Species;
- Special Status Plants;
- Fire and Fuels Management;
- Special Status Wildlife, specifically incorporating updated Mojave desert tortoise information;
- ESA Section 6 Land Acquisition Grants;
- Land and Water Conservation Funds (LWCF) Lands;
- National Conservation Areas, specifically addressing the compatibility of the project with the resources, objects, and values of the Red Cliffs NCA;
- Cultural Resources and Native American Concerns, specifically addressing NHPA Section 106 compliance;
- Environmental Justice; and
- Socioeconomics.

"A detailed transportation and traffic analysis was prepared for the Final EIS to help inform the development of alternatives and to distinguish among the alternatives, especially in the NCA."

"The growth in and around the greater St. George metropolitan area since the Final EIS was published warrants an update to the traffic analysis. This analysis is underway and will be provided by the DMPO (Dixie Metropolitan Planning Organization) for inclusion in the Final SEIS, although it is not complete at the time of publication of the Draft SEIS."

When the Draft SEIS was first released for public review, this traffic analysis document was unavailable. The Council appreciates that BLM made this document available to the public as soon as it was completed and extended the public comment period so the public was given the opportunity to fully review and comment on this revised analysis.

Alternatives

Page 14 – 2.2, Zone 6 and Other Conservation Actions Associated with the Northern Corridor Changed Circumstance in the Amended Washington County HCP – "Adding Zone 6 to the Reserve represented a nearly 11% increase in the area covered by the Reserve to offset the less than 1% of critical Mojave desert tortoise habitat that would be lost (direct effects), and the approximately 3.3% of habitat that would be fragmented (indirect effects), by the Northern Corridor ROW." BLM and USFWS have selectively worded this sentence to indicate Zone 6 would be added to the Reserve. It would not be added to the NCA. The management of the Reserve is in effect for the term of the ITP, which is 25 years. When the ITP expires, the lands could be developed or the permit could be amended to allow for take. There is no requirement that a permanent conservation easement or other permanent legal designation would be placed on the SITLA lands or the BLM lands. The management of the NCA has no expiration date and was established by congressional legislation. In addition, BLM is not obligated under the ITP to manage the BLM lands in Zone 6 as directed under the HCP and ITP. ITPs are issued to and legally binding for the non-federal entities named in the ITP. BLM is a federal agency.

BLM and USFWS have worded this sentence so it ignores all the indirect and cumulative impacts of construction, use, and maintenance of the highway and that Zone 6 would only be "protected from development" for the duration of the permit, which is 25 years. It would not be protected from activities such as ROW designations or additional route designations for OHV use that bring surface disturbance, invasive plant species, and increased sources for igniting wildfires.

"Approximately one-third (2,345 acres) of Zone 6 are public lands within the Red Bluff Area of Critical Environmental Concern (ACEC; Figure 2). The BLM manages this ACEC to provide specific protections for the dwarf bear-poppy, an endangered native plant that only grows in Washington County, in highly erodible saline soils. These special protections include limiting motorized and non-motorized recreation uses to designated roads and trails…"

However, since the adoption of the ROD in 2021, BLM has allowed activities in Zone 6 that are not compatible with protecting listed species such as listed plants or the tortoise. Zone 6 is managed under the Federal Land Policy Management Act (FLPMA) that requires management of the BLM lands in Zone 6 for multiple use. It is not managed under the Omnibus Public Lands Management Act of 2009, which means it is not managed to conserve, protect, and enhance its natural and cultural resources.

Page 14 – BLM lists actions in Zone 6 to minimize and mitigate the impacts of the take of Mojave desert tortoises including:

- "Protecting additional high-density tortoise habitat in Zone 6;
- Providing $150,000 for Mojave desert tortoise passage structures (e.g., culverts) across the fenced Cottonwood Springs Road in Zone 3;
- Purchasing 450 acres of non-Federal land in Zone 6;
- Funding for Reserve administration;
- Fencing installations to prevent motorized access and enhance protections for listed plant species within Zone 6;
- Additional funding for law enforcement within the Reserve;

- Community education and outreach;
- Grazing permit acquisition and retirement;
- Additional funding to support the application of Development Protocols;
- Reduction of existing designated recreation access routes;
- Funding for recreation management activities;
- Habitat and fire management; and
- Monitoring and adaptive management planning."

However, only some or none of these activities will occur if BLM is not provided with funding in future budgets to implement these actions. The commitments in the HCP are not legally binding for BLM to implement. As mentioned above, the ITP and associated documents are only for non-federal entities. In addition, if these management actions are needed on the Red Cliffs NCA, they should have been identified and funded in the HCP by Washington County and the cities that are the ITP holders, not an agency of the federal government and taxpayers. The courts have ruled that locating mitigation for an ITP on federal government land does not provide assurances that it will minimize and mitigate take to the maximum extent practicable, which is what Section 10 of the Endangered Species Act requires.

Vegetative Communities, Including Noxious Weeds and Invasive Species

Page 22 – Affected Environment – "Mapping efforts by LANDFIRE in 2014, prior to a 2016 base layer mapping revision (Remap), show a large, almost-solid, exotic herbaceous layer (classified as introduced annual and perennial grasslands and forblands) in the middle of the Reserve covering most of the upper western half of Zone 3."

According to information provided in the Draft EIS and Draft SEIS, the three new highway alignments would be located south of this almost-solid, exotic herbaceous layer of annual vegetation and would occur in what remains of the best habitat dominated by native perennial vegetation and annual forbs and highest density of tortoises of the NCA.

"Averaged across all plots, about one-fourth of these proposed alternative alignments are dominated by native vegetation, predominantly creosote, Mormon tea (*Ephedra viridis*), blackbrush, broom snakeweed (*Gutierrezia sarothrae*), Sandberg bluegrass (*Poa secunda*), and big galleta (*Pleuraphis rigida*). Across the 46 plots surveyed, more than 73% of the foliage cover identified in the AIM (Assessment, Inventory, and Monitoring) plots was made up of five invasive plant species: cheatgrass (46%), redstem storksbill (12%), split/Mediterranean grass (6%), tall tumble mustard (5%), and red brome (4%)."

The agencies' presentation of the vegetation data in the Draft SEIS focuses on plant cover. It does not include information on density and abundance of native species. It does not, for example, provide a comparison of the density, cover, and abundance of native perennial plant species in areas not burned previously, burned once, and previously burned more than once with respect to the highway alignments. Rather it considers that an area burned once has the same results as an area burned more than once. Thus, it appears that relevant data were intentionally not included in the Draft SEIS.

The Council appreciates that BLM decided during the public comment period to release the BLM's Red Cliffs National Conservation Area Northern Corridor Project Assessment, Inventory, and Monitoring Report (AIM Report) that included the results of all data collected. BLM also extended the public comment period so the public could review this document. We thank BLM for these two actions. Our comments on the AIM Report are provided later in this letter.

Pages 23-25 – Environmental Consequences – This section focuses its discussion on invasive plants and fire. It should also focus its discussion on the direct, indirect, and cumulative impacts to existing native, vegetative communities including cover, biodiversity, structure, and species abundance especially when compared to the rest of the NCA. The SEIS should provide an analysis of these impacts from the construction of the highway (e.g., loss of vegetation, destruction of seed banks through burial or removal, soil compaction that inhibits the establishment of new plants, intentional plantings of non-native plants, transport and/or spread of non-native seed onto the construction site, etc.), use of the highway, which promotes ongoing transport and/or spread of non-native seed into the NCA, collecting and directing water from precipitation to the highway's shoulders that stimulates plant growth primarily weedy/non-native species along the highway, nitrogen deposition that encourages the growth of non-native plant species (Rao et al. 2009, Allen et al. 2009, etc.), and maintenance of the highway (e.g., loss of vegetation, destruction of seed banks through burial or removal, soil compaction that inhibits the establishment of new plants, intentional plantings of non-native plants, transport and/or spread of non-native seed onto the construction site, etc.). For example, nonnative plant species cover and richness are greater closer to roads (Boarman and Sazaki 2006), cheatgrass invades along two-track vehicle routes and, to an even greater extent, along the edges of improved and paved roadways (Gelbard and Belnap 2003). Surface disturbances and fire lead to increased soil mineralization, and this accelerates cheatgrass invasion (Young and Allen 1997).

Healthy native ecosystems provide a strong preventative defense against cheatgrass invasion (Molvar et al. 2024). Surface disturbance is a key ecological switch that transitions healthy arid ecosystems to cheatgrass invaded systems (Molvar et al. 2024). Thus, the surface disturbance from the construction and maintenance of the proposed highway and the predicted high vehicle use of the highway continually transporting seeds of invasive grasses through the Red Cliffs NCA will provide a constant source of invasive plants to the Red Cliffs NCA and provide an environment for continual re-establishment and spread. This recurring process will then fuel the high probability of recurring fire in the Red Cliffs NCA (please see "Fire and Fuels Management" below).

Unfortunately, BLM's management of the NCA and Zone 6 and the Washington County ITP look to management of reducing the occurrence of invasive plant species and ignore the establishment and management of native soil crusts, arbuscular mycorrhizal fungi (AMF) (Hernandez et al. 2023), and native perennial and annual plants species (= restoration). This lack of prioritizing restoration of native vegetation promotes the fire cycle that the agencies describe in the Draft SEIS. This lack of management for restoration of native plants at the microscopic and macroscopic levels should be reversed so this is a priority for the Red Cliff NCA and should be discussed and analyzed in the Final SEIS. Without these active restoration efforts which should be required in the ITP, it is unlikely that the NCA will regain its ecological functions and values that it had during pre-fire conditions.

Pages 23-24 – UDOT ROW Alignment, T-Bone Mesa Alignment, Southern Alignment, and Red Hills Parkway Expressway – In the Draft SEIS, BLM and USFWS report, "[b]ecause of the high prevalence of invasives already found within the alternative alignments, it is possible the site is already saturated and further disturbances would have negligible effects (Moloney et al. 2019)." This statement appears to contradict information provided in the Affected Environment section with the agencies reporting that UDWR (2020) found in previously burned areas the cover of invasive "cheatgrass and red brome increasing from 10% (at the time of revegetation) [following the first fire] to up to 95% cover" [following the second fire in 2020]. This information indicates that there can be a difference in the cover of invasive annual grasses in an area following the first and second fires. Please correct these discrepancies in the Final SEIS.

Congress's purpose in establishing the Red Cliffs NCA through the Omnibus Public Land Management Act (OPLMA) of 2009 was "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and to protect each species that is located in the National Conservation Area; and listed as a threatened or endangered species on the list of threatened species or the list of endangered species published under section 4(c)(1) of the Endangered Species Act of 1973 (16 U.S. 1533(c)(1))." Congress directed the Secretary of the Interior to "manage the National Conservation Area in a manner that conserves, protects, and enhances the resources of the National Conservation Area;" and "in accordance with … this section [of the OPLMA]. Congress also directed the Secretary to "only allow uses of the National Conservation Area that the Secretary determines would further a purpose described in subsection (a) [the Purposes section].

For each of the alternatives, the SEIS should analyze the impacts to vegetation and how the collective impacts of each alternative complies/does not comply with the purpose of establishing the Red Cliffs NCA, its management, and allowable uses.

With respect to the impacts to vegetation, once a road is constructed it collects water during precipitation events and deposits it off of the shoulder of the road. This increased amount of water promotes the growth of non-native weedy plant species near the roadway for its entire length, outcompetes native plants, provides a fuel source for fire, provides a recurring seed source of non-native seed for the seed bank near the road, and provides a nitrogen source from vehicles that promotes the growth of non-native plants. Thus, a road and its use establishes a long-term cycle that promotes the growth of invasive annual vegetation.

Because Zone 6 is not part of the NCA, any benefits derived from its management would not apply to meeting the purposes of establishing the NCA.

We found no discussion or analysis of how the construction, use, and/or maintenance of the alternatives would/would not affect vegetation communities by modifying surface hydrology and surface flow down gradient to these vegetation communities. Devitt et al. (2022) found that a simple service road built over 27 years before the solar facility was constructed, decoupled the flow of water from up gradient washes to down gradient washes and once decoupled, altered the area in which rain water harvesting occurred. The decoupling of the wash system led to a significant decline in soil moisture, canopy level NDVI (Normalized Difference Vegetation Index)

values and mid-day leaf xylem water potentials. Plants within the first 300 m from where the wash was decoupled were placed under significantly greater stress during the higher environmental demand summer months (Devitt et al. 2022). Schwinning et al. (2011) argued that the overall health of desert ecosystems is directly linked to the integrity of their surfaces and such drainage systems.

The engineers that design major roads usually focus on maintaining the integrity of the road and preventing water damage in the most cost effective manner. They do not focus on ensuring that most or all downgradient vegetation continues to receive the pre-project flow of water thus insuring that soil moisture is adequate for continued plant survival and seed germination. This alteration by constructing a long linear barrier that allows the passage of surface flows at a few discrete down-gradient locations would have a substantial impact to much of the vegetation located on the down gradient side of the highway, including tortoise critical habitat.

The consent decree did not specify updating the impacts to surface hydrology in the SEIS. However, there is an obvious linkage between surface water and soil moisture to the success of seed germination, and growth and survival of vegetation (and habitat for wildlife). When designing a highway, the engineers' focus is on ensuring that surface water does not compromise the structural integrity of a highway. Impacts to all downgradient vegetation is not a priority. These factors should persuade the agencies that revising the surface hydrology analysis to re-examine the down gradient impacts to vegetation including its impacts on tortoise critical habitat especially for providing cover/protection from predators and temperature extremes, availability of native nutritious forage required by all age classes and reproductive females ((Nagy et al. 1998, Oftedal 2002, Hazard et al. 2010, Drake et al. 2016), and adequate soil moisture for construction of cover sites should be included in this section of the Final SEIS.

Special Status Plants

Page 25, "Other threats include utility and transportation corridors, grazing, fire, mining, invasive species, pest infestations, habitat fragmentation, and climate change." Special status plants are usually threatened by collection (USFS How Are Rare Plants Conserved? https://www.fs.usda.gov/wildflowers/Rare_Plants/conservation/ accessed 2024-6-15). BLM and USFWS should add this threat to the Final SEIS.

Fire and Fuels Management

Page 29 – The agencies claim that "a linear barrier such as a roadway may function as a fuel break that may slow or stop the spread of fire depending on the size and intensity of the fire." Morrison (2007) found this assumption to be incorrect. Examination of how actual wildfires have ignited and progressed in relation to roads reveals that roads often do not serve as effective firebreaks. The access provided by roads often appears to have an insignificant effect on the ability of firefighters to control large fires. Current road systems increase risk of human-caused fire. In contrast, areas that are distant from roads have significantly less human-ignited fires (Morrison 2007).

Morrison (2007) also examined the spatial relationship of roads to wildfires and whether roads enable wildfire ignitions. He found that 88% of all wildfires nationwide are caused by humans. Of these human-caused wildfires, 95% occurred within ½ mile of a road. Human-caused wildfires occur much more commonly next to roads than would be predicted by random occurrence across the landscape. Road access is a significant contributing factor in the probability of occurrence of wildfires. These results were statistically significant.

Brooks and Matchett (2006) mapped the ignition points for fires in the Mojave Desert between 1980 and 2004. They distinguished between human-caused and lightning fires. They reported that most ignition points of human-caused fires occurred along major roadways. For example, between July 1 and 2, 2024, two vehicles travelling on separate roads caught fire and started two wildfires in southern California. Roads provide other ignition sources such as cigarettes and other burning objects tossed from a vehicle.

While roads do improve access for firefighters, those same roads provide access to careless drivers, campers, and arsonists. The great increase in human-caused wildfire ignition due to an expanded road system greatly outweighs the benefits derived from increased access for firefighters (Morrison 2007).

Page 30 – "Fire occurrence at this frequency would prevent most, if not all, recovery of the native shrub communities without active management strategies to reduce fire, reduce invasive grasses, and promote native shrub communities." This quote states the obvious. BLM and USFWS have known that wildfire is a serious threat to the tortoise and tortoise habitat in the UVRRU, the Reserve, and the Red Cliffs NCA for more than two decades. The Final SEIS should describe the actions BLM has implemented and USFWS has required in biological opinions and in the ITP to reduce fire; reduce the introduction, spread, and proliferation of invasive grasses; and to restore native plant communities using the best available science in designing and implementing these actions. Otherwise, it appears that BLM is sitting back and watching the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the Red Cliffs NCA be destroyed by fire. It also appears that the ongoing destruction of tortoise habitat in the UVRRU is not a concern of the BLM and USFWS because of the lack of action by them to implement fire prevention measures including reducing ignition sources, management to reduce non-native fuels, and native plant restoration actions.

What is not mentioned in the Draft SEIS are all the activities that promote the establishment and proliferation of invasive annual grasses. Invasive alien species are recognized as one of the five major direct drivers of change in nature along with land- and sea-use change, direct exploitation of organisms, climate change, and pollution (IPBES 2019). Nitrogen sources from vehicle pollution also contribute to the success of invasive annual grasses (Allen et al. 2009, Rao et al. 2009). Please ensure that all activities that promote the success of invasive annual plants that occur in/near the Red Cliffs NCA and Zone 6 are described and analyzed in the Final SEIS.

This section of the Draft SEIS is entitled "Fuels Management." However, we found no description or analysis of the management actions being successfully implemented to manage the fuels provided by non-native plant species. Please include this information and incorporate it into the analysis of this resource issue in the Final SEIS.

Page 32, Figure 4 – This map of Fire Perimeters in and near the Red Cliffs NCA (and Figure 4 above) show that much of the northern and central parts of Zone 3 and adjacent areas in Zone 2 have burned. The fire in Zone 3 reached the southern border of this Zone where the southern boundary of the NCA is located farthest north. The locations of the fires in these two zones appear to have destroyed vegetation in an area that cuts the Red Cliffs NCA in half and isolates the eastern part of the NCA from the western part. This loss of native vegetation needed for forage and shelter would likely impede movement of tortoises and other wildlife species from the western part of the NCA (Zones 1, 2, and southern part of Zone 3) to the eastern part, thereby limiting connectivity of tortoise populations in the NCA. Please see our comments below on connectivity under "Special Status Wildlife – Mojave Desert Tortoise."

Page 33, Figure 5 – This figure shows that most of the alignments for the four alternatives that are partially or totally within the NCA occur in areas that previously have not burned. The establishment of a new road or expansion of an existing road to provide a high volume of vehicles would greatly increase the probability of a human-caused fire in this unburned area of the Red Cliffs NCA (see Brooks and Matchett 2006). Because of the location of the alignments for the UDOT ROW, T-Bone Mesa, and Southern Alignments, the ignition point(s) of the fires(s) would likely result in burning the remaining unburned area of Zone 3. This is the largest zone in the NCA and contains the highest density/concentration of tortoises. A fire in this area of the NCA would have a substantial adverse impact on the tortoises in the NCA through the likely result of high mortality in one of the highest density areas for the species rangewide, both directly and indirectly (destruction of habitat and establishing non-native invasive grasses that do not provide adequate nutrition for survival, reproduction, and recruitment (Nagy et al. 1998; Oftedal 2002; Hazard et al. 2010, Drake et al. 2016).

Page 34 – Environmental Consequences, UDOT ROW Alignment – The agencies claim that "Zone 6 has been relatively untouched by wildfires, and the additional plant and habitat protections that are in place because of the changed circumstance would reduce unmanaged motorized and non-motorized recreational activities on and off trails on non-Federal lands in Zone 6. These protections could reduce habitat loss and degradation, reduce the spread of noxious weeds and invasive plants, and reduce the risk of wildfires in this area."

This section does not describe or analyze the management actions that are occurring on the BLM-managed portion of Zone 6 or the changes in locations and frequency of uses in this part of Zone 6 especially with respect to motorized and non-motorized recreational vehicle activities. Our understanding is that recreational vehicle use and events are increasing in occurrence in Zone 6. For example, the Utah Trust Land Administration and Washington County supported the High Desert Off-highway Vehicle (OHV) Trail southern terminus on SITLA land in Zone 6. This trail and its terminus bring thousands of OHV riders each year into Zone 6. The density of OHV activity is not compatible with managing Zone 6 to reduce the occurrence of fuels provided by invasive annual plant species or limit the ignition sources of human-caused wildfires. In addition, the agencies assume that the management prescriptions in a planning document, the Final EIS, and Habitat Conservation Plan, are being effectively implemented and are adequately funded for effective management and law enforcement to prevent the fuel sources (invasive plants) and ignition sources for fires in Zone 6. Our understanding is that BLM is overtaxed with regulatory responsibilities, understaffed and underfunded, and not able to effectively take on additional management responsibilities. Please provide an analysis of these issues in the Final SEIS.

Page 34, Environmental Consequences, T-Bone Mesa Alignment and Southern Alignment – Please see our comments above for Page 34, Environmental Consequences, UDOT ROW Alignment as they apply to these two alternatives.

Page 34, Environmental Consequences, Red Hills Parkway Expressway – "Construction of the Red Hill Parkway Expressway would result in substantially fewer impacts as this alternative would make changes to an existing multi-lane highway to make it function as an expressway."

This is the only analysis provided for the impacts of the construction, use, and maintenance of this alternative. We do not consider this an analysis of the impacts of fire and fuels management. Will ignition sources decrease of increase during the construction, use, and maintenance phases of this alternative? Will increased vehicle use and human access increase or decrease the likelihood of wildfires? What will be the impacts of a fire in this area that previously has not burned (see Figure 5 in the Draft SEIS). These questions and more should be analyzed with supporting citations in the Final SEIS and should incorporate the references that we provided on this subject of fires above.

Special Status Wildlife – Mojave Desert Tortoise

Page 35 – The agencies say, "The analysis area used for the SEIS is the same analysis area defined in the original Final EIS. This is defined as all potential and suitable Mojave desert tortoise habitat within the Reserve boundary (which includes Zone 6), regardless of landownership (i.e., the BLM, State, or Private)."

This may be the analyses that the agencies have selected for direct and indirect impacts, but for cumulative impacts, it is not appropriate as it does not comply with the Council on Environmental Quality's (CEQ 1997) guidance for analyzing cumulative effects or the USFWS's regulations for analyzing the effects of the action area for the biological assessment and biological opinion. For CEQ's requirements, please see Cumulative Impacts section in this letter below. The "action area" is defined in 50 CFR 402.2 and the USFWS Desert Tortoise Field Manual (USFWS 2009) as "all areas to be affected directly or indirectly by proposed development and not merely the immediate area involved in the action." The Final SEIS should explain the geographical extent of the direct and indirect impacts to the tortoise including tortoise habitat and connectivity habitat/linkage areas. This explanation should be supported with references from the scientific literature. Please revise the SEIS and include this information/analysis.

Page 35, Final EIS Summary – Indirect effects for the Northern Corridor were evaluated based on the number of acres and number of Mojave desert tortoises where their home ranges may be impacted because of the presence of project activities. Indirect effects, because of habitat fragmentation, were quantified using the number of acres of Mojave desert tortoise habitat located between each ROW alternative and the southern Reserve boundary."

Page 36 – "The Final EIS stated that granting a 25-year ITP to Washington County would result in the direct loss of up to 14,466 acres of occupied Mojave desert tortoise habitat and 51,835 acres of potential habitat within the ITP area. Zones 1–5 of the Reserve are mitigation for these impacts."

This is a simplistic analysis and is limited to the overall quantity of tortoises and acres of tortoise habitat impacted. It assumes that the function of tortoise habitat is uniform throughout its distribution and that all tortoises in the Reserve are a "connected" population. Unfortunately, managing the tortoise and its habitat is more complicated than adding and subtracting numbers. This analysis did not consider:

- the patchy distribution of the tortoise in its habitat (UDWR 2024);
- the tortoise's need for different habitats/areas at different times of the year and to be able to access these habitats (e.g., feeding versus, overwintering, versus egg-laying, etc.) (Esque 1994, Bury 1994, UDWR 2024) and where these habitats are located;
- the needs of the population regarding minimum size, density, and connectivity to ensure that genetic diversity is maintained throughout the population (USFWS 1994a, 2011);
- tortoises in Zones 4 and 5 are isolated from tortoises in Zones 2 and 3 by Interstate 15 (UDWR 2024) effectively creating two separates populations with respect to demographic stressors, genetic isolation, effective population size, and recovery criteria;
- the different nutritional needs of hatchling and juvenile tortoises and reproducing females (Drake et al. 2016) with respect to access to quality forage that supplies adequate nutrition for growth and egg formation;
- population size is sufficiently robust so that genetic drift does not occur (USFWS 1994a, 2011);
- edge effects from adjacent/nearby activities do not impede tortoise behavior, movement, and reproduction (Averill-Murray et al. 2021), and
- other important ecological issues.

The Reserve is divided into six management zones, Zones 1 through 5 are in the Red Cliffs NCA and Zone 6 is southwest of the NCA. The boundaries of these zones are not ecological boundaries and the zones are not equal in the habitats/life requisites they provide for the tortoise. Zone 1 is approximately 3,449 acres (13.96 km^2). However, only a small portion of it could be potentially used by tortoises. It contains a narrow strip of tortoise habitat at the base of the Red Mountains that could provide an area for movement and genetic exchange between neighboring tortoise populations within the Reserve and Shivwits Indian Reservation to the west. It is not identified by UDWR (2024) as providing feeding, sheltering, or nesting habitat for tortoises. Tortoise monitoring by UDWR is not conducted in Zone 1 due to high elevation areas in the north, where tortoises are not expected to occur, and a low-density housing development in the south that prevents sampling (UDWR 2024). Thus, only a small part of Zone 1 contains tortoise habitat and its use by tortoises remains unknown.

Zone 2, approximately 10,274 acres (41.58 km^2), extends north of the City of Ivins and east to State Highway 18, including Snow Canyon State Park and Paradise Canyon, areas with medium to high relative tortoise densities. Of this area only 4,615.93 acres (18.68 km^2) is tortoise habitat (McLuckie et al. 2024). In addition, edge effect from development including roads/highways limits the availability of this area to provide habitat that is used by tortoises (Averill-Murray et al. 2021).

Zone 3, approximately 38,659 acres (156.45 km^2), comprises the area between State Highway 18 and Interstate 15 in St. George, Utah. Of this area, 23,687.52 acres (95.86 sq km2) is tortoise habitat (McLuckie et al. 2024). Zone 3 contains the largest contiguous block of tortoise habitat, and historically included some of the highest tortoise densities in the Reserve, at up to 250 tortoises per mi^2 (Bury et al. 1994, Fridell et al. 1995a, Fridell et al. 1995b). The majority of tortoises found during the 2023 survey were in Management Zone 3. (McLuckie et al. 2024).

Zone 4, approximately 5,318 acres (21.52 km^2) is a translocation site for displaced tortoises associated with incidental take authorized by the Washington County HCP (McLuckie et al. 2024). Within Zone 4, 4,477.55 acres (18.11 sq km^2) are tortoise habitat (McLuckie et al. 2024). Translocating displaced tortoises from development in Washington County helped establish a robust population within Management Zone 4 (McLuckie et al. 2020, 2024). The tortoise population in Zone 4 is continually supplemented with tortoises translocated from development projects under the Washington County HCP. However, male translocated tortoises may not sire new tortoises (Mulder at al. 2017) for at least four years following translocation. When considering translocated male reproductive output and male genetic integration into subsequent generations of the resident population, if genetic analysis of the tortoise population in Zone 4 revealed similar results, the translocation of adult males would have greatly reduced fitness when compared to resident males. Although males may appear to survive the direct effects of translocation, they produce significantly fewer offspring. The loss of only four years already nearly doubles the reduction-rate in genetic variation and strongly increases the mean inbreeding coefficient (Mulder et al. 2017). This will reduce long-term genetic variation for this threatened species in this population (Mulder et al. 2017).

In addition, Zone 4 is on the east side of Interstate 15. This highway forms a permanent barrier and tortoises in this Zone are isolated from tortoises in Zones 2 and 3 (McLuckie et al. 2024) and Zone 6.

Zone 5, approximately 684 acres (2.77 km^2), contains areas with moderate to high relative tortoise densities. Within this zone, 593.05 acres (2.40 sq km^2) are tortoise habitat (McLuckie et al. 2024) located adjacent to the City of Hurricane. It is on the east side of Interstate 15 and isolated from Zones 1-3 and Zone 6.

Zone 6, approximately 6,813 acres (27.57 km^2), is located in southwest St. George. It is not geographically connected to Zones 1, 2, 3, 4, or 5 and not part of the Red Cliffs NCA.

The USFWS (1994a, b, 2011) discussed and stressed the importance of connectivity and linkages between populations and within TCAs. The Red Cliffs NCA is a TCA. Averill-Murray et al. (2021) emphasized that "[m]aintaining an ecological network for the Mojave desert tortoise, with a system of core habitats (TCAs) connected by linkages, is necessary to support demographically viable populations and long-term gene flow *within* [emphasis added] and between TCAs." CEQ (2023) issued "Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors." The purpose of this document is for federal agencies to consider "how their actions can support the management, long-term conservation, enhancement, protection, and restoration of year-round habitat, seasonal habitat, stopover habitat, wildlife corridors, watersheds, and other landscape/waterscape/seascape features and processes that promote connectivity." CEQ applies this guidance to the following areas:

- Agency planning and decision-making
- Science and data
- Collaboration and coordination.

CEQ identified the focal area of transportation planning and use management where connectivity and corridors should be considered early in planning, funding, and decision-making.

In addition, CEQ identified best practices that should be incorporated into planning and decision-making, gathering baseline information to assess public lands for connectivity and corridor values, using science and data to develop performance measures and metrics to assess whether and how Federal agencies collectively are promoting greater connectivity across terrestrial habitats.

For the second bullet, science and data, CEQ says. "Federal agencies should address how the best available science and data will inform planning and decision-making, and consider approaches to identify and address gaps in available science and data." CEQ describes the types of science and data to be used and the sharing of science and data.

For the third bullet, collaboration and coordination, federal agencies "should support strategic collaborations and partnerships to advance work on connectivity and corridors," and "should promote both intra- and interagency coordination and collaboration, to ensure that planning and information regarding connectivity and corridor efforts are not siloed within individual agencies or within distinct programs within a single agency."

Because CEQ has identified transportation planning and use management as a focal area where connectivity and corridors should be considered early in planning, funding, and decision-making, and because these areas are what the agencies are undertaking in their planning, funding, and decision-making in this Draft SEIS, we request that the agencies explain in the Final SEIS how they are complying with this CEQ guidance. Please explain how all the alternatives would comply with the purpose and objective of this guidance including enabling "wildlife to adapt to fluctuating environmental conditions, including those caused by climate change." In addition, the Final SEIS should demonstrate how the agencies are implementing "consistent Federal action on connectivity and corridors" with other federal agencies in agency planning and decision-making, science and data, and collaboration and coordination.

Page 39 – The agencies make the following claim, "Zone 6 is separated from the other zones and would serve as a refuge population that may be less prone to the threats of fire and weeds and may help provide for the long-term protection of tortoises." The agencies make this statement but provide no information or references to support this conclusion. For example, BLM does not manage Zone 6 as a reserve for the tortoise even though they say it is part of the Reserve established and managed under the HCP. Calling an area a reserve is not the same as managing it as a reserve for the tortoise.

According to the USFWS, an intensive level of management is needed to sustain a population of the tortoise and a small area of habitat from the numerous threats to the tortoise (USFWS 1994a, b). Zones 6 is not part of the NCA and does not have the same management mandate as for lands within the NCA, that is to "conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and to protect each species that is located in the National Conservation Area; and listed as a threatened or endangered species on the list of threatened species." The Council understands that BLM permits events and group activities in Zone 6 that result in ongoing and increasing surface disturbance and motorized and

non-motorized OHV use that introduces, spreads, and proliferates invasive plants, a fuel source for fires, and increased ignition sources for human-caused fires. Further, BLM may at any time amend the RMP that include Zone 6 to allow additional activities that increase surface disturbance and/or introduce, spread, and/or proliferate invasive plant species and ignition sources.

A wildlife reserve is an area "administered for the protection and conservation of fish and wildlife" (online definition). Until BLM intensively manages the small tortoise population in Zone 6 as a reserve for the tortoise (USFWS 1994a, b), it is subject to the same threats as the NCA and additional threats because BLM is not directed to manage Zone 6 to "conserve, protect, and enhance" the tortoise and other resources. Rather, BLM is directed to manage Zone 6 under FLPMA for multiple use.

In addition, the size of the population of tortoises in Zone 6, the management of this area, and the management of lands adjacent to Zone 6 especially to the north and east make it an isolated area that is smaller than Zones 2 and 3 in the NCA and isolated from Zones 4 and 5. Its small geographic area, current or soon-to-be isolation from the NCA because of renewal of the ITP and permitted development throughout Washington County, and small tortoise population size make it vulnerable to genetic, demographic, and environmental stochastic events such as inbreeding depression, genetic drift, mortality and recruitment, droughts, wildfires, and other catastrophes that may affect population size and spatial distribution (Levin 2013).

The agencies provided analysis and conclusions in the Environmental Consequences sections of the Draft SEIS. However, we were unable to find references from the scientific literature that supported these actions. In the regulations for implementing the National Environmental Policy Act (NEPA), CEQ requires using science in the preparation and analysis of NEPA documents and in decisionmaking (e.g., 40 Code of Federal Regulations (CFR) 1500.1(b), 40 CFR 1502.22(b), 40 CFR 1502.24 and 40 CFR 1507(2)(a). Please include results from the scientific literature and their citations in the analysis of impacts and conclusions in the Environmental Consequences sections of the Final SEIS.

Pages 39-41 – Desert Tortoise Mortality Surveys from 2020 Fires – In this section, the agencies describe the results of surveys for direct mortality and injury to tortoise from wildfires. However, we found no data, discussion, or analysis of indirect mortality from the wildfires (e.g., loss of cover facilitating increased predation, loss of forage with adequate nutrition (Drake et al. 2016). Please add a discussion and analysis in the Final SEIS of the indirect impacts from wildfires on tortoise survival/mortality for all size classes.

Pages 39-40 – "Biannual tortoise population monitoring between 2006 and 2019 indicated the tortoise population had not recovered to pre-2005 population levels." These data indicate that the indirect mortality from the wildfires was much greater than the direct mortality. The agencies should discuss what these data mean for the future survival, recruitment, and recovery of the tortoise in the NCA. Because the Red Cliffs NCA is being managed at a higher level of conservation (as mandated by the OPLMA of 2009) than Zone 6, which is managed at the level BLM determines through its RMP amendment process under FLPMA, one conclusion is that when a wildfire occurs in Zone 6, the ability of the tortoise population to recover from the direct and indirect impacts of this habitat destruction and degradation would likely be less than in the NCA.

Page 41 – "Changes in vegetative cover from native shrublands to invasive and non-native plants have an effect on food availability, food nutrition, shelter and thermal landscape environments for Mojave desert tortoise." No references are provided to support this statement. In addition, we request that this sentence be modified to say the "Changes in vegetative cover from native shrublands to invasive and non-native plants have an adverse effect on food availability, food nutrition, shelter and thermal landscape environments for Mojave desert tortoise" and add "cover and protection from predators, and soil moisture and temperature for nest construction and egg incubation."

Th sex of incubating tortoise embryos in nests is determined by temperature, with higher temperatures producing female tortoises (Spotila et al. 1994). Consequently, the long-term loss/reduction of perennial plant cover and reduced soil moisture in the NCA would result in higher temperatures in tortoise nests in these locations. This change would likely affect the sex ratio of tortoises recruited into the population in the NCA, because it favors the development of female tortoises rather than males. In addition, climate change exacerbates this higher temperature condition in tortoise nests. This is discussed on page 45 under "Desert Tortoise and Climate" but it should be discussed and analyzed in this section on "Desert Tortoise Mortality Surveys From 2020 Fires."

This information supports the importance of maintaining areas not previously burned in the NCA or burned only once. According to the data provide in the Draft SEIS, areas in the NCA that have burned only once retain much of their native perennial vegetation/shrubs. The areas in the NCA that have not burned or burned only once include much of the UDOT ROW, T-Bone Mesa, and Southern alignments. Thus, if BLM desires to protect the tortoise population in the NCA for the "the benefit and enjoyment of present and future generations," the remaining areas in the NCA that have not burned or been severely damaged by wildfire should be left undisturbed and managed to retain native vegetation.

In addition, these factors point to the importance of restoring native vegetation in areas previously disturbed/destroyed by fire or other threats.

Page 46 – "Zones 2 through 5 of the Reserve support a relatively high number (2,779) and density (20.1/km2) of tortoises, consistent with previous estimates from pedestrian line-transect surveys. Drone surveys in Zone 3 estimated a density of 12.8 tortoises/km^2 (95% confidence interval [CI]: 8.2 to 19.8) and an abundance of 1,223 adult tortoises (95% CI: 790 to 1898; Washington County 2023a)."

This statement about a high number is misleading. The density may be higher than the current density of tortoise populations in other recovery units but it is not high when compared to density and numbers prior to the 2005 fire season or when the Reserve was established in 1996. USFWS (1994b) reported small areas of the Red Cliffs DWMA contain more than 250 adult desert tortoises per square mile (Fridell and Coffeen 1993). At the City Creek study plot, 243 desert tortoises were marked in 1988, of which 163 were adults or subadults (Rick Fridell, Utah Division of Wildlife Resources, pers. comm. 1993). Thus, tortoise densities and numbers have declined substantially since the late 1980s and mid-1990s in the red Cliffs NCA.

In 2019, the Red Cliffs NCA had an estimated population size of 2,011 adult tortoises in Management Zones 2, 3, and 5 with tortoise densities of 17.2 per km^2 (McLuckie et al. 2020). A majority of the tortoises were located in Zone 3. Zone 4 is not included because it is the recipient site for tortoises translocated from development in other parts of Washington County. Zone 1 is not included because no surveys were conducted in this small, narrow area of tortoise habitat. In 2023, the estimated population size was 2,425 tortoises with a density of 20.7 per km^2 (McLuckie et al. 2024).

Currently, the NCA has a population size that is 24 percent of the *minimum* (emphasis added) recommended population size of 10,000 adult tortoises (USFWS 1994a, b) in a tortoise reserve. The Red Cliffs NCA has about 38,787 acres (7.35 mi^2) of tortoise habitat (Washington County Commission 1995) or less than 4 percent of the minimum size (200 mi^2) recommended for a tortoise reserve (USFWS 1994a, b). The agencies should clarify this statement in the Final SEIS, explain what is needed to meet recovery criteria in the UVRRU, and analyze how the implementation of each alternative would affect the future population size and density of the tortoise in the NCA especially Zone 3 and affect recovery of this population an UVRRU.

Page 49 – Desert Tortoises in Zone 6 – "Zone 6 represents a large and contiguous block of habitat in Washington County and protects the largest known sub-population of tortoises that would otherwise be subject to take on non-Federal lands under the Amended HCP ITP."

Zone 6 is not being managed to protect tortoises. Although some anthropogenic activities that are threats to the tortoise have been excluded from the BLM portion of Zone 6, others remain and their density/frequency of use are increasing. In addition, the Utah Trust Land Administration does not have the authority to permanently protect state institution and trust lands (SITLA) that it manages. Their mandate is to generate revenue for public schools and other important state institutions. Consequently, there is no legal protection to prevent these lands from being sold for development. In addition, the Utah Trust Land Administration and Washington County supported the High Desert Off-highway Vehicle (OHV) Trail southern terminus on SITLA land in Zone 6. This trail and its terminus bring thousands of OHV riders each year into Zone 6. The density of OHV activity is not compatible with tortoise conservation or recovery (USFWS 1994a, b). The Utah Trust Land Administration does not have a legal or regulatory conservation mandate. Please correct and revise this information in the Final SEIS and provide citations form the Utah Trust Land Administration.

Page 50 – "The establishment of Zone 6 provided conservation benefits to the desert tortoise and increased the existing acreage of the Reserve by approximately 11%. The addition of Zone 6 to the Reserve provides additional protection to approximately 736 adult desert tortoises and 6,813 acres of habitat (both Federal and non-Federal; Table 8). Habitat in Zone 6 has not been impacted by fires in the recent past and is separated from the other zones geographically. As such, Zone 6 may serve as a refuge population less prone to the threats of weeds, fire, and disease and may therefore preserve genetic and behavioral representation through habitat corridors connecting analytical units and recovery units. The protection of this additional habitat may increase the viability of desert tortoises by increasing the number of tortoises living within protected habitat and providing increased resiliency and redundancy against the cumulative threats they face in the UVRRU (FWS 2021c)."

This paragraph is misleading. Although the establishment of Zone 6 would increase the acreage in the Reserve, it would not increase the acreage in the NCA. Lands in the NCA are managed "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and to protect each species that is located in the National Conservation Area; and listed as a threatened or endangered species." (Omnibus Public Land Management Act of 2009). BLM lands in Zone 6 are managed under FLPMA for multiple use.

In addition, Zone 6 is located several miles from the NCA. There is no management provision to include the management and maintenance of linkage habitat (if it still exists) to provide connectivity between the tortoise population in the NCA and the much smaller population in Zone 6. Without functional linkage habitat for the tortoise between Zone 6 and the NCA, there is a high probability that this smaller tortoise population is more likely to suffer from the adverse impacts of genetic, environmental, and stochastic events and not persist as long as tortoises in the NCA. It does not meet the connectivity needs of the tortoise for survival and recovery that are described by Averill-Murray et al. (2021).

This likelihood is enhanced by BLM allowing activities in Zone 6 that are not compatible with managing a tortoise population and tortoise habitat for the long term. For example, Washington County Utah Trust Land Administration are promoting increased recreational uses in Zone 6 (including the southern terminus of the High Desert OHV trail). As previously described, increased OHV activity would result in numerous adverse impacts to the tortoise and tortoise habitat including increasing the likelihood of spreading and proliferating invasive plants (e.g., *Bromus* species) that outcompete native plants, reducing the availability of native nutritional forage for tortoises, providing increased ignition sources for wildfires, and with the establishment of annual invasive plants, providing a continuous carpet of fuel to carry a fire of increased size and intensity, thus destroying or severely degrading tortoise habitat and killing/injuring tortoises. Thus, current management of Zone 6 is not protected habitat for the tortoise.

Future plans for this area include construction of the Western Corridor Highway along the west edge of Zone 6 and new utility corridors in Zone 6. The Western Corridor Highway route is adjacent to the western boundary of Zone 6. The proposed Western Corridor Highway would result in numerous direct and indirect impacts to the tortoise, including death and injury to tortoises, loss/degradation of occupied tortoise habitat, loss of habitat connectivity (including between the UVRRU and Northeastern Mojave Recovery Unit), increased roadkill resulting in food subsidies for tortoise predators (e.g., common raven, coyote) (Kristan et al. 2010, Kelly et al. 2021) and associated increased predation on tortoises, avoidance of tortoise habitat near roads (Harju et al. 2024), shrinking the useable size of Zone 6 used by tortoises, spread of non-native invasive annual plants reducing availability of food and cover for tortoises, providing a continuous carpet of dried fuel to carry fires, and increased ignition sources for fires. In summary, the impacts to Zone 6 from the Western Corridor Highway would be similar to those impacts to the NCA from the alternatives proposed for the Northern Corridor except the impacts would likely be greater because of the smaller population size and area of habitat.

Please revise the above paragraph and correct the information in the Final SEIS.

Page 51 – Environmental Consequences – "Total adult tortoises impacted by indirect effects include all Reserve lands within the 508-meter buffer (or 300-foot buffer of a previously established roadway) to the north of each alternative ROW, and any additional fragmented habitat south of each ROW (the 508-meter buffer is the generally accepted annual home range area of adult desert tortoises)."

Please see our comment below in "Endangered Species Act Section 6 Land Acquisition Grants" for a discussion on why annual home range should not be used to calculate a buffer or aerial extent of impacts.

In addition, the agencies are providing data on adult tortoises that are likely to be impacted (also see Table 9.). The Final SEIS should provide information on the total number of tortoises that are likely to be impacted from implementation of each alternative and describe the methodology used to determine the total number.

Page 57 – UDOT ROW Alignment – This section of the Draft SEIS briefly describes a few of the impacts from implementation of this alternative. In addition to these impacts, other impacts would occur. One impact not described or analyzed in the Draft SEIS is a change in behavior by tortoises that affects energy expenditure. Harju et al. (2024) reported that when females were nearer to a highway, they were more likely to switch to and stay within a more energy demanding movement state. Further, when in this state, they moved even greater distances than when in traveling states far from the highway.

Harju et al. (2024) reported that vehicle use on highways causes female tortoises near the highway to expend considerably more energy with consequent water loss than they otherwise would (i.e., by pushing them into the energy-demanding movement state). This is likely detrimental to female tortoise survival near the highway, as increased movements drive female tortoises into water-limited conditions known to dramatically reduce survival, and because increased activity aboveground increases predation risk (Longshore et al. 2003, Lovich et al. 2023). This impact could also provide a partial explanation for previously noted road effect zones for the Mojave desert tortoise, whereby reduced density and lack of mature adults is not necessarily solely a function of historic direct mortality (Nafus et al. 2013).

Harju et al. (2024) found exclusionary fencing can reduce direct mortality of tortoises on roads, but indirect negative road impacts remain. Other research has tracked free-moving Mojave desert tortoise behavior of avoidance of roads or altered movement near roads (Hromada et al. 2020, Hromada et al. 2023, Peaden et al. 2017). Harju et al. (2024) reported that "the negative impact of the highway on female movement can reduce connectivity by expanding the road effect beyond the fence, depressing local populations and thus functioning as a wider fragmentation barrier."

Road-related threats contributed ~22% of the total impacts to the Mojave desert tortoise in an aspatial conceptual model of risk to the species, not including effects of population fragmentation (Darst et al. 2013, Averill-Murray and Allison 2023). Please include this information in the analysis of the impacts of all highway alignments in/near the NCA in the Final SEIS.

Page 60 – Red Hills Parkway Expressway – The Red Hills Parkway Expressway Alternative proposes changes to the Red Hills Parkway. Under this alternative, UDOT would no longer hold the ROW grant for the Northern Corridor and no new road would be built in the NCA. There would be no direct or indirect impacts on any of the new Section 6 parcels under this alternative because they all are more than 1 kilometer in distance from this alternative. Under this alternative, the new parcels would retain their conservation value and continue to serve their intended purpose and there would not be any additional impacts to Section 6 lands beyond those described in the Final EIS.

Please see our comment below under "Endangered Species Act Section 6 Land Acquisition Grants" for comments on the absence of science in selecting 1 km as a distance beyond which direct and indirect impacts from the highway no longer occur.

Page 61 – The agencies say, "The BLM is unaware of any express statutory or regulatory provision prohibiting the issuance of a ROW over portions of NCA lands." The Council argues that language in the RMP (BLM 2016) provides this prohibition as BLM committed to implement the following management action:

- authorize new ROWs only when the project specific NEPA analysis indicates that the construction and operation of the facility would not result in the take of federally-listed species.

We assert that the UDOT ROW, T-Bone Mesa, and Southern alignments are new ROWs that did not exist when the NCA was established and their granting would result in take of the federally threatened Mojave desert tortoise, consequently these alignments cannot be authorized by BLM in the context of the RMP. Of course, one of the major weaknesses of a RMP is that it can be amended at any time by BLM. Apparently, that is what BLM is doing now, reneging on its management commitment even when there is more biological (i.e., ecological, demographic, habitat, connectivity, spatial arrangement, etc.) data that demonstrates that issuance of a highway ROW in the Red Cliffs NCA will have severe detrimental impacts on the tortoise population in the NCA/TCA, prevent the tortoise from achieving recovery criteria in the UVRRU, and prevent the recovery of the tortoise even though there are viable alternatives to granting a ROW in the NCA.

Endangered Species Act Section 6 Land Acquisition Grants

Pages 55-56 – Since the release of the Final EIS, the USFWS awarded one Section 6 HCP land acquisition grant to the UDWR and three new Section 6 private land parcels have been purchased within the Reserve using this federal grant. These three parcels are within or adjacent to the T-Bone Mesa Alignment. The Draft SEIS does not provide the date when the grant was awarded, so we do not know whether it was before the Record of Decision for the UDOT ROW Alignment and the issuance of the ITP or after. This information is crucial to determine whether the application for and the award of the grant occurred before or after the NEPA decision. Please provide information on the date of the grant application for these parcels and the date the grant was awarded so this can be compared to the date of the ROD in the Final SEIS.

Page 57 – The agencies established criteria determining whether the impacts from the highway ROW would directly impact tortoises, indirectly impact tortoises, and indirectly impact other wildlife. These criteria are:

- Portions of Section 6 lands within ROWs of the Northern Corridor alternatives would result in a direct loss of habitat to Mojave desert tortoise and other wildlife species.
- Portions of Section 6 lands within 508 meters of the proposed ROWs would result in indirect impacts to Mojave desert tortoise from disturbance.
- Portions of Section 6 lands within 1 kilometer of the proposed ROWs would result in indirect impacts to special status and general wildlife species because of habitat degradation.

The agencies stated that "[c]onsideration of degradation in conservation value takes into account potential impacts to Mojave desert tortoise and other special status wildlife, general wildlife, and wildlife viewing opportunities for the public as follows." Later in the Draft SEIS, we found that the agencies used the 508-meter buffer because it is "the generally accepted annual home range area of adult desert tortoises." We found no references from the scientific literature that support these distances or the term "generally accepted annual home range of adult desert tortoises."

Using the annual home range area for adult tortoises is inappropriate for a species that can live for several decades. During its life, a tortoise will modify its home range as the ecological conditions of the home range change. Mojave desert tortoises use behavioral plasticity as a way to adapt to variable resource pulses (e.g., ephemeral food plants) and costs (e.g., drought) (Harju et al. 2024). For example, tortoises spend more time belowground and move considerably less during drought years to minimize water loss (Duda et al. 1999). Consequently, in years with higher than average precipitation, the home range of a tortoise is usually larger than in years with below average precipitation (Duda et al. 1999, Franks et al. 2011). Using an annual home range would not include the indirect impacts to tortoises in years with above average precipitation. It would not provide a high level of probability for predicting the impacts to the section 6 conservation lands or the tortoise.

Using a lifetime home range is more appropriate to include the variation in ecological conditions such as precipitation, surface disturbance, availability of nutritional forage, availability of cover sites, etc. that occur during a period of several years or longer. A lifetime home range reflects the area used by a tortoise during its lifetime, not calculated from observations of a few years. The lifetime home range for the Mojave desert tortoise is more than 1.5 square miles (3.9 square kilometers) of habitat (Berry 1986). In addition, tortoises may make periodic forays of more than 7 miles (11 kilometers) at a time (Berry 1986).

We request that the Final SEIS not use annual home range because it is not representative of the environmental variability in the UVRRU. Rather the SEIS should be revised to use lifetime home range calculations for the tortoise to ensure a high degree of probability in its analysis of impacts to ESA Section 6 Land Acquisition Grants, and that the analysis in the Environmental Consequences section for the alignments be revised to reflect this.

Land and Water Conservation Fund (LWCF) Lands

Page 64 – The agencies report the following, "The UDOT ROW Alignment would directly encumber a portion of two of the new LWCF parcels. The T-Bone Mesa Alignment Alternative would directly encumber a portion of one of the new LWCF parcels. The Southern Alignment Alternative would directly encumber a portion of two of the new LWCF parcels."

The Council asks why federal funds earmarked for purchasing lands for conservation purposes were used to purchase private lands for construction of a highway. This use of LWCF monies should be explained in the Final SEIS especially when the agencies had already identified these three highway alignments in the Draft and Final EISs including a preferred alignment. This spending and the absence of an explanation gives the appearance of a lack of transparency at best and possible illegal activity.

These new LWCF parcels were purchased after the FEIS was issued. Please see our comments above under pages 55 and 56 as this question applies to the acquisition of these new parcels.

National Conservation Area

Pages 66 and 67 – Supplemental Analysis **–** BLM provides sections from BLM Manual 6220, Section 1.6, which describes specific direction for Compatibility of Uses (Section C) and Rights-of-way and Transportation and Utility Corridors (Section E). The Council asserts that the information and direction in BLM Manual 6220 does not fully comply with the OPLMA of 2009. Its discussion is limited to protection. In the section 1974 of the OPLMA of 2009 of the Red Cliffs National Conservation Area. Congress directed the Secretary of the Interior as follows:

(a) PURPOSES.—The purposes of this section are—
(1) to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the National Conservation Area; and
(2) to protect each species that is—
(A) located in the National Conservation Area; and
(B) listed as a threatened or endangered species on the list of threatened species or the list of endangered species published under section 4(c)(1) of the Endangered Species Act of 1973 (16 U.S. 1533(c)(1)).

(e) MANAGEMENT.—
(1) IN GENERAL.—The Secretary [of the Interior] shall manage the National Conservation Area—
(A) in a manner that conserves, protects, and enhances the resources of the National Conservation Area; and
(B) in accordance with—
(i) the Federal Land Policy and Management Act of 1976 (FLPMA) (43 U.S. 1701 et seq.);
(ii) this section [of the OPLMA]; and
(iii) any other applicable law (including regulations).

(2) USES.—The Secretary shall only allow uses of the National Conservation Area that the Secretary determines would further a purpose described in subsection (a).

The Council asserts that BLM is ignoring Congress's direction to *conserve and enhance* [emphasis added] the named resources in the NCA, specifically the ecological, wildlife, natural, and scientific resources, for the benefit and enjoyment of present and *future generations*. Further, it is defaulting on its management of the NCA to comply with legislation it is more familiar with, the FLPMA, which is legislation that directs management of land for multiple use. It is less restrictive in allowing development and multiple land uses, compared to the OPLMA of 2009, which promotes conservation and enhancement of natural and cultural resources and is more restrictive in allowing development and multiple uses. When tasked with choosing between managing the NCA lands under FLPMA or OPLMA of 2009, BLM should default to the more restrictive legislation, OPLMA of 2009.

The BLM Manual appears to be structured to allow development in NCA lands whenever possible. In addition, it does not require using the best available scientific information to determine whether a proposed use would further the purposes of the OPLMA of 2009. CEQ's regulations for implementing NEPA do not allow for agencies to ignore science and relevant scientific data.

Under BLM Manual 6220 on Rights-of-way and Transportation and Utility Corridors
(2) When processing a new ROW application, to the greatest extent possible, through the NEPA process, the BLM will:
a. determine consistency of the ROW with the Monument or NCA's objects and values;
b. consider routing or siting the ROW outside of the Monument or NCA.

This language allows latitude to BLM that is greater than the management and uses directed in the OPLMA of 2009. It limits BLM's consideration to only the Monument and NCA's objects and values. Objects are named when a Monument is established by presidential proclamation. No values are named in the OPLMA of 2009. Rather resources are named in the OPLMA of 2009. BLM's Manual 6220 should be revised to reflect the specific wording in the statute and not BLM's interpretation of what Congress meant. We assert that when BLM implements the specific wording in OPLMA of 2009, BLM cannot grant a ROW for a highway in the Red Cliffs NCA.

This assertion is supported by the voluminous scientific research that describes and analyzes the direct, indirect, and cumulative impacts of the construction, use, and maintenance of roads on wildlife and ecological resources, and specifically the tortoise. Road ecology is a scientific discipline.

The impacts of road use are extensive and far reaching. Road construction, use and maintenance impacts wildlife through numerous mechanisms that can include mortality from vehicle collisions, and loss, fragmentation, alteration/destruction of habitat, collection, vandalism, increased predation, and modification of behavior. Field studies (LaRue 1992; Nafus et al. 2013; von Seckendorff Hoff and Marlow 2002) have shown impact zones from road use eliminate or substantially reduce tortoise numbers along/near roadways. These impacts are attributed to road kill with roads acting as a population sinks for tortoises.

Nafus et al. (2013) state that the ecologically affected areas along roads, otherwise known as "road-effect zones," are those in which a change in wildlife abundance, demography, or behavior is observed. Von Seckendorff Hoff and Marlow (2002) reported that they detected reductions in tortoise numbers and sign from infrequent use of roadways to major highways with heavy use. There was a linear relationship between traffic level and reduction. For two graded, unpaved roads, the reduction in tortoises and sign was evident 1.1 to 1.4 km (3,620 to 4,608 feet = 0.68 to 0.87 mile) from the road. For roads with more than 5,000 vehicles per day, the reduction was evident more than 4,000 meters (13,166 feet = 2.49 miles) from the road. They noted that the installation of exclusion fences and other barriers along roadways help reduce direct tortoise mortalities. However, exclusion fencing needs to be monitored and maintained. It also fragments populations of tortoise and other wildlife.

Nafus et al. (2013) reported that roads may decrease tortoise populations via several possible mechanisms, including cumulative mortality from vehicle collisions and reduced population growth rates from the loss of larger reproductive animals. Other documented impacts from road construction, use, and maintenance include increases in roadkill of wildlife species as well as tortoises, creating or increasing food subsidies for common ravens, and contributing to increases in raven numbers and predation pressure on the desert tortoise. Averill-Murray and Allison (2023) provide a case study on the Mojave desert tortoise from the impacts of road use and stress identifying the entire travel network within management areas and setting limits for road density with lower road densities in areas with greater tortoise numbers. This analysis was not conducted in the Draft SEIS. We strongly recommend that the Final SEIS be revised to analyze the entire travel network with the tortoise management area and analyzing the impacts of road densities.

The Council asserts that because of the numerous direct, indirect, and cumulative impacts from road construction, use, and maintenance, with only some of the impacts mentioned here, a high-use highway in the Red Cliffs NCA will not conserve, protect, and enhance the ecological, scenic, wildlife, recreational, cultural, historical, natural, educational, and scientific resources of the NCA. There is abundant scientific research on the direct, indirect, and cumulative impacts of road use. The agencies should examine all of this research and compare it to the purposes, management, and uses in the OPLMA of 2009 before making a decision.

Page 67 – BLM says, "Prior to any new decision on the ROW application, BLM agrees to make a compatibility determination to ensure that the decision is compatible with law, regulation, and policy for a National Conservation Area, consistent with the Omnibus Public Lands Management Act, the Federal Land Policy and Management Act, and those version of BLM Manual 6220 and BLM's National Monument, National Conservation Areas, and Similar Designations Compatibility Analysis Framework in effect at the time of the decision. Therefore, a formal compatibility framework analysis will be completed for this project once the analysis for the SEIS is complete and a preferred alternative is identified."

The Council asserts that BLM should have included this compatibility determination in the Draft SEIS so the public could review and comment on its adequacy. As mentioned above, we contend that the BLM Manual 6220 has selectively interpreted the clear direction of the OPLMA of 2009. Rather than interpreting this statute and rewording it in the Manual, BLM should adopt the wording from the statute into its Manual and implement this wording.

Page 66 – "A compatibility determination is made by the authorized official, and any early determinations may be pre-decisional and jeopardize the integrity of this SEIS process. Therefore, the compatibility determination will be documented in the ROD for the SEIS."

The Council disagrees with this statement. Federal agencies including BLM make pre-decisional determinations in Draft NEPA documents when they identify a preferred alternative or provide a draft decision document for the public to review (e.g., draft Finding of No Significant Impact), which BLM does routinely. Failure to provide these draft documents during the public review period gives the public the impression that BLM is hiding information and substantially limiting the public's time and opportunity to comment on these documents. One important purpose of a Draft EIS is to provide the public with all the relevant information that the lead agency is aware of so the public can review and comment on it and assist the lead agency in modifying and selecting an alternative that minimizes the adverse impacts on the environment. Not providing a draft compatibility determination with the draft NEPA document does not allow this collaborative process to occur.

The Council strongly requests that BLM reissue the Draft SEIS with a draft compatibility determination. This would ensure transparency in providing relevant and important information to the public.

This section did not discuss Section 1977 of the OPLMA of 2009. In this section of the statute, Congress directed that a Washington County travel and transportation management plan be prepared:

(1) IN GENERAL
  (A) to provide to the public a clearly marked network of roads and trails with signs and maps to promote—
    (i) public safety and awareness; and
    (ii) enhanced recreation and general access opportunities;
  (B) to help reduce in the County growing conflicts arising from interactions between—
    (i) motorized recreation; and
    (ii) the important resource values of public land;
  (C) to promote citizen-based opportunities for—
    (i) the monitoring and stewardship of the trail; and
    (ii) trail system management; and
  (D) to support law enforcement officials in promoting—
    (i) compliance with off-highway vehicle laws (including regulations); and
    (ii) effective deterrents of abuses of public land.
(2) SCOPE; CONTENTS.—In developing the travel management plan, the Secretary shall—
  (A) in consultation with appropriate Federal agencies, State, Tribal, and local governmental entities (including the County and St. George City, Utah), and the public, identify 1 or more alternatives for a northern transportation route in the County;

Section 1 requires identifying one or more alternatives for a northern transportation route in the county. It does not specify where the alternative(s) would be located nor does it require the selection/approval of a northern transportation route. This latter point is especially important

because locating a highway in the NCA would violate the purpose, management, and uses that Congress directed be implemented in Section 1974 of the OPLMA of 2009. The SEIS should include a discussion and analysis of this section of the OPLMA of 2009 under the NCA resource issue. Please include this discussion and analysis in this section of the Final SEIS.

This section of the Draft SEIS did not discuss the commitments BLM made in the RMP for the Red Cliffs NCA (BLM 2016). These commitments included a goal and objectives:

> BLM stated its goal for the tortoise in the NCA is to "make measurable progress toward meeting the recovery goals, objectives, and identified criteria for *viable populations* [emphasis added] established by Recovery Plan for the Mojave Desert Tortoise (USFWS 1994a, b) and the Revised Recovery Plan for the Mojave Desert Tortoise (USFWS 2011)."
>
> BLM identified several objectives to achieve this goal including:
> - Land uses and authorized activities are managed to conserve, protect, and restore habitats to meet the nutritional, metabolic (shade/cover), reproductive, and home range requirements of viable Mojave desert tortoise populations.
> - Ecologically intact core areas of designated critical habitat are conserved and protected from fragmentation and loss of native vegetation communities, through appropriate land use allocations and management actions across BLM programs.
> - Ecological integrity of damage native vegetation communities is restored through appropriate re-vegetation methods and the control and eradication of noxious weeds and non-native invasive species.
> - Land uses and authorized activities are managed so that habitats provide ecological diversity and connectivity to create genetic resilience for Mojave desert tortoise populations under changing climatic conditions.
> - Research is supported that increases the knowledge of Mojave desert tortoise life histories and population dynamics in the NCA.
> - Research is supported that increases the understanding of ecosystem processes, natural cycles, and anthropogenic factors that may influence predicted climate change scenarios."

BLM should describe and analyze in the Final SEIS the management actions it has implemented to achieve the goal and objectives since the FEIS was issued, the progress that has been made in achieving the goal and objectives, and how the implementation of each alternative would impact achieving the goal and objectives. The Council requests that BLM include this information and analysis in the Final SEIS.

Under "Land and Realty" in the RMP, BLM (2016) identified several management actions including "authorize new ROWs only when the project specific NEPA analysis indicates that the construction and operation of the facility would not result in the take of federally-listed species."

BLM should explain in the Final SEIS how granting a ROW for any of the proposed highway alignments in the NCA would not result in take of a federally-listed species including the tortoise.

Cumulative Impacts

In the cumulative effects analysis of the SEIS, please ensure that the CEQ "Considering Cumulative Effects under the National Environmental Policy Act" (1997) is followed, including the eight principles, when analyzing cumulative effects of the proposed action to the affected resource issues. This CEQ document is referred to in BLM's National Environmental Policy Act Handbook (BLM 2008b).

CEQ states, "Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects." The analysis "must describe the response of the resource to this environmental change." Cumulative impact analysis should "address the sustainability of resources, ecosystems, and human communities."

CEQs guidance on how to analyze cumulative environmental consequences, which contains eight principles listed below:

1. Cumulative effects are caused by the aggregate of past, present, and reasonable future actions.
The effects of a proposed action on a given resource, ecosystem, and human community, include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to the effects (past, present, and future) caused by all other actions that affect the same resource.

2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.
Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effect at one time. The additional effects contributed by actions unrelated to the proposed action must be included in the analysis of cumulative effects.

3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.
Environmental effects are often evaluated from the perspective of the proposed action. Analyzing cumulative effects requires focusing on the resources, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.

4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.
For cumulative effects analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to the affected parties.

5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.
Resources are typically demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.

6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.
Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.

7. Cumulative effects may last for many years beyond the life of the action that caused the effects.
Some actions cause damage lasting far longer than the life of the action itself (e.g., acid mine damage, radioactive waste contamination, species extinctions). Cumulative effects analysis needs to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.

8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.
Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

Note that CEQ recognizes that synergistic and interactive impacts as well as cumulative impacts should be analyzed in the NEPA document for the resource issues.

We request that the Final SEIS (1) include these eight principles in its analysis of cumulative impacts to the Mojave desert tortoise; (2) address the sustainability of the tortoise in/near the project area; and (3) include effective science-based mitigation, monitoring, and adaptive management that protect desert tortoises and their habitats during the construction, use, maintenance and other activities associated with all activities likely to occur within the ROW. This is mandated under BLM's Mitigation Policy.

In addition, we request that the agencies add this project and its impacts to their database and geospatial tracking system for special status species, including Mojave desert tortoises, which track cumulative impacts (e.g., surface disturbance, paved and unpaved routes, linear projects, invasive species occurrence, herbicide /pesticide use, wildfires, etc.), management decisions, and effectiveness of mitigation for each project. Without such a tracking system, the agencies are unable to analyze cumulative impacts to special status species (e.g., desert tortoises) with any degree of confidence.

Page 83 – The agencies identify the Lake Powell Pipeline project and say it would deliver water from Lake Powell near Glenn Canyon Dam in Page, Arizona to Sand Hollow Reservoir near St. George, Utah. Our understanding is that this pipeline project was halted by the Bureau of Reclamation because of the overallocation of water in the Colorado River and declining quantity of water in Lake Powell. Climate change has been increasing the length and severity of droughts making less water available for Washington County that is not a primary current user of Colorado River water. Please update the status of this project in the Final SEIS. We request that this information be updated to reflect the uncertainty of this pipeline project.

Pages 83-84 – Recreation Tours, Events, Special Recreation Permits – "115 permitted uses for activities including adventure tours, hunting, all-terrain- vehicle tours, races, film shoots, and similar, including Red Rock Rampage, Huntsman World Senior Games, Interscholastic Cycling Association High School Championship, and tri-state all- terrain-vehicle events."

Please clarify which of these events would occur in the Red Cliffs NCA or in/adjacent to Zone 6 and add this information to the Final SEIS along with an analysis of their impacts when in/near the NCA and/or Zone 6.

Page 87 – "In addition, the planned Western Corridor directly abuts the western boundary of Zone 6. The Western Corridor would result in direct impacts to tortoise, including loss/degradation of occupied tortoise habitat, loss of habitat connectivity (including between the UVRRU and Northeastern Mojave Recovery Unit), and increase threats of fire, the spread of exotic/invasive plants, and of raven subsidies (e.g., roadkill)."

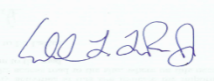
Our understanding is that the Western Corridor is a major highway. Thus, locating a major highway immediately adject to Zone 6, an area that the agencies claim is mitigation for the UDOT ROW, T-Bone Mesa, or Southern alignments is not appropriate. The impacts from the construction, use, and maintenance of this highway would encroach into a substantial area of Zone 6 and adversely impact its value as mitigation for the proposed alignments in the NCA. What mitigation is BLM proposing to mitigate impacts to the Zone 6 mitigation area? How does this circumstance comply with BLM's Mitigation Policy? How does Zone 6 contribute to the survival and recovery of the tortoise as USFWS claims in the BO? These questions should be answered and the impacts analyzed in the Final SEIS and BO.

In summary, for the numerous reasons presented above, the Council supports terminating UDOT's ROW in the NCA and not selecting the T-Bone Mesa, Southern, or UDOT ROW alignments. In addition, many of the issues that the Council raised in our September 8, 2020 comment letter from the Council on the Draft EIS remain relevant (attached). We are also attaching "Mojave Desert Tortoises in the Red Cliffs NCA and Upper Virgin River Recovery Unit: Population Trends, Threats to Persistence, and Conservation Significance" by Dr. Michael Tuma for your consideration and use in the Final SEIS. This document provides information on the importance of and need to provide greater protection for threatened Mojave desert tortoises in BLM's Red Cliffs NCA and the UVRRU. We have attached these two documents and request that BLM respond to the Council's comments in our September 8, 2020 letter for the resource issues carried forward to the Draft SEIS as well as the comments provide in this letter.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM or USFWS that may affect desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you notify the Desert Tortoise Council at eac@deserttortoise.org of any proposed projects that BLM or the USFWS may authorize, fund, or carry out in the range of any species of desert tortoise in the southwestern United States (i.e., *Gopherus agassizii*, *G. morafkai*, *G. berlandieri*, *G. flavomarginatus*) so we may comment on it to ensure BLM and USFWS fully consider actions to conserve these tortoises as part of its directive to conserve biodiversity on lands managed by BLM and USFWS.

Please respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this Project.

Respectfully,



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Attachments:

Comments on Preliminary Northern Corridor Cost Estimates from Horrocks Group, June 19, 2024 – Construction Cost Assumptions

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Mojave Desert Tortoises in the Red Cliffs NCA and Upper Virgin River Recovery Unit: Population Trends, Threats to Persistence, and Conservation Significance

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Attachments

Attachment A: Comments on Preliminary Northern Corridor Cost Estimates
from Horrocks Group
June 19, 2024
Construction Cost Assumptions

Attachment B: Comments on Northern Corridor Traffic Analysis for BLM SEIS (Report)
Prepared by Horrocks Traffic Group
June 14, 2024

Attachment C: Mojave Desert Tortoises in the Red Cliffs NCA and Upper Virgin River Recovery Unit: Population Trends, Threats to Persistence, and Conservation Significance
by Michael W. Tuma, Ph.D.

Attachment D: Comments on the Draft Environmental Impact Statement and Draft Habitat Conservation Plan Amendments addressing Actions Related to the Northern Corridor Highway in Washington County, Utah
from the Desert Tortoise Council
September 8, 2020

Attachment A: Comments on Preliminary Northern Corridor Cost Estimates
from Horrocks Group
June 19, 2024
Construction Cost Assumptions

Thank you for providing this document during the public comment period. The Council offers the following comments for BLM's and USFWS's consideration in the analysis of the alternatives for the Northern Corridor.

The same unit amounts were not used for calculations for the three Northern Corridor alignments and the Red Hills Parkway Expressway (e.g., 7 inch subbase Type 1).

There are estimated construction costs for tortoise crossings and tortoise/trail crossings. These cost estimates should "factor in" modifications that would be required after construction, because there is no information that the design of these crossings, especially because of their length, when implemented will be used by tortoises.

Will there be cost comparisons provided for maintenance of the tortoise crossings and tortoise/trail crossings? Although this is a maintenance cost it will be an ongoing cost and should be included in the overall cost estimated for the Northern Corridor alternatives.

We found no construction costs for tortoise exclusion fencing that would be required for the three Northern Corridor alignments and the Red Hills Parkway Expressway. We found no construction costs for highway ROW fencing along these routes. As mentioned above, the costs for maintaining tortoise exclusion fencing and highway ROW fencing should be included in the cost estimate. This maintenance will be required so this cost which is in addition to road maintenance, should be included in the document.

According to this document, the least expensive alignment is the St. George Blvd/100 S One-Way Couplet and the most expensive is the UDOT Alignment. The former alignment would not require unknown tortoise mitigation costs during the construction phase including tortoise exclusion fencing and highway ROW fencing. The absence of this cost should be noted in this document while the costs for the construction and maintenance of tortoise exclusion fencing and tortoise crossings should be included. We are not sure what the tortoise/trail crossings are. If these are pathways that are heavily used by people, it is unlikely that they will be used by tortoises.

Attachment B: Comments on Northern Corridor Traffic Analysis for BLM SEIS (Report)
Prepared by Horrocks Traffic Group
June 14, 2024

The absence of citations from scientific and technical peer-reviewed literature was noted throughout this Report. We are left to assume that the authors expect the public to assume that whatever is stated in this Report should be accepted by the public with no citations from peer-reviewed scientific literature to support its foundation or validity. Please revise the Report so it provides citations to support the assumptions made in the document and add a and a literature cited section with these citations at the end of the Report.

Pages 1 – 3: The methodology is described. Did the methodology include how use of technology will influence the use of roads in the future? For example, did it consider the increasing use by motorists of navigation software to avoid areas with traffic congestion?

Page 3, Washington County Population: The authors name the University of Utah's Gardner Policy Institute as a source of data but provide no citation. In addition, the authors state, "It is forecasted that over the next 30 years the population in Washington County will more than double, with heavy growth expected in Hurricane, St. George's south block area, Washington City fields area, Santa Clara, and Ivins."

We question when these forecasts were developed. If projected 30 years in advance to 2050, this would mean the Gardner Policy Institute developed these predictions in/around 2020 when the State of Utah assumed that Colorado River water would be delivered to Washington County to support continued growth in the County. In 2024, we know this assumption is incorrect. the Bureau of Reclamation's recently halted the planning of a pipeline to deliver Colorado River Water from Lake Powell to Washington County, thus limiting future growth in Washington County. Population growth in Washington County would be less than predicted because the County must rely on local water supplies that are limited. We suggest that the rate of population growth predicted for 2030 and 2050 should be revised downward, because of this limited supply of water and the effects of climate change on the reduced availability of surface water and precipitation locally, in the Colorado River, and in Utah.

The Council requests that the Traffic Analysis be revised to reflect the change in effects to future population growth from the uncertainty of water supplies to and in Washington County. In addition, we request that this Report provide the citations for the documents used in developing this Report.

Page 4, District to District Travel Demand: The authors claim that " the travel demand between District 1 and the surrounding areas is expected to increase at a similar rate to the population increase with travel demand nearly doubling over the next 30 years." This is an *assumption* [emphasis added] that is not supported in the Report with recent citations from the scientific/technical literature. The Report could also claim that travel be less because of increasing cost of fuel, better public transportation, more technical jobs with people working from home, and/or the development of more regional-based commercial core areas minimizing the need to travel far to obtain goods or services. And, as previously mentioned, the population growth rate may slow because of the absence of imported water. These factors should be included in the analysis.

This assumption that the population in Washington County will increase and therefore the volume of traffic at specific locations will increase is the foundation of the model and some calculations for the six alternatives used to produce this Report. In addition, the model assumes that changes in traffic volume that occurred in the last year will continue into the future. These are major assumptions for which we found no data to support the accuracy of this methodology to then accurately predict traffic volumes in 2050. The Report did mention the National Cooperative Highway Research Program's (NCHRP) Report 255 that was followed to make the calculations, but we question how a national methodology can predict a change to local traffic volumes using one year of data and no discussion provided on the other data used or validation of the model for its use in Washington County. This information should be provided in the Report.

Pages 5 and 8, 2050 Volume Development and VISSIM Model Overview: On these pages the authors refer to an appendix (e.g., "Existing 2024 and estimated 2050 volumes used in the analysis are included in the Appendix"). We were unable to find the Appendix for the "Northern Corridor Traffic Analysis for BLM SEIS." Please provide the entire document including the Appendix to the public for review, because it is part of the Northern Corridor Traffic Analysis that BLM provided to the public on its National Environmental Policy Act ePlanning webpage for this project.

Page 6, Regional Travel Demand to and from District 1: Other noteworthy information in this Report is the prediction that there will be a substantial increase in travel to and from District 1, the Santa Clara/Ivins area, to all other districts but especially District 2 (the areas south of Santa Clara), and District 4 (the area south of St. George). Travel from these two districts to the Santa Clara/Ivins area and back is in the path of Zone 6, the area of Bureau of Land Management (BLM) and State Institutional Trust Lands (SITLA) that is proposed as mitigation for the impacts to tortoise/tortoise habitat in the Red Cliffs Reserve/National Conservation Area from construction, maintenance, and use of the Northern Corridor Alignment. According to this Report, the Zone 6 mitigation area will likely become an island surrounded by development and roads. Thus, this small tortoise population will become a small isolated "island population."

Small island populations are vulnerable to genetic decline via demographic and environmental stochasticity. In the absence of immigration of other individuals to provide genetic diversity, founder effects, inbreeding, and genetic drift would contribute to local extinction risk (Barr et al. 2015, Hutchison et al. 1999, Miller et al. 2024, Segelbacher et al. 2003, USFWS 1994). Specifically for the tortoise, "in small populations, short-term genetic deterioration occurs from inbreeding and loss of genetic heterozygosity (Frankel and Soule 1981, Ralls and Ballou 1983). This genetic deterioration can cause problems in individual fitness and in the population's ability to increase. In the longer-term, inbreeding depression and loss of heterozygosity can limit the ability of the population to respond adaptively to changes in environment Both of these problems can contribute to the probability of population extinction" (USFWS 1994). Maintaining genetic diversity "is necessary for desert tortoises to adapt to these varied environmental conditions and possible future changes in the environment" (USFWS 1994). "Preserving viable populations of desert tortoises within each of these [recovery] units is essential to the long-term recovery, viability, and genetic diversity of the species" (USFWS 1994). Desert Wildlife Management Areas (DWMAs) need … to provide for the long-term persistence of viable desert tortoise populations and the ecosystems upon which they depend" (USFWS 1994).

This Report confirms that the proposed Zone 6 is inadequate as mitigation because of the foreseeable effects of planned development and travel patterns in Districts 1, 2, and 4, the small area of Zone 6, and the small population size.

Page 22, Conclusion: In the Report the authors say, "[f]uture growth in Washington County is expected to increase the east-west travel demand across the St. George urbanized area causing unacceptable levels of congestion along key corridors by the year 2050."

The Council asserts that the conclusion is unreliable and the results of this Report are unsupported. They are based on the initial unsupported assumption that the population will double between 2020 and 2050 and the second unsupported assumption that traffic demand will double during that time especially in an east-west direction across the St. George urbanized area.

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Attachment C: Mojave Desert Tortoises in the Red Cliffs NCA and Upper Virgin River Recovery Unit: Population Trends, Threats to Persistence, and Conservation Significance

by

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Mojave Desert Tortoises in the Red Cliffs NCA and Upper Virgin River Recovery Unit: Population Trends, Threats to Persistence, and Conservation Significance

Michael W. Tuma, PhD

Abstract

Population monitoring studies conducted over the past 20+ years have determined that Mojave Desert tortoise populations in the Red Cliffs National Conservation Area (NCA) are among the most robust and healthy throughout the range of the species. Recent wildfires in the Upper Virgin River Recovery Unit (UVRRU) have likely impacted tortoise populations and the habitat degradation
caused by these fires will likely have serious negative implications for tortoise populations for many years to come. Other important threats to tortoise populations and habitats in the UVRRU include invasive plants, roads, off-highway vehicle (OHV) recreation, urbanization, and climate change. The tortoise populations in the UVRRU, due to their high densities and apparent relatively
good health prior to the recent wildfires, are an important source of tortoises and genes for populations to the south and west in Nevada and Arizona, as well as an important source for range
extensions to the north into the Great Basin, an area where climate change models predict will become an important refugia for Mojave Desert tortoises. To ensure that populations remain healthy in the UVRRU and provide a source of dispersing tortoises to the south and north, populations in the Red Cliffs Desert Reserve and surrounding tortoise habitats will need to be carefully managed. Threats, such as wildfires, invasive plants, human developments, and human activities will need to be very carefully controlled through avoidance and minimization actions. Furthermore, areas that were burned by recent wildfires will need to be restored to ensure that tortoise populations may continue to occupy and grow in these areas.

Status of Mojave Desert Tortoise Populations in the Upper Virgin River Recovery Unit and Red Cliffs Reserve

The Upper Virgin River Recovery Unit (UVRRU) includes all designated Critical Habitat and other suitable habitats for the Mojave Desert tortoise (*Gopherus agassizii*) east of the Beaver Dam Mountains in Washington County, Utah and contiguous habitat in Mohave County, Arizona. This recovery unit is the northeastern-most within the species' range and contains one tortoise conservation area (TCA), the Red Cliffs Desert Reserve (Reserve). In 2020 the Reserve was comprised of 45,311 acres of BLM-administered lands in the Red Cliffs National Conservation Area (NCA); 6,426 acres within the State Trust Institutional Lands Administration (STILA); 6,106 acres of lands administered by the Utah Department of Natural Resources (UDNR); and 2,981 acres of privately owned inholdings. Ecologically, the UVRRU is transitional between the Colorado Plateau, Mojave Desert, and Great Basin Desert. Vegetation communities in the UVRRU are composed mainly of creosote bush-white bursage scrub, blackbrush scrub, desert sand sagebrush scrub, warm desert riparian scrub, and warm season grassland communities (Provencher et al. 2011).

Mojave Desert tortoise populations occupy lower elevation landscapes within the UVRRU that

include Navajo sandstone outcrops, rocky canyons, creosote-bursage flats, and basalt-capped ridges, and sandy valleys, where they find cover sites in caves, deep fissures, rocky overhangs, and deep sandy burrows (Bury et al. 1994).

One of the management actions conducted within the UVRRU is monitoring of Mojave Desert tortoise population trends through periodic surveys. Since 1999, the U.S. Fish and Wildlife Service (USFWS) and Utah Department of Natural Resources, Division of Wildlife Resources (UDNR) have employed distance sampling (Buckland et al. 2001) for estimating population density within TCAs
across the range of the Mojave Desert tortoise, a technique that is considered suitable for assessing population trends at large spatial scales. The distance sampling surveys were conducted in TCAs that generally correspond to designated Critical Habitat. The goal of the monitoring program is to estimate population trends to determine whether recovery actions defined and implemented under the Recovery Plan (USFWS 2011) are having an effect on recovery
of Mojave Desert tortoise populations. Within the UVRRU, the Reserve was surveyed in 1999, 2000,
2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, and 2023 (Allison and McLuckie 2018;
McLuckie et al 2024). Sampling transects totaling between 262 to 314 kilometers were sampled each year, primarily on BLM lands in the Red Cliffs NCA within Management Zones 2, 3, 4 and 5, but
also in surrounding areas on STILA and UDNR lands.
Across the range of the species, adult Mojave Desert tortoise density estimates derived from distance sampling surveys implemented in TCAs between 1999 and 2023 ranged between 0.2 to 34.3 tortoises per square kilometer (km2) (Allison and McLuckie 2018; UDNR 2024; USFWS 2009,
2016, 2018, 2019, 2020, 2022a, 2022b; Table 1). The adult tortoise density estimates for the Reserve and the UVRRU have been consistently the highest observed across the range of the Mojave Desert tortoise, underscoring the importance of these relatively healthy populations. However, an annual decline of -3.2% in the UVRRU was detected between 2004 and 2014 (Allison
and McLuckie 2018). Declines in density of adult tortoises were particularly evident in the Reserve
between 2007 and 2013 (Table 1). Survey data from 2015 through 2023 appear to indicate a slight
recovery, but not to a level that matches density observed pre-2007 (Table 1). Abundance estimates also indicate population declines across the range of the species between 2004 and 2014 (Allison and McLuckie 2018). Range-wide, there were an estimated 336,393 adult tortoises in
2004 and 212,343 in 2014, representing a decline of 124,050 (-37%) over this 10-year period. The
steepest declines in adult tortoise densities were detected in the Western Mojave (-49%) and Eastern Mojave (-33%) recovery units between 2004 and 2014 (Allison and McLuckie 2018). Within

the Reserve in the UVRRU, the estimated abundance of adult tortoises declined from an estimated
3,482 in 1999 to an estimated 2,425 in 2023, an estimated loss of 1,057 (-30%; UDNR 2024).

Threats to Mojave Desert Tortoise Populations and Habitats in the Upper Virgin River Recovery Unit and Red Cliffs Reserve

Mojave Desert tortoise populations and habitats are susceptible to numerous threats across the range of the species, each with differing distributions, severities, and effects (Lovich and Bainbridge 1999; Boarman 2002; USFWS 1994, 2011). Most threats are anthropogenic in origin, including human developments (*e.g.*, urban areas, roads, railroads, and utilities), human activities (*e.g.*, off-highway vehicle [OHV] recreation, livestock grazing, agricultural practices, mineral extraction, military activities, illegal dumping, tortoise poaching, and target shooting), and side effects of these human developments and activities (*e.g.*, climate change, toxin and pollutant deposition, degradation of air quality, spread of invasive plants, attraction of subsidized predators, introduction of wildfires, spread of disease). These threats contribute to mortality of Mojave Desert tortoises and loss and degradation of their habitats and are more severe in effect when they occur widely over landscapes or constantly through time (Tuma et al. 2016). Each TCA is affected by a unique suite of threats. Within the UVRRU, tortoise populations and their habitats are primarily threatened by wildfires and the spread of invasive plants, but climate change and development of roads, utilities, and other infrastructure associated with urbanization also threaten these populations and their habitats. The presence of multiple threats may produce synergistic effects on tortoise populations and habitat (USFWS 2011).

Wildfires and Invasive Plants

The most significant threats to Mojave Desert tortoises and their habitats in the UVRRU are wildfires and invasive plants, specifically alien, annual brome grasses. These two threats work in tandem, causing a positive feedback loop that amplifies the negative effects of each threat due to the grasses providing fuel for wildfires and burned areas providing conditions that favor the spread

of invasive plants. Wildfires in the Mojave Desert typically originate from anthropogenic sources such as roads, urbanized areas, and recreational activities (Swantek et al. 1999, Brooks and Matchett 2006). Wildfires contribute to rapid degradation of desert scrub habitats with both shortterm and long-term implications. Short-term post-fire effects include reduced availability of tortoise food plants, loss or reduction of available nutrients and trace elements, and change in seasonal availability of food plants (Nagy et al. 1998). The long-term effects include a change in community structure that includes increases in the biomass of non-native annual grasses, little shrub cover, and a reduction in native annual plant biomass (Brooks and Esque 2002). Because the Mojave Desert is not a fire-adapted ecosystem and few desert plants are adapted to recover from fire disturbance, fire immediately alters vegetation communities and recovery is very slow, resulting in long-term degradation of tortoise habitat (Esque et al. 2003).

Wildfires appear to be a significant source of Mojave Desert tortoise mortality (Brooks and Pyke 2001; Brooks and Esque 2002; Brooks et al. 2004; Brooks and Matchett 2006; Drake et al. 2015).

Because wildfires are not a typical ecological feature in the Mojave Desert, tortoises are not well adapted to cope with their effects (Brooks and Esque 2002). Fires contribute to tortoise mortality and injury by producing lethal heat or low oxygen levels, elevating body temperature, and poisoning and asphyxiation by smoke (Brooks et al. 1999; Esque et al. 1994; Whelan 1995). Early season fires are potentially more threatening and detrimental than mid-or late-season fires because tortoises are most active above ground and use relatively shallow cover sites during the spring (Esque et al. 2003) and thus are more vulnerable to the effects of high-intensity fires (Esque at al. 1994).

Areas subject to recurrent wildfires can be converted from native desert scrub to non-native annual grasslands (Brown and Minnich 1986; Duck et al. 1997; Esque et al. 2003), which are in turn prone to additional wildfires because non-native annual grass species often increase in dominance after fire (D'Antonio and Vitousek 1992; Jennings 1997b). Non-native annual grasses alter the fuel structure and fire behavior in the Mojave Desert, making areas more susceptible to frequent fires

(Brooks and Esque 2002; Esque and Schwalbe 2002). Abundant fuel loads place Mojave Desert tortoises at increased risk from fire (Brooks and Esque 2002), a situation that is exacerbated by the introduction of invasive plants. Areas that support invasive annual grasses such as cheatgrass, bromes, and Mediterranean grass are characterized by high abundance and cover of standing dead stems that create a continuous fuel bed, facilitating the spread of fires (Duck et al. 1997; Esque et al. 2003). The invasive, alien grasses of concern within the UVRRU include cheatgrass (*Bromus tectorum*) and red brome (*Bromus rubens*) (McLuckie et al. 2007). The spread of these invasive plant species degrades otherwise suitable tortoise habitat through changing the character of desert scrub vegetation communities, replacing native forage species, and altering the cycles, frequency, and intensity of wildfires. Additionally, invasive plants impact tortoise nutrition, depleting nitrogen, phosphorus, and water, and causing weight loss, which in turn affects vital rates such as growth, reproduction, and survival (Avery 1998; Nagy et al. 1998; Hazard et al. 2009, 2010; Drake et al. 2016).

Recent wildfires have been documented as one of the most significant threats to Mojave Desert tortoise populations and habitats within the UVRRU. McLuckie et al. (2007) provided an accounting of the effects of the 2005 wildfires on tortoise populations in the Reserve, when a significant number of adult and juveniles were killed in wildfires that encompassed nearly 8,000 acres of their habitat. The authors documented deaths that were attributed to direct contact with flames, exposure to lethal temperatures, and smoke inhalation. During the Plateau Fire in June 2005, which occurred in an area of high tortoise density, many tortoises were likely active on the ground surface when the fire moved through the area, which contributed to the high mortality event. During implementation of line distance sampling transects through the burned areas, the researchers documented 57 tortoise carcasses and estimated that approximately 15% of the population had been killed in burned areas (McLuckie et al. 2007). More recently, researchers documented the

effects of the 2020 Cottonwood Trail Fire in the Red Cliffs NCA, where 25 carcasses were detected after the fire and an estimated 16.3% of the population was killed within the 250-hectare burned area (Kellam et al. 2021).

The effects of wildfires and invasive plants on Mojave Desert tortoise populations in the UVRRU are evident in the USFWS line distance sampling data. Kissel et al. (2022) used these data to develop a range-wide dynamic occupancy model to estimate probabilities of occupancy, local extinction, and local colonization for Mojave Desert tortoises. Using monitoring data collected between 2001 and 2018, the model estimated negative trends in occupancy in 26% of tortoise habitat across the range, with occupancy trends in later time periods exhibiting greater declines (27% decline from 2006 to 2018 and 77% decline from 2011 to 2018). Occupancy trends, which are based on the balance of probabilities of local extinctions and local colonization of habitats, were lowest in the northeastern portion of the species' range, indicating a higher probability of extinction than colonization in this area. Importantly, habitat in the UVRRU and Red Cliffs Reserve exhibited the lowest occupancy trends among the TCAs, suggesting that population declines there are more precipitous than in other TCAs. The model identified two variables, high precipitation and high normalized difference vegetation index (NDVI), a measure of vegetation density, as important drivers of occupancy, which the authors attributed to negative effects of invasive plants on Mojave Desert tortoises. The authors also determined that two variables, wildfires and NDVI, contributed to increased extinction probabilities, which the authors attributed to the large number of fires that have affected the UVRRU in the previous two decades. This study underscores the importance of wildfires and invasive plants in causing declines of Mojave Desert tortoise populations in the UVRRU and Red Cliffs Reserve.

Roads

Another critical threat to Mojave Desert tortoise populations and habitats is the proliferation of

roads in the Mojave Desert. Roads, including primary roads, secondary roads, local neighborhood roads, rural roads, city streets, vehicular trails (four-wheel drive), ramps, service drives, walkways, stairways, alleys, and private roads, may be particularly problematic in the Red Cliffs Reserve, where road density is 2.49, the highest within any TCA (Averill-Murray and Allison 2023). Roads degrade habitats through soil compaction, erosion, pollutant deposition, introduction of wildfires, and spread of invasive plants. Roads are a significant source of mortality of Mojave Desert tortoises from vehicle strikes and represent significant barriers to tortoise dispersal. Roads facilitate human access into areas supporting tortoises and provide humans with opportunities to poach or collect tortoises. Darst et al. (2013) estimated that road-related threats contributed to approximately 22% of the total adverse impacts to Mojave Desert tortoises.

Vehicle collisions with Mojave Desert tortoises on roads are a major contributor to mortality that result in population declines in the vicinity of roads. Several studies have identified a 'mortality sink' or depression in tortoise population densities up to 4.6 kilometers from roads (Nicholson 1978; Karl 1989; von Seckendorf and Marlow 1997, 2002; Boarman and Sazaki 2006; Nafus et al. 2013; Peaden et al. 2015). The area of influence that roadways have on tortoises varies greatly depending on a variety of factors, including traffic volume, traffic speed, topography, vegetation characteristics, and tortoise densities (Nicholson 1978; Boarman and Sazaki 2006; Nafus et al. 2013; Peaden et al. 2015). Roads also influence the movement behaviors of tortoises, further contributing to the effect of roads as barriers. Hromada et al. (2020) determined that Mojave Desert tortoises generally avoided moving through areas near roads. Furthermore, tortoises made shorter movements near highways, suggesting that roads may restrict tortoise movements (Hromada et al. 2023).

Roads fragment Mojave Desert tortoise habitats and contribute to genetic isolation of tortoise populations by separating continuous habitats and providing substantial barriers to the movement

of species (Forman and Alexander 1998). The inability of individuals to cross roads may eventually lead to the isolation of subpopulations, which in turn can promote increased inbreeding and a lack of genetic exchange with other subpopulations (Dobson et al. 1999) or the reduced potential for recolonization when extirpations occur as a result of localized population fluctuations and catastrophic events (Yanes et al. 1995). Ultimately, isolation of populations may lead to declines in the genetic diversity of a population, which is required for adaptation to variable conditions and possible founder effects (Hanski and Simberloff 1997; Hanski 1999). Fragmentation of Mojave Desert tortoise populations is particularly pronounced in areas where unfenced roads with high traffic rates have contributed to local population declines (Nafus et al., 2013; Dutcher et al., 2020). Sutor et al. (2023) determined that road barriers cause significant connectivity issues for tortoise populations by preventing dispersal events that would otherwise allow for recolonizations following localized extinctions and range shifts in response to climate change. Installation of fencing and of wildlife crossing structures along roads has been implemented in recent years (Averill-Murray et al. 2021), but their effect on facilitating movements of individuals and genes between tortoise populations has not yet been evaluated.

Urbanization

Another important threat in the vicinity of the UVRRU and Red Cliffs Reserve is urbanization, particularly in St. George, Utah, which is situated along the southern and western borders of the Reserve. Urbanization results in the permanent loss of tortoise habitat and a network of roads, utility corridors, residential dwellings/commercial structures and associated activities, and undeveloped areas containing nonnative vegetation (*e.g.*, parks, landscaped areas). Other impacts include degradation of habitat from dumping of trash and litter, increased predation rates from subsidized predators, and possibly increased incidence of disease in tortoise populations in the vicinity of human developments. Urbanized localities also serve as staging areas—either for local recreationists or recreational users who originate from urban centers on a region-wide scale—that

provide increased human access to desert areas. OHV use is most significant of the recreational uses in tortoise habitat; it can kill tortoises or destroy or degrade habitat and is common adjacent to urban areas. Other recreational activities, including target shooting, camping, picnicking, sightseeing, hiking, bird watching, horse riding, and rock and other mineral collecting that are common in areas adjacent to urban centers can result in degradation of Mojave Desert tortoise habitat. The increased recreational use of desert environments in the vicinity of urbanized areas likely results in the collection, poaching, and killing of tortoises. Other human impacts associated with recreational use of desert environments in the vicinity of urbanized areas include the increased risk of anthropogenic fires. Urbanized areas are major sources of food and water for subsidized predators, and likely contribute substantially to the growth and spread of common raven and coyote populations in adjacent desert environments. These predators are not subsidized only by garbage and litter that scatters from urbanized areas but also by point sources within urban areas, such as landfills, dumpsters, trash cans, and irrigation (Kristan and Boarman 2003). The effects of urbanized areas extend at least one kilometer into adjacent habitats, where tortoises are essentially absent (Carter et al. 2020).

St. George is a rapidly growing metropolitan area, which grew from a population of 13,000 in 1969 to 197,680 in 2022, representing an increase in 1,420.62% over this period. This rate of growth has likely resulted in a tremendous amount of urbanization effects on tortoise populations and habitats in the adjacent Reserve and larger UVRRU and will continue to affect populations there for the foreseeable future. One of the most significant pressures resulting from the growth of St. George is the proposal to construct the Northern Corridor, a highway that would bisect the Reserve on lands that were set aside for tortoise conservation through the 1995 Washington County Habitat Conservation Plan. The construction of the highway would likely facilitate further growth and development of St. George, including lands within the Reserve.

Climate Change and Drought

Droughts are a fairly common and cyclical occurrence in the Southwest region of the United States, particularly within the Mojave Desert (Hereford et al. 2006). The Mojave Desert climate appears to have been fully developed into its modern condition by around 8,700 years ago (Koehler et al. 2005). Therefore, Mojave Desert tortoises have likely faced natural fluctuations in water availability throughout their most recent evolutionary history (Nagy and Medica 1986; Peterson 1994). Dehydration and starvation of tortoises due to drought conditions is known to be a source of mortality (Peterson 1994; Berry et al. 2002), and droughts have been implicated in lowered survivorship and episodic population declines (Turner et al. 1984; Peterson 1994; Berry et al. 2002; Longshore et al. 2003). Climate data indicate that southwestern North American has been experiencing a megadrought since 2000 that is longer and more severe than droughts over the past 1,200 years and is being driven by anthropogenic warming (Overpeck and Udall 2020; Williams et al. 2020; Williams et al. 2022). Drought frequency and severity appears to be increasing due to anthropogenic climate change, and future megadroughts will be substantially warmer and more severe than past events (Cook et al. 2022). Due to the variety of recent anthropogenic threats faced by the Mojave Desert tortoise—particularly those threats that reduce population size or fragment habitat—the ability of populations to recover from stochastic events such as droughts is likely greatly diminished. The effect of droughts in the context of multiple anthropogenic threats thus becomes synergistic (Peterson 1994).

Conservation Significance of Mojave Desert Tortoise Populations in the Upper Virgin River Recovery Unit and Red Cliffs Reserve

Maintaining a robust population of Mojave Desert tortoises in the UVRRU and Red Cliffs Reserve is critical for the long-term survival of the species for the following reasons:

High population density. **The Reserve has consistently exhibited the highest population densities detected within a TCA through the USFWS line distance sampling monitoring program. As such, this population should be considered and managed as a core population. The higher densities in the UVRRU likely provide a source of tortoises and genes to the adjacent Northeastern Mojave**

Recovery Unit (NMRU), which contains four TCAs: Beaver Dam Slope, Gold Butte-Pakoon, Mormon Mesa, and Coyote Springs. Assuming equal rates of dispersal between tortoise populations, populations in the Beaver Dam Slope and Gold Butte-Pakoon TCAs likely receive more dispersing individuals from the UVRRU than emigrate from these areas to the UVRRU, underscoring the importance of populations in the UVRRU. The high population density of Mojave Desert tortoises in the UVRRU also has importance for providing individuals and genes as they disperse northward outside of their current range in response to climate change (see below). It will be very important to maintain core populations within TCAs to ensure long-term survival of the species. USFWS has defined the TCAs, and in doing so has recognized that these areas have supported or support the largest and most dense tortoise populations, or they are capable of supporting large, dense populations due to the occurrence of suitable habitat. These areas should be managed in a way that maintains large, dense, healthy populations to serve as core areas from which tortoises may disperse into adjacent areas of suitable habitat outside of the TCAs.

Genetic diversity. **The size and density of the Red Cliffs Reserve tortoise population is an indicator of its genetic diversity. The genetic diversity of this population will allow it to adapt to changing conditions or new conditions encountered under climate change. Maintaining genetic diversity of core populations near the leading edge will allow for more effective and efficient adaptation to new environments. The conservation of peripheral populations maintains rare alleles (Gapare et al. 2005), which may be particularly important for providing adaptations for ecological conditions encountered in range expansion areas. Conversely, reduced genetic diversity would likely limit the potential for populations to respond to climate change.**

Leading-edge population under climate change scenarios. **The tortoise population in the UVRRU represents the northeastern-most core population in the species' range and a leading-edge population for expansion to the north in response to climate change. Climate change scenarios indicate that Mojave Desert tortoise habitats in the southern and western portions of its range will**

become unsuitable in the coming decades, and that areas to the north and east of the species'
current range will become suitable climate refugia (Sinervo 2014). In particular, the Great Basin
deserts will become suitable climate refugia with good habitat for tortoises as the more southerly
habitats become unsuitable. Peripheral populations such as those in the UVRRU are critical for
species persistence in the face of climate change and shifting geographic ranges (Nielsen et al.
2001; Razgour et al. 2013). The population contains genes that are locally adapted for ecological
conditions encountered in the northeastern periphery of the species' range, providing the best
source of genes for poleward expansion into new areas.
Because of the likelihood that trailing edge populations, particularly in the western Mojave Desert,
face high risk of extinction, tortoise populations in the northern portions of the species' range may
be the most important for the long-term persistence of the species in the face of climate change.
The UVRRU will likely be an important refugia for the species as climate change progresses and
trailing-edge populations contract or decline. Preventing the extirpation of this leading-edge
peripheral population will be important for conserving evolutionary processes that may be critical
for species response to climate change and facilitating poleward range shifts into habitats outside
of their current range (Gibson et al. 2009). The loss of locally adapted range-edge populations
through anthropogenic disturbances would reduce the ability of the species to persist under climate change (Rehm et al. 2015).
Recommendations
• Maintain tortoise abundance, population densities, genetic diversity, and habitats within the Reserve and UVRRU.
• Curtail development of roads and urban areas within and directly adjacent to the Reserve.
• Restore habitats that were burned in the UVRRU.
• Provide connectivity to adjacent populations in the NMRU and expansion areas to the north
in the Great Basin.
• Develop plans for translocation of tortoises into adjacent Great Basin habitats as part of a strategy of human-assisted migration (*c.f.*, Loss et al. 2010; Butt et al. 2020; Mitchell et al. 2021).

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Attachment D: Comments on the Draft Environmental Impact Statement and Draft Habitat Conservation Plan Amendments addressing Actions Related to the Northern Corridor Highway in Washington County, Utah

[provided above in this comment letter]