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Hyperloop

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Chapter 1 Introduction

Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the Proposed Action, which consists of a transportation test system and associated transmission line. This system is designed to test and optimize a new mode of transportation known as the Hyperloop Development Project (Dev Loop). This EA will assist the Bureau of Land Management (BLM) Las Vegas Field Office in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant effects could result from the analyzed actions. Following the requirements of NEPA (40 CFR 1508.9 (a)), this EA describes the potential impacts of a No Action Alternative and the Proposed Action for the Dev Loop. If the BLM determines that the Proposed Action for the Dev Loop is not expected to have major effects, a Finding of No Significant Impact (FONSI) will be issued and a Decision Record will be prepared. If significant effects are anticipated, the BLM will prepare an Environmental Impact Statement.

Location

The Dev Loop is proposed along the western border of Apex and within a portion of the West-wide Energy Corridor, commencing at U.S. Route 93 and extending south for approximately 5 miles.

The Dev Loop is proposed adjacent to the Apex Industrial Park in northeastern Clark County, Nevada. The Apex Industrial Park (Apex) was established for the express purpose of siting heavy industry outside of urbanized Las Vegas Valley as described in the *Apex Heavy Industrial Use Park Conceptual Master Plan and Environmental Assessment* of July 17, 1990. The Apex area consists of a mixture of both private and public lands, public lands within the Apex area were granted to Clark County through BLM Right-of-Way (ROW) N-52787. The Proposed Action analyzed within this EA is adjacent to the western border of the Apex area. Although the Apex area would be used by the proponent for construction siting and staging in connection with the Proposed Action, those lands were purchased from private owners and would not be analyzed in this document.

The Dev Loop is proposed within the eastern portion the West-wide Energy Corridor. The supporting transmission line and the line from which it is interconnected is within the corridor. This corridor was designated by the decision based on the analyses presented in the Final Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States (DOE/EIS-0386). The corridors designated through that decision are sited to avoid, to the maximum extent possible, significant known resource and environmental conflicts. There is an approximate 50-foot-wide swatch of undesignated BLM managed lands between the Apex boundary and the West-wide Energy Corridor within the proposed Dev Loop area.

Background

Hyperloop Technologies, Inc. (Hyperloop Tech), has submitted an application to the BLM requesting a 200-foot wide by approximately 4.6 miles long ROW to construct, operate (test), maintain, and eventually decommission the Dev Loop. The Project would be comprised of an approximately 4.6 miles long elevated guideway of 11-foot diameter tubes placed an average of 9-feet above existing grade on reinforced concrete columns. A 30-foot wide access road

immediately adjacent to the guideway would be graded and used primarily for temporary equipment access during construction, operations, and maintenance for the life of the project. Ancillary facilities would be located within the Project Site and on the ground within the footprint of the elevated structure. The northern end of the Dev Loop tube would have a concrete pad loading area to provide access into the transport tube system.

The Dev Loop is solely a transportation test facility. The Dev Loop test system would allow Hyperloop Tech to examine advancements in propulsion, tube design and fabrication, levitation systems, pod designs and thermodynamics and systems engineering.

To support Dev Loop, NV Energy has submitted an application to the BLM requesting a 50-foot wide ROW to construct, operate, and maintain a 138/69kV overhead transmission line. This proposed transmission line would commence at the existing ROW N-53399 and terminate at the new Blade Runner Substation located on private land east of the proposed Dev Loop. The proposed transmission line would be designed and constructed for a single circuit along the two new wood poles, and designed for double circuit along the two steel structures into the substation. This new line would be energized at 69kV, but would be designed and constructed for future 138kV.

Purpose and Need for Action

In accordance with FLPMA, public lands are to be managed for a combination of balanced and diverse resource uses, or multiple use, that take into account the long-term needs of future generations for renewable and non-renewable resources. The Bureau of Land Management is authorized to grant rights-of-way on public lands for roads, trails, highways, railroads, canals, tunnels, tramways, airways, livestock driveways, or other means of transportation...(Section 501(a)(6)). Taking into account the BLM's multiple use mandate, the purpose and need for the proposed action is to respond to a FLPMA rights-of-way applications submitted by Hyperloop Technologies, Inc. and NV Energy. The Hyperloop Technologies, Inc. application to construct, operate (test), maintain, and eventually decommission a transportation test system on approximately 18.6 acres and the NV Energy application to construct, operate, and maintain a 138/69kV transmission line to support the Dev Loop on approximately 1.3 acres of BLM managed land in Clark County, Nevada would be processed in compliance with FLPMA, BLM right-of-way regulations, and other applicable Federal laws and policies.

The BLM will decide whether to deny the proposed rights-of-way, grant the rights-of way, or grant the rights-of-way with modifications. The BLM may include any terms, conditions, and stipulations it determines to be in the public interest, and may include modifying the proposed use or changing the route or location of the proposed facilities (43 CFR 2805.10(a)(1)). In the decision process, the BLM must consider how the BLM's resource management goals, objectives, opportunities, and/or conflicts relate to this non-federal use of public lands.

Conformance Summary

The Proposed Action is in conformance with the Las Vegas Resource Management Plan (RMP), October 1998. The emphasis of the Las Vegas RMP is protecting unique habitats for threatened, endangered, and special status species, while providing areas for community growth, recreation, mineral exploration and development, as well as many other resource uses. The Proposed Action is in conformance even though it is not specifically provided for because it is clearly consistent with the following RMP objective and management direction:

Rights-of-Way Management Objective: RW-1. Meet public demand and reduce impacts to sensitive resources by providing an orderly system of development for transportation, including legal access to private inholdings, communications, flood control, major utility transmission lines, and related facilities.

Lands Management Objective: LD-2. All public lands within the planning area, unless otherwise classified, segregated or withdrawn, and with the exception of Areas of Critical Environmental Concern and Wilderness Study Areas, are available at the discretion of the agency, for land use leases and permits under Section 302 of Federal Land Policy and Management Act and for airport leases under the authority of the Act of May 24, 1928, as amended.

- *Management Direction:* Land use lease or permit applications and airport lease applications will be addressed on a case-by-case basis, where consistent with other resource management objectives and local land uses. Special terms and conditions regarding use of the public lands involved will be developed as applicable.

Chapter 2 Proposed Action and Alternatives

No Action

Under the No Action alternative, Hyperloop Tech's right-of-way (ROW) application to develop the Dev Loop project under the Proposed Action would not be approved. Consequently, the NV Energy's transmission line would no longer be needed and that application would also not be approved. The Dev Loop would not be developed, and existing land uses in the Project Area would continue. The No Action alternative forms the baseline against which the potential impacts of the Proposed Action and the other action alternatives are compared. Thus, it includes current actions and activities in the Project Area. No additional actions are assumed to occur in the absence of approval of any of the action alternatives.

Proposed Action

The Proposed Action consists of Hyperloop Tech's Dev Loop and NV Energy's 138/69kV transmission line. The Dev Loop includes three primary components: the guideway, distribution line, and an access road. In order to test the soils for siting of each component of the proposed project, geotechnical investigations would be required and would take place prior to construction activities. The transmission line includes two (2) guyed wood poles, two (2) spur roads, two (2) steel structures, an access road, a temporary overland travel path, and three (3) temporary pulling and tension sites.

Hyperloop Tech's Dev Loop

Geotechnical Investigation

The proposed geotechnical investigation would consist of 20 soil borings using either a sonic drill rig or a hollow-stem auger (HSA) drill rig. The borings would be drilled to a depth of 50 feet each and would be located within the footprint of the eventual access road along the transportation corridor. Access to the boring locations would be via the existing Power Line Rd or via Hyperloop Tech's private Storage Site adjacent to the proposed project area. The drill rig would be supported by two pick-up trucks during the duration of the work. It is estimated that the work would take approximately 2 to 3 weeks to complete.

Guideway

The Dev Loop primary structure would consist of an elevated welded steel pipeline (tube). The tube is 11 feet in diameter and is supported by 3 to 17-foot tall, 3-foot diameter concrete columns. The columns would be spaced at 150 to 200 foot intervals along the entire length of the tube. Each column would be supported by a single 42-inch diameter drilled shaft (cast-in-drilled-hole pile) foundation. A 3.3-mile long, 30-foot wide unpaved road would be constructed next to the tube system for construction and operational support. The access road would extend approximately 1,000 feet beyond the northern terminus of the structures to connect to U.S. Route 93, but would be narrowed to 16 feet wide along this distance.

Additional minor ancillary structures would be required in various locations along the Project Site corridor to support the operation of the Dev Loop, including cabinets for power electronics and vacuum pumps.

Distribution Line

The Dev Loop would be powered by the Blade Runner Substation located on adjacent private lands.

One three-phase distribution line would be buried beneath the access road connecting the Blade Runner Substation to the Dev Loop. This distribution line would run along the full length of the Dev Loop primary structure buried within the access road to serve the vacuum pump units, lighting, and other necessary equipment. Pole-top service transformers would be used to step down the distribution voltage to the vacuum pump inputs.

Access Road and Loading Area

The access road would be a 30-foot wide unpaved access road constructed in accordance with Clark County requirements and 130-foot by 80-foot wide loading area at the northern terminus of the corridor. Vehicle turnaround areas would be provided along the access road at approximately 0.5-mile intervals. At these locations the access road would be widened to 75 feet. A possible surface finish would be Type 2 gravel; the final design would be dependent upon the type and number of anticipated construction vehicles necessary for completion of the Dev Loop. Permitted commercial vendors would supply the materials for roadbeds, if required.

Construction Activities

Prior to any construction activities, survey crews would stake the outside limits of the Project Site right-of-way with wood stakes. Sensitive areas, as determined by BLM Resource Specialists to be avoided, may be marked using specific flagging tape or construction fencing to maintain separation from construction activities.

Construction would commence with clearing, grubbing and grading for an unpaved, 30-foot wide access road along the northern 3.3 miles of the corridor. This access road would facilitate construction, operations, and maintenance for the duration of the Dev Loop.

Hyperloop Tech is committed to minimizing impact and disturbance to the existing landscape. Mass grading for the primary structure would not be required. Limited excavation would be performed as necessary to accommodate the reinforced concrete foundations required to support the structure. At column locations, construction equipment would remain within a 35-foot by 35-foot area immediately adjacent to the access road for all foundation and column construction activities. Foundations would be augured to excavate soil, rebar cages would be installed, and concrete would be poured and cured in accordance with applicable standards. Concrete pours would be sampled to verify compliance with minimum strength requirements. Excavated soil would be used elsewhere or distributed around the site. If any excess mineral materials are generated and need to be exported, the BLM will issue sales contracts or free use permit for any materials generated within the ROW.

Following foundation construction, reinforcing cages for the columns and cap would be positioned, formwork would be placed, and concrete would be poured using a boom truck. Once the concrete has sufficiently cured, work would begin to position and install tube segments and connections to the column caps.

The transportation system would be constructed using standard construction equipment appropriate for elevated guideways and pipeline systems. Tube segments would be positioned via cranes, forklifts, or other lifting equipment.

All other systems would be confined to the inside of the tube structure.

During construction, it is estimated that a continuous work force of about 50 to 100 people would be required. Vehicle parking would be located off-site to minimize congestion in the Project Site. Temporary lighting will be required for nighttime construction activity. Lighting will be portable and limited to immediate work areas only.

Estimated areas of disturbance related to the construction, operations, and maintenance of Dev Loop have been calculated as follows:

Work Area / Activity	Area of Disturbance
Loading Area	0.3 acres
Access road and turnarounds	12.6 acres
Foundations/ columns	5.6 acres
Ancillary structures	0.1 acre

Maintenance and Decommissioning Activities

The type and frequency of maintenance activities will be dependent on the outcomes of operation. However, maintenance will occur as needed to support daily testing operations and will primarily be confined to elements within the tube and ancillary components/structures immediately adjacent to the Dev Loop. At the end of the project all structures will be removed and disposed of using current standards for demolition and disposal in Nevada.

Applicant Proposed Mitigation Measures for Dev Loop

- The width of the construction Project Site will be restricted to avoid undue surface disturbance to adjacent resources. The construction corridor boundaries on the Project Site are the limits of the workspace and will be clearly staked or flagged. A BLM-approved Integrated Weed Management Plan will be developed that addresses the management of any new or existing infestations of non-native, invasive plant species in the project area. Mechanical and manual methods will be preferentially used to treat new and existing invasive weed species. If herbicides are necessary to reduce and control invasive non-native invasive plant species, Hyperloop Technologies, Inc. would prepare a pesticide use proposal for submittal to the BLM using those herbicides as described in the BLM's PEIS for vegetation treatments using herbicides on BLM lands (BLM 2007a).
- Potentially impacted yucca and cacti will be mitigated for according to current BLM requirements. All other vegetation removed during construction will be disposed of in accordance with BLM guidelines.
- Desert tortoise protection measures will be employed following the most current U.S. Fish and Wildlife Service guidance and protocols, including clearance surveys and relocating tortoises out of harms way to suitable undisturbed areas.

- Garbage will be collected as it is generated and properly contained for disposal in an approved landfill operation. The construction sites would be kept free from accumulation of waste materials and rubbish resulting from construction activities as required for safety, appearance, and avoidance of fire hazards. Portable toilets will be located at equipment staging and storage yards on private land. The portable toilets will be emptied at an appropriate frequency and disposed of in an appropriate manner at state-approved sites.
- No toxic substances will be used or stored on-site. All construction-generated waste will be removed or disposed of from the Dev Loop. There will be no purposeful release of equipment fuel or lubricants into soil or vegetation by any personnel. All refueling or lubricating of vehicles and/or equipment will occur in off-site areas cleared of vegetation. If inadvertent releases or spills occur, clean-up will occur immediately.
- A health and safety program would be implemented during the construction, operation, and maintenance of the Dev Loop in accordance with state and federal OSHA requirements. In case of personal injury, first aid treatment and procedures will be initiated to determine extent and nature of injury. If emergency medical services are required, site personnel will request ambulance service and other appropriate help. Accidents involving property damage needing emergency measures shall be reported to the field office and the site manager. After notification, appropriate measures shall be implemented to prevent further damage.

NV Energy's 138/69kV Transmission Line

The proposed transmission line would tap off NV Energy's existing switch structure X26457, authorized under ROW grant N-53399. To access structure X26457, NV Energy would utilize their existing access road (approximately 12-foot wide) also authorized under N-53399. From this access road, a spur road would be constructed to access X26457 (approximately 40-feet) and would continue approximately another 40 feet to the east where a wood pole would be placed. From there, the line would turn north and continue approximately 180-feet to another wood pole. Another spur road connecting the access road (N-53399) to this most northerly pole would be constructed. From this wood pole, the line turns and heads east for approximately 1,020-feet terminating at the Blade Runner Substation on private land. This segment would contain two steel structures and a 12-foot wide access road. The proposed overhead transmission line will be designed and constructed for a single circuit along the two wood poles, and designed for double circuit along the two steel structures into the substation.

Wood Poles

Each wood pole would be secured with guy wires. The most southerly pole, tapping off of X26457, would be approximately 52-feet in height with two (2) anchors and guy wires. The most northerly wood pole would be approximately 65-feet in height with 1 anchor and guy wires.

The wood poles would be direct-buried into the ground. Typical direct-bury processes include grubbing vegetation to clear the area, leveling the ground surface as necessary to facilitate safe set up of the drilling equipment, delivering the wood pole to the site and staging pole on blocks for set up (e.g., attaching hardware). The wood poles would be installed by auguring the holes,

lifting the pole with a crane and setting into the hole, backfill and tamping the hole with the displaced spoils. Anchors will be installed in a 2' w x 10' l x 10' d trench and backfilled similar to the poles and attaching the guy wires. Installing of additional hardware and guy attachment is completed after the pole is set in place.

When construction is complete, the ground would be re-contoured as applicable and any excess displaced spoils from the auguring would be spread across the work area and/or access road. The footprint of each wood pole is approximately 1-1/2 to 2-feet in diameter, however a work area of 50-feet x 100-feet is required to accommodate the construction activity and to maintain authorized use for operation and maintenance, as needed.

Spur Roads

Two (2) 20-foot wide by 80-foot long spur roads would be bladed and maintained for access to each wood pole.

Roads would be constructed with equipment appropriate for the terrain, and could be done with a blade, small dozer or other similar piece of construction equipment. Typical road construction for a project of this nature could be completed safely and fairly quickly by direct push to achieve the required width and safe passage of vehicles and equipment.

Steel Structures

The steel structures would be approximately 63.5-feet and 72.5-feet in height, respectively.

The steel structures would be direct-buried into the ground. Typical direct-bury processes include grubbing vegetation to clear the area, leveling the ground surface as necessary to facilitate safe set up of the drilling equipment, delivering the sections of each steel pole to the site and staging the sections on blocks for set up (e.g., attaching hardware). The steel poles will be installed by auguring holes, steel poles sections may be assembled and bolted together on the ground prior to setting into the hole, or the bottom section may be lifted and set into the hole first, followed by a second lift to bolt and secure onto the lower section, then backfilling the hole with the displaced spoils and tamping into place, completion of installing hardware onto the pole once it is set into the ground safely.

When construction is complete, the ground would be re-contoured as applicable and any excess displaced spoils from the hole, drilling would be spread across the work area and/or access road. The footprint of each steel structure is approximately 2-1/2 to 3-1/2 feet in diameter, however a work area of 50-feet x 100-feet to accommodate the construction activity and to maintain authorized use for operation and maintenance, as needed.

Access Road

The access road would be a 12-foot wide bladed dirt access road approximately 1,020-feet in length along the proposed transmission line beginning at the most northerly wood pole and continuing into the private land adjacent to the Blade Runner Substation. 200-feet of this access road overlaps with the proposed Dev Loop project area. In order to provide a minimum vehicle clearance of 14-feet under the Dev Loop guideway, the road will be graded to a maximum 5% slope and up to 30-feet wide to accommodate the slope.

Roads would be constructed with equipment appropriate for the terrain, and could be done with a blade, small dozer or other similar piece of construction equipment. Typical road construction for a project of this nature could be completed safely and fairly quickly by direct push to achieve the required width and safe passage of vehicles and equipment.

Temporary Overland Travel Path

The temporary overland travel path would be used during the construction phase only. Between the wood poles, the overland travel path would provide access to string wires. Between the most northerly wood pole and the termination of the BLM portion of the right-of-way at the private land, an area not to exceed 12-feet in width will be used to drive the pulling ropes required to string the wires from structure to structure. This overland travel path will not be graded and will be used only for the purpose of stringing the wire once the wood poles and steel structures are erected.

Temporary Pulling and Tension Sites

Three (3) 100-foot by 50-foot temporary pulling and tensioning sites would be located at the guyed wood poles; one to the south of the most southerly wood pole and the other two to the north and east of the most northerly wood pole.

Typically, equipment and vehicles would traverse pulling and tensioning sites via overland drive and crush with only minor grubbing of vegetation, if required. However, some blading might be necessary to level the ground for safe equipment set up, depending on the terrain, and such blading would be done with a backhoe.

Construction Activities

The following is a sequence of major construction activities:

- public land survey to mark project boundaries, elevations and other site features
- cactus and yucca salvage, as required by BLM
- desert tortoise clearance sweeps and relocations, as necessary
- environmental awareness training to all project personnel prior to construction
- site mobilization
- road and pad earthwork
- drill holes, deliver and assemble structures, set structures
- string wires and make end to end connections
- clean-up and demobilize
- reclamation and restoration, as necessary

The construction equipment will include concrete trucks, a crane, an excavator, and flatbed trucks, an estimated total of 6-8 vehicles. A few pick-up and smaller trucks will also be used for crews and other miscellaneous uses. Equipment and vehicles would park, be staged, set up, etc. within authorized areas within the ROW (i.e., work pads and pull sites), existing disturbed areas, and on private land east of the ROW.

The construction of the transmission line will take approximately 4-5 months. The work-force will include an estimated 10-12 people including inspectors, linemen, laborers, equipment operators and environmental monitors.

Estimated areas of disturbance related to the construction, operations, and maintenance of the transmission line have been calculated as follows:

Work Area / Activity	Area of Disturbance
Overland Path, Spur and Access Roads	0.54
Wood Pole and Steel Structure Work Areas	0.44
Pulling and Tension Sites	0.34

Applicant Proposed Mitigation Measures for Transmission Line

- Waste will be contained and removed from the site throughout construction. “Waste” means all discarded human waste, trash and refuse.
- All construction personnel will receive tortoise awareness training.
- All construction vehicles and equipment will travel, park and work within existing disturbed and authorized areas.
- A tortoise biologist(s) will be on site at all times to administer training and monitor all activities for the duration of this project.
- The NV Energy environmental scientist assigned to this project will serve as the Field Contact Representative for this work.

Chapter 3 Affected Environment and Environmental Effects

Fuels/Fire Management

Affected Environment

As discussed in the Draft Resource Management Plan and Environmental Impacts Statement of the Las Vegas and Pahrump Field Offices, vegetation (native plant communities) in the Las Vegas Field Office and Mojave Ecoregion is experiencing severe declines in quality and quantity that affect the level of ecosystem services they provide to humans. In general, direct and indirect impacts to native plant communities are additive and cumulative over time, most Mojave Desert native plant communities will not fully recover from temporary disturbances within the lifetime of the average BLM resource management plan. Using a survey of 47 studies examining natural re-establishment after a variety of disturbances, such as fire, abandoned roads, power line corridors, and a linear regression, Scott Abella (Abella, 2010) estimates that without active restoration, it takes the Mojave Desert 76 years for re-establishment of perennial plant cover and 215 years for re-establishment of perennial and annual species cover. Almost all native vegetation in the Mojave ecoregion is being subjected to multiple environmental stressors that affect the quality of native plant communities. Summarized below are the trends in stressors and effects on vegetation from 1998 to 2013 in the Las Vegas and Pahrump Field Offices according to the draft RMP and EIS:

Wildfire – The trend is an increase in number of acres burned and higher frequency of repeat burning. In lower elevation vegetation, non-native annual grasses are now responsible for an annual grass/fire cycle that did not exist before (Brooks, 1999) (Brooks, et al., 2004). This is largely because the spaces between individual shrubs were bare, and acted as a fuel break. Now, non-native annual grasses create a nearly continuous fuel load that carries fire between shrubs (Brooks 1999). Following fire, non-native annual grasses are some of the first species to return. If fire returns too quickly, the surviving native plants do not have enough time to grow and produce the seed needed for recovery. An estimated 1.3 million acres (or 42 percent) of Las Vegas and Pahrump Field Offices burned from 1998 to 2013.

Environmental Effects of the No Action Alternative

Under the no action alternative, the risk of fire would remain at current levels.

Environmental Effects of the Proposed Action

The proposed action may increase the number of wildfires during the construction phase due to equipment usage, welding, etc. There may also be an increase after construction from equipment malfunctions and/or maintenance/repairs to the line/structures, etc. In addition the facilities being placed on the site could be at risk to a wildfire during years with heavy annual grass loadings. The proposed road could potentially act as a fuel break in the event there was a wildfire in the area.

Cumulative Impacts of the Proposed Action

Increases in wildfires could do further damage to the Mohave Desert Ecosystem by decreasing native vegetation and allowing non-native vegetation to become more established.

Mitigation Measures for the Proposed Action

- Fire restrictions are generally enacted May through October. Compliance with fire restrictions is mandatory while fire restrictions are in effect. Specific non-compliant activities may be permitted in writing on a case by case basis by a line officer after review and approval by the Fire Management Officer (43 CFR 9212).
- In the event of an unplanned ignition that causes a wildfire the proponent will be held responsible for all costs of suppression and damaged resources pending a fire Origin and Cause Investigation. An Origin and Cause Investigation will be done on any human caused fire by BLM Law Enforcement or their designated representative. In general and when fire restrictions are not in effect, use standard fire prevention measures and best management practices to prevent fires. Minimize wildfire risk to assets or infrastructure where needed by maintaining a wildfire defensive space.

Residual Impacts of the Proposed Action

Residual Impacts from the proposed action should be minimal if stipulations are adhered to.

Visual Resources

Affected Environment

The valley in which the project is proposed is dominated by alluvial fans sloping from mountains, to the north and north west, toward a dry lake bed. The Interstate 15 (I-15) is perched to the south of the sloping valley and would be the major key observation point (KOP) for the valley where the project is proposed.

The proposed project is located in lands determined by the Record of Decision (ROD) for the Approved Las Vegas Resource Management Plan (LVRMP) to be managed as Visual Resource Management (VRM) Class III.

The valleys' form can currently be described as having a rolling foreground with a flat mid ground sloping toward the I-15. The background is triangular and domed in form. The valley has weak lines in the foreground and mid-ground. There are prominent diagonal and parallel lines in the background. The valleys floor consists of tans, reds, grays and browns. The Valley has a rippled texture in the foreground; a smooth mid-ground; and a rough background. The vegetative landscape's form is domed in the foreground and indistinct in the mid-ground and beyond. The vegetation's line can be described as diagonals in the foreground and indistinct mid-ground lines. Vegetation colors are green, olive, gray and reddish. The texture of the vegetation can be described as stippled in the foreground and stippled to indistinct in the mid-ground and beyond. The existing structures' forms are rectangular, cylindrical, and straight with triangular components. The structures have perpendicular, angular, straight and diagonal lines. The structures have brown, white, tan gray and silver colors. The texture of the structures is smooth and jagged looking (around the power plant from the components and the machinery).

Currently the valley is dotted with power plants and mines located on both private and public lands. Reasonably foreseeable projects in the vicinity include the proposed Faraday Future

Facility on private lands adjacent to the proposed Dev Loop as well as multiple solar facilities proposed and approved in the Dry Lake Solar Energy Zone on BLM-managed lands north of the proposed Dev Loop.

Environmental Effects of the No Action Alternative

The visual landscape would remain the same at the site of the proposed project.

Environmental Effects of the Proposed Action

The proposed project's form will be distinct, smooth, long and linear. The line of the proposed project will be straight, horizontal, smooth and continuous. The majority of the proposed projects' color will be white and concrete gray. The texture of the proposed project will be smooth, continuous and directional.

The proposed project conflicts with the existing form of the landscape. The valley floor has a rolling foreground with a flat mid ground sloping toward the I-15. The landscape's background form is triangular and domed. The proposed project is linear and level, it will not follow the contour of the valley. The proposed project conflicts with the current colors of the valley in which it will be built. The valley has tans, grays, reds and browns while the proposed project is a dominating white. The solid white of the proposed project will also stand out from the mottled colors of the surrounding vegetation.

The resulting effect to the visual resource cannot be completely mitigated. The project, as proposed, cannot meet the objectives in the LVRMP. Objective VS-1-b designated 1,727,870 acres of public lands for partial retention of the existing character of the landscape. In these areas, authorized actions may alter the existing landscape, but not to the extent that they attract or focus the attention of the casual viewer.

The unusualness of the proposed projects design will attract the attention of all drivers and passengers utilizing I-15 and those driving north on Highway 93. The project also proposes to run both day and night. The direct effects will be a change in the visual landscape of the valley that will attract the attention of viewers utilizing the interstate and highway. The change could attract the attention of viewers both day and night. To reduce attracting the attention of passersby, mitigation measure would be implemented to lessen the impact of artificial lighting.

The development of the proposed action would include infrastructure on the adjoining private land. The infrastructure will also be required to follow mitigation to reduce the visual impact to the valley's landscape.

As the development of the private lands, currently zoned for industrial use, continues, the visual impacts, both day and night, from the proposed project and the related infrastructure on private lands will diminish.

Cumulative Impacts of the Proposed Action

The proposed project is one of many proposed developments in the Apex area. The Dry Lake SEZ is located to the east of the proposed project and once fully built out it will change the color and texture of the valley. Development of the industrial area located on private lands may change

the visual landscape of the valley in which the proposed project lies to a degree that cannot be determined and would not be required to meet BLM's visual analysis.

Mitigation Measures for the Proposed Action

Development:

Methods to minimize glint and glare effects shall include, but are not limited to, the following:

- Limit the use of signs and project construction signs. Beyond those required for basic facility and company identification for safety, navigation, and delivery purposes, commercial symbols or signs and associated lighting on buildings and other structures shall be prohibited.
- Utilize retro-reflective or luminescent markers in lieu of permanent lighting.
- Minimize off-site visibility of all commercial symbols and signs and associated lighting. Necessary signs shall be made of non-glare materials and utilize unobtrusive colors. The reverse sides of signs and mounts shall be painted or coated by using a suitable color selected from the BLM Standard Environmental Color Chart to reduce contrasts with the existing landscape; however, placement and design of any signs required by safety regulations must conform to regulatory requirements.

Methods to minimize lighting effects shall include, but are not limited to:

- Using minimum intensity lighting that meets safety criteria.
- When accurate color rendition is not required (e.g., roadway, basic security), lighting shall be amber in color, using either low-pressure sodium lamps or yellow LED lighting, or equivalent. When white light is required for accurate color rendition, it shall be equal to or less than 3500° Kelvin color temperature. Bluish-white lighting shall be avoided.
- The use of red or white strobe lighting is prohibited unless the BLM approves its use because of conflicting mitigation requirements.
- The proponent shall fully shield all permanent lighting (e.g., full cut-off), except for collision markers required by the FAA or other emergency lighting triggered by alarms.
- The proponent shall mount lighting so that no light is emitted above an imaginary horizontal plane through the fixture.
- Lighting control shall be through timers, sensors, dimmers, or switches that are available to facility operators.

- Vehicle-mounted lights over permanently mounted lighting shall be used whenever possible for nighttime maintenance activities. Vehicle-mounted lighting shall be aimed toward the ground to avoid causing glare and skyglow.

Measures to minimize visual dominance shall include, but are not limited to, the following:

- Burying electrical collector lines, pipelines, communication and local utility lines to minimize additional surface disturbance where feasible (e.g., along roads or other paths of surface disturbance).
- Appropriate building and structural materials and surface treatments (i.e., paints or coatings designed to reduce contrast and reflectivity) shall be used to minimize visual impacts associated with the proposed project. A careful study of the site shall be performed to identify appropriate colors and textures for materials. Materials and surface treatments shall repeat and/or blend with the existing form, line, color, and texture of the landscape. The typical viewing distances and landscape shall be considered when choosing colors. Appropriate colors for smooth surfaces often need to be two to three shades darker than the background color to compensate for shadows that darken most textured natural surfaces. The BLM Standard Environmental Color Chart CC-001 and guidance shall be referenced when selecting colors.
- Appropriately colored materials for structures or stains/coatings to blend with the project's backdrop shall be used. Materials, coatings, or paints having little or no reflectivity shall be used whenever possible.
- The proponent shall ensure power poles utilize colors and styles already existing in the visual landscape of the proposed project. The proponent shall ensure the colors of the proposed power poles do not stand out from the other utility lines.
- Non-specular conductors and non-reflective coatings on insulators for electricity transmission/distribution projects shall be used.
- Approved color treatment practices shall be used to reduce visual color contrast of graveled or un-graveled surfaces.
- The proponent shall preserve existing rocks, vegetation, and drainage patterns to the maximum extent possible.

Operations and Maintenance:

- Compliance with the terms and conditions for VRM mitigation shall be monitored by the project developer. Consultation with BLM shall be maintained through operations and maintenance of the project, employing an adaptive management strategy and modifications, as necessary and approved by the BLM.

- Keep painted and color-treated facilities in good repair and repainted when the color fades or flakes.
- The proponent shall use interim restoration during the operating life of the project as soon as possible after land disturbances.

Reclamation and Decommissioning:

- Designing and implementing restoration of the project area to predevelopment visual conditions and the inventoried visual quality rating, or to that of the surrounding landscape setting conditions to the best extent possible or to conditions agreed upon by the BLM.
- Removing above-ground and near-ground level structures. Some structures may need to be removed to a level below the ground surface to allow reclamation/restoration.
- Utilizing native vegetation to establish a composition consistent with the form, line, color, and texture of the surrounding undisturbed landscape.
- Reapplying stockpiled topsoil to disturbed areas, where applicable, or using a mix of native and non-native species if necessary to ensure successful re-vegetation.
- Removing or burying gravel and other surface treatments.
- Restoring rocks and brush to approximate pre-existing visual conditions.
- Integrating feathering edges of vegetation to reduce form and line contrasts with the existing landscapes.

Residual Impacts of the Proposed Action

Although application of the mitigation measures would reduce impacts to visual resources, moderate levels of visual contrasts from the proposed action would remain in the long term. Off-site mitigation actions funded to offset impacts that are not resolved through mitigation could be implemented and would require additional NEPA analysis.

BLM Sensitive Wildlife Species

Affected Environment

BLM sensitive species are species that require special management consideration to avoid potential future listing under ESA and that have been identified in accordance with procedures set forth in BLM Manual 6840 – Special Status Species. A complete list of BLM sensitive species within the area can be found in the Resource Management Plan. Many of these species as well as other wildlife species of concern are also discussed in the Nevada State Wildlife Action Plan (NDOW 2012) and the Clark County Multiple Species Habitat Conservation Plan. Sensitive bird species are also provided protection by the Migratory Bird Treaty Act and thus are discussed in the Migratory Bird Section. The following sensitive species could potentially be impacted by the proposed action:

Chuckwalla (*Sauromalus obesus*)

Chuckwalla occur in rocky desert, lava flows, hillsides, talus slopes, and rock outcrops mostly below 5000 feet, where creosote bush is typically the dominant plant species. Chuckwalla will seek shelter in rock crevices and bask on rocks during the day. They are herbivorous, preferring annuals, but they will also eat perennial vegetation. Chuckwallas are relatively common throughout their Nevada range and likely occur within the project area, but would be localized on rock outcroppings.

Banded Gila Monster (*Heloderma suspectum*)

Gila monsters occur in desert washes and rocky upland desert scrub at elevations below 5,000 feet. Banded Gila monsters frequently utilize lower slopes of mountains and nearby plains. They will use and are occasionally encountered out in gentler terrain of alluvial fans. Hence, Gila monster habitat overlaps habitats of both the desert tortoise and chuckwalla. Threats to this reptile include illegal collection, traffic fatalities, and habitat destruction from urban and agricultural development.

Mojave Desert Sidewinder (*Crotalus cerastes cerastes*)

The Mojave Desert sidewinder is a nocturnal snake hiding in the day in animal burrows or coiled camouflaged in a shallow self-made pit at the base of a shrub. This species is most common where there are sand hummocks topped with creosote bushes, mesquite, or other desert plants but may also occur on flats, barren dunes, hardpan, and rocky hillsides.

Environmental Effects of the No Action Alternative

Under the no action alternative, there would be no direct or indirect impacts to wildlife from the Dev Loop. However, because the site is located near a designated a Solar Energy Zone and the APEX industrial development area, it is possible that some form of development could occur in this location if the proposed action were not authorized.

Environmental Effects of the Proposed Action

Wildlife species would be displaced as 19.92 acres of habitat are disturbed within the project area. The primary direct impacts of the proposed action on wildlife would be killing or maiming of ground dwelling animals, displacement of individuals, the permanent loss and fragmentation of habitat, and increased potential for harassment of wildlife. Indirect impacts could include increased noise, introduction and spread of weeds, and increased erosion potential. Wildlife

species in the general area are common and widely distributed throughout the area and the loss of some individuals and/or their habitat should have a negligible impact on populations of the species throughout the region. Impacts to BLM sensitive species are not anticipated to lead to further decline of the species range-wide. Any impacts to sensitive species would be avoided and/or minimized through the special stipulations provided below.

Chuckwalla, Banded Gila Monster, and Desert Sidewinder

Potential impacts to these species from the proposed action would be similar to those discussed above for general wildlife. Mitigation measures proposed for desert tortoise may also protect these species.

Cumulative Impacts of the Proposed Action

Any increase in human activities in the project area would increase the potential for take of sensitive wildlife species through intentional or unintentional killing, degradation of habitat, spread of weeds, and increase in the risks of wildfires, vandalism, and trash dumping, and poaching.

Mitigation Measures for the Proposed Action

- Clearing will be restricted and limited to that area needed for construction. Native plant communities in disturbed areas shall be restored by natural revegetation or by seeding and transplanting (using weed-free native grasses, forbs, and shrubs), on the basis of BLM recommendations, as early as possible once construction is completed.
- Project supplies or equipment where wildlife could hide will be inspected prior to moving or working on them, to reduce the potential for injury to wildlife. Supplies and equipment that cannot be inspected or from which wildlife cannot escape or be removed, will be covered or otherwise made secure from wildlife intrusion or entrapment at the end of each work day.
- Concurrent with the desert tortoise clearance surveys, a biologist will conduct a preconstruction survey for Gila Monsters in the project area. Any Gila monster encounters during project construction must be reported immediately to the Nevada Division of Wildlife at (702) 486-5127.

Live Gila monsters found in harms way on the construction site will be captured and detained in a cool, shaded environment ($\leq 85^{\circ}\text{F}$) by the project biologist trained in handling venomous reptiles until a NDOW biologist can arrive for documentation purposes. A clean 5-gallon plastic bucket w/ a secure, ventilated lid or similar container may be used for safe containment. Written information identifying mapped capture location, date, time, and circumstances and habitat description will also be provided to NDOW.

Injuries to Gila monsters may occur during excavation, road-grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment.

Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified during normal business hours. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of situation circumstances, habitat, and mapped location.

Should NDOW be delayed to assist, biological personnel on site may be requested to remove and release the Gila monster out of harms way. Should NDOW not be immediately available to respond for photo-documentation, a camera will be used to take good quality photographs of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW and will include:

- Encounter location (landscape overview with Gila monster in clear view)
- A clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view)
- A clear, overhead close-up of the head (head should fill camera's field of view).

Residual Impacts of the Proposed Action

Residual Impacts from the proposed action should be minimal if stipulations are adhered to.

Migratory Birds

Affected Environment

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 *et. seq.*) protects migratory birds and their nests. A list of MBTA protected birds are found in 50 C.F.R. 10.13. The list of birds protected under this regulation is extensive and the project site has potential to support many of these species, including BLM sensitive species, and their nests. Typically, the breeding season is when these species are most sensitive to disturbance, which generally occurs from February 15th through August 31st. The following sensitive bird species could potentially be impacted by the proposed action:

Western burrowing owl (*Athene cunicularia hypugaea*)

The Western burrowing owl is a diurnal bird of prey specialized for shrub-steppe habitats. Burrowing owl habitat in the Mojave Desert typically consists of open, dry, treeless areas on the desert floor. Burrowing owls most frequently use mammal burrows created by other animals such as ground squirrels (*Spermophilus* spp.), coyotes (*Canis latrans*), or desert tortoises (*Gopherus agassizii*). The burrows are used for nesting, roosting, cover, and caching prey. In recent decades, the range and species count have been declining primarily due to agricultural, industrial, and urban development that reduce burrow availability.

Bendire's thrasher (*Toxostoma bendirei*)

In Southern Nevada, Bendire's thrashers occur mostly in Joshua tree woodlands with dense grass, but they can also occur in desert scrub habitats with cholla or mesquite or in sagebrush with scattered junipers. They normally avoid dense woodlands and areas with very sparse vegetation. They typically nest in mesquite, cholla, juniper, Joshua trees, and other yucca species. Their population trend in Southern Nevada is unknown, but they are declining in other parts of their range.

LeConte's thrasher (*Toxostoma lecontei*)

LeConte's thrasher is a year-round resident in the Mojave Desert of Southern Nevada. In Nevada, they are associated with saltbush flats and wash systems and nest in cholla cactus, sagebrush, small trees, or shrubs. This thrasher prefers open habitats for foraging with sparse vegetation for cover and is a good indicator of habitat quality. Their population trend in Southern Nevada is unknown.

Loggerhead shrike (*Lanius ludovicianus*)

This species prefers open country with nesting habitat preference toward scattered trees and shrubs. They are commonly found in shrub habitat types comprising savanna, desert scrub, and occasionally, open woodland. Perches are an important habitat component used for hunting. If natural perches are unavailable, they will perch on poles, wires or fence posts. Population trend data in Nevada has shown an unexplained 5 percent decline per year since 1966.

Golden eagle (*Aquila chrysaetos*)

Generally the golden eagle can be found in open country, open wooded country, and barren areas, especially in hilly or mountainous regions. Nesting typically occurs on rock ledges, cliffs, or in large trees. They hunt while soaring or from tall perches and can have territories ranging from 35 to 90 square miles. Population trends in Nevada are unknown, but golden eagles can be impacted due to loss or fragmentation of habitat and mortality due to collisions with vehicles or wind turbines or electrocution by power lines. The golden eagle is also protected by the Bald and Golden Eagle Protection Act. The 1978 amendment to the act authorizes the Secretary of the Interior to permit the taking of golden eagle nests that interfere with resource development or recovery operations. One golden eagle nest and one possible golden eagle nest are located just over one mile west and one mile east of the project.

Environmental Effects of the No Action Alternative

Under the no action alternative, there would be no direct or indirect impacts to wildlife from the Dev Loop. However, because the site is located near a designated a Solar Energy Zone and the APEX industrial development area, it is possible that some form of development could occur in this location if the proposed action were not authorized.

Environmental Effects of the Proposed Action

Migratory birds in the project area may be disturbed and/or displaced by 19.92 acres of habitat removal and/or noise on the project site. Depending on the time of year for construction, operation, or maintenance, there is the potential to disturb nesting birds within or immediately adjacent to the proposed action. The proponent must comply with the MBTA and avoid potential impacts to protected birds within the project area.

Western burrowing owl

The direct impacts of the proposed action on western burrowing owl would be loss of nesting habitat and forage, mortality and harassment of individual animals, and decrease in habitat value of adjacent remaining "wildland" areas due to increased human activity in the area. The species is protected by the Migratory Bird Treaty Act and the proponent will be required to adhere to below mentioned mitigation measures.

Loggerhead shrike, LeConte's thrasher, Bendire's thrasher

The direct impacts of the proposed action on these bird species would be loss of nesting habitat and forage, mortality and harassment of individual animals, displacement from noise, potential for collision or electrocution by powerlines and decrease in habitat value of adjacent remaining "wildland" areas due to increased human activity in the area. The species are protected by the Migratory Bird Treaty Act and the proponent will be required to adhere to mitigation measures for migratory birds.

Golden eagle

The direct impacts of the proposed action on golden eagles would be loss of foraging habitat and potential for collision or electrocution by powerlines. Since nests are located over a mile from the project area, no impacts are expected to occur to nesting eagles from noise of construction or operation. This species is protected under the Migratory Bird Treaty Act as well as the Bald and Golden Eagle Protection Act and take of eagles requires a permit from the U.S. Fish and Wildlife Service. The proponent will be required to adhere to mitigation measures for migratory birds.

Cumulative Impacts of the Proposed Action

Any increase in human activities in the project area would increase the potential for take of migratory birds through intentional or unintentional killing, degradation of habitat, spread of weeds, and increase in the risks of wildfires, vandalism, and trash dumping, and poaching.

Mitigation Measures for the Proposed Action

- Habitat-altering projects or portions of projects should be scheduled outside of the bird breeding season which generally occurs between February 15th and August 31st. If a project has to occur during the breeding season, then a qualified biologist must survey the area for nests immediately prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests are found, an appropriately-sized buffer area must be established and maintained until the young birds fledge. The buffer area must connect to suitable, undisturbed habitat. As the above dates are a general guideline, if active nest are observed outside this range they are to be avoided as described above.
- Migratory birds are known to collide with lite structures, including buildings. Any lighting on facilities and associated infrastructure should be down-shielded to keep light within the boundaries of the site and the minimum amount and intensity allowable. The minimum amount of lighting required by the FAA should be used.
- Due to potential for electrocution, collision and nesting/perching by migratory birds on overhead power lines, the applicant should follow Avian Power Line Interaction Committee (APLIC) guidelines (Suggested Practices for Avian Protection on Power Lines (2006) and Reducing Avian Collisions with Power Lines (2012) to reduce this risk through facility design and comply with MBTA and other federal wildlife laws.
- All guy wires must be marked so they are visible to prevent injury/mortality to birds through collision. BLM requires every guy wire (not just external wires) should be clearly marked for the length of the wire. Following APLIC (1994) and USFWS (2000)

guidelines, all guy wires should be marked with either spiral vibration dampers (30 spirals per 150 meters of wire) or bird/swan flight diverters (spaced every 5 meters along the wire).

- All infrastructure for the project will be designed and constructed in a manner that does not allow open pipes that birds or other wildlife could be trapped in. This includes fencing, gates, or other materials with open holes. All open pipes will be capped or secured so that wildlife cannot access.
- Burrowing owl pre-construction surveys with the USFWS recommended protocol should be implemented by a qualified biologist. The biologist will identify suitable sites on BLM lands within 1 mile of the project for creation or enhancement of burrows prior to passive relocation efforts and provide for creation of at least two artificial burrows per relocated owl within the project site.

Residual Impacts of the Proposed Action

Residual Impacts from the proposed action should be minimal if stipulations are adhered to.

Threatened, Endangered or Candidate Wildlife Species and Critical Habitat

Affected Environment

Threatened and endangered species are placed on a federal list by the U. S. Fish and Wildlife Service (USFWS) and receive protection under the Endangered Species Act of 1973, as amended. The only federally protected species known to occur in the vicinity of the project area is the threatened Mojave desert tortoise (*Gopherus agassizii*). The proposed project is not within desert tortoise critical habitat.

The Mojave desert tortoise occurs primarily on flats and bajadas with soils ranging from sand to sandy-gravel. They are also found on rocky terrain and slopes. Tortoises occur in saltbush scrub, creosote scrub, and blackbrush scrub habitat types. Within these vegetation types, desert tortoises can potentially survive and reproduce provided their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow.

Historical survey data indicate that the area surrounding the project site is moderate to low density tortoise habitat. Although our records indicate there is no desert tortoise survey data on BLM lands near the project site, multiple live desert tortoises have been found on private land within Apex during clearance surveys for nearby projects.

Environmental Effects of the No Action Alternative

Under the no action alternative, there would be no direct or indirect impacts to wildlife from the Dev Loop. However, because the site is located near a designated a Solar Energy Zone and the APEX industrial development area, it is possible that some form of development could occur in this location if the proposed action were not authorized.

Environmental Effects of the Proposed Action

The proposed project must comply with Section 7 of the Endangered Species Act of 1973 as amended (16 U.S.C. 1531 et seq.) for consultation with the USFWS on effects to federally listed species. The proposed action has a may affect, likely to adversely affect determination for the federally threatened desert tortoise (*Gopherus agassizii*) and no effect for its designated critical habitat, as the project is outside of this range. The proposed project will have no effect on any other federally protected species or designated critical habitat due to absence of the species and/or habitat.

Potential impacts to tortoise from the proposed action would be similar to those described in the Fish and Wildlife section including loss 19.92 acres of habitat. If not noticed and avoided during construction, operation, or maintenance activities, desert tortoises could be either injured or killed (by crushing) or harassed (by being moved out of harm's way). Additional impacts may include, increased noise disturbance, increased predators, increased human presence leading to death or harm to individuals or collection, increased weeds and increased access to area by general public. If tortoises are found during clearance surveys and need to be relocated to adjacent areas, they could experience increased stress finding new burrows and exposure the elements (i.e. excess hot or cold weather).

Although this project is not within designated critical habitat, it is likely that the project will displace desert tortoises and requiring relocating them into the Coyote Springs ACEC. This ACEC is designated Critical Habitat for the species and has Relevant & Importance Criteria to manage desert tortoise habitat for recovery of the species. The ACEC's configuration is intended to provide functional corridors of habitat between tortoise recovery units in order to enhance long term persistence of the species. It consists of the western portion of the Mormon Mesa Critical Habitat Unit, protecting moderate to high densities of desert tortoises between the Desert National Wildlife Refuge, the Arrow Canyon Wilderness, and the Mormon Mesa ACEC. This ACEC is directly adjacent to the project, just west of powerline road. Since desert tortoises that may be encountered and moved during pre-construction activities likely already use habitat within this ACEC, moving tortoises from the project area should not increase the carrying capacity of the ACEC or be of concern for spread of disease. The potential for increase in predators in the area by creating perching and nesting opportunities should be negligible with BLM mitigation measures in place.

Section 7 consultation for this project is covered under the current Programmatic Biological Opinion (84320-2010-F-0365.R004) contingent on compliance with the terms and conditions found in Appendix A of this EA for desert tortoise. Terms and conditions and minimization measures in the above Biological Opinion contain measures to avoid and minimize potential impacts, including take, to desert tortoise (NV-052-16-049).

Cumulative Impacts of the Proposed Action

Any increase in human activities in the project area would increase the potential for take of desert tortoise and/or sensitive species through intentional or unintentional killing, degradation of habitat, spread of weeds, and increase in the risks of wildfires, vandalism, and trash dumping, and poaching.

Mitigation Measures for the Proposed Action

- Programmatic Biological Opinion: The proponent will comply with all terms and conditions of the biological opinion (84320-2010-F-0365.R004) which have been attached to this EA for desert tortoise. This includes remuneration fees for 19.92 acres of habitat at the current rate as well as project reporting to the BLM.
- The project will require the proponent implement the SNDO's Raven Management Plan for the project and associated infrastructure (including powerline) to comply with the biological opinion and reduce the potential for perching and nesting avian predators. This plan requires annual reporting to the BLM. The Raven Plan can be found as Appendix B of this EA.
- If desert tortoises must be relocated to adjacent habitat, an additional artificial burrow should be created within suitable habitat on BLM lands where the tortoise is relocated. Once tortoises are relocated, they should be monitored initially by the authorized biologist or monitor to ensure they do not wander back into the work area or pace any temporary fencing that may be installed.
- If desert tortoises must be relocated to the adjacent land within the ACEC, the proponent will work with the BLM on an offsite mitigation project to improve habitat for relocated tortoises adjacent to the project. The proponent and the BLM will determine the purpose for the existing fence(s) within the ACEC, located west of the project, that sever connectivity of the critical habitat. If it is determined that the fence(s) serve no reasonable purpose, the proponent will remove or fund the removal of the fence(s) in coordination with the BLM.
- Herbicide use shall be limited to nonpersistent, immobile substances. Only herbicides with low toxicity to wildlife and nontarget native plant species shall be used, as determined in consultation with the USFWS.
- The development of the storage site is proposed to disturb approximately 13 acres of habitat on private lands and will occur under the purview of the Clark County Multiple Species Habitat Conservation Plan and associated Section 10 permit. All remunerations fees for loss of desert tortoise habitat on private land shall be collected under the Clark County permit. The BLM recommends the terms and conditions of this biological opinion also be applied similarly to the actions on private lands, including clearance surveys for desert tortoise.

Residual Impacts of the Proposed Action

Residual Impacts from the proposed action should be minimal if stipulations are adhered to.

Soil Resources

Affected Environment

Soils in the project area are predominately very gravelly and stony loams of the Colorock-Tonopah and Rock Land-St. Thomas associations. Desert pavement is well-developed on the Colorock series of soils (BLM and DOE 2010, p. 11.3-46, Natural Resources Conservation Service [NRCS] 2014). Only the very southwestern portion of project is within the Rock Land-St. Thomas association (NRCS 2014). In addition to desert pavement, cryptobiotic soils (also referred to as biological soil crusts or cryptogamic soils) also are present on the surface in the project site. Cryptobiotic soils are formed by living organisms (algae, bacteria, mosses, and lichens) as well as their byproducts over geologic time. These soils are valuable to desert ecosystems because they stabilize loose desert soil types and minimize erosion and dust generation. Biological soil crusts increase water holding capacity and nutrient availability of surface soils and cause dust accumulation which prevents wind erosion of surface soils (Williams et al. 2013). Due to their slow rate of formation, biotic soil crusts are extremely vulnerable.

Any adverse effects on biological soil crusts could adversely impact the desert ecosystem, as this soil type not only increases overall soil stability, fixes atmospheric nitrogen, increases water availability (for plant use), it also aids seeding and germination of desert plants. Preliminary studies also suggest that the algae and lichens found in biological soil crusts, along with the vegetation that they help support, are sequestering as much CO₂ as temperate forests (Wohlfahrt *et al.* 2008).

Construction activities would therefore disturb and remove acres of biological crusts through site preparation, grading, and construction. These activities would result in a total loss of the organisms within the soil crusts and ecosystem functions provided by biological soil crusts. Plans to remove and stockpile biological soil crusts and restore biological soil crusts during Project decommissioning would reduce this impact to less than significant.

No detailed survey or mapping efforts for neither biological soil crusts nor desert pavement have been conducted in the project area.

Environmental Effects of the No Action Alternative

In the absence of the Proposed Action, there would be no direct or indirect impacts to soil resources from the Project. However, because the site is located near a designated a SEZ (Dry Lake) and an industrial development area (APEX), it is possible that some form of development could occur in this location if the Proposed Action were not authorized.

Specific ground disturbance and related details about possible future development at the site are not available, and so it is only possible at this time to provide a general analysis of potential future development that could occur on the site. Development of a project with a similar footprint as the Proposed Action presumably would have substantially similar effects as those of the Proposed Action.

Because the No Action Alternative would result in no direct or indirect impacts to soil resources, there would be no cumulative impacts associated with the No Action Alternative. If the BLM authorized some form of development in this location in the future, the cumulative impacts from that development would likely be similar to those described in the Proposed Action section.

Environmental Effects of the Proposed Action

The Proposed Action would affect soil resources primarily by disturbing the ground, and the extent of the impact to soil resources related to ground disturbance would be roughly proportional to the area of soil disturbed. Ground disturbance could result in numerous changes to soils at the Project site.

Direct impacts include soil compaction, soil horizon mixing, soil erosion and deposition by wind, soil erosion by water and surface runoff, and onsite or offsite sedimentation. Ground disturbance would result in loss of cryptobiotic soil crusts and also may disturb developed desert pavement at the site. Loss of the biological soil crusts would increase erosion potential of surface soils and decrease available water and nutrients to nearby plant communities. Loss of desert pavement would decrease surface soil stability and increase wind erosion potential. These impacts would be roughly proportional to the area of disturbance and impact intensity would depend on site-specific factors such as soil properties, slope, vegetation, and weather.

The use of trucks and mechanical equipment during Project construction, operation, maintenance, and decommissioning could result in soil contamination if fuels, oils, battery acids, or other fluids are released at the site. Herbicide application for weed control and the use of palliatives for dust control also could contaminate soil if not properly handled and applied at the site. The release or use of any of the substances or materials listed could adversely affect the ecological function of the soil by limiting the activity of soil microorganisms and decreasing the soil's ability to support plants (USEPA 2011; Leyval et al. 1997).

Implementing programmatic design features and protective measures, as well as Best Management Practices (BMPs) would reduce the level of adverse impacts associated with these activities.

Cumulative Impacts of the Proposed Action

The geographic scope used to evaluate cumulative impacts to soil resources included areas within and adjacent to the Dry Lake SEZ. For the purposes of this project-level analysis, the geographic scope of the cumulative analysis was refined to include other projects that would disturb the same soil resources as would be disturbed by the Proposed Action within and adjacent to the Project site, based on mapping of soils by the NRCS.

The following projects are within the geographic scope of cumulative soil resources impacts and were considered in the cumulative scenario: Harry Allen Solar Energy Center Project, Dry Lake Solar Energy Center, Moapa Solar Energy Center transmission line, and the Centennial II Project transmission line. Construction of the Harry Allen Solar Energy Center Project, the Dry Lake Solar Energy Center, and western portion of the Moapa 230 kV transmission line (SWCA 2014; BIA 2013). The temporal scope of soil disturbance impacts from these projects would vary, but could extend for the lifetime of the projects.

The impacts of the Proposed Action as identified above, include soil compaction, soil horizon mixing, soil erosion and deposition by wind, soil erosion by water and surface runoff, sedimentation, soil contamination, and loss of biological soil crusts, and desert pavement. While soil erosion BMPs would be in place for the Project, some soil loss would be unavoidable, given the acreage disturbed, typically dry soil conditions, and occurrence of high winds in the development area. When combined with other reasonably foreseeable actions, the Proposed Action would result in an incremental addition to soil resource related impacts. It is assumed that all reasonably foreseeable development on BLM lands in the Dry Lake SEZ and surrounding public lands would be subject to the same design features that reduce the potential cumulative impacts to soil resources.

Mitigation Measures for the Proposed Action

The Dry Lake SEZ SRMS identified the impact to soil resources from solar development within the SEZ, which is adjacent to the project area, as a potential impact that may warrant regional mitigation (Section 2.4.3.2; BLM 2014). To compensate for unavoidable impacts, the SRMS recommended a per-acre fee that developers would pay for acres disturbed by development, which included a proposed amount to mitigate for soil impacts. The same holds true for this project. The BLM will decide as part of the decision record for this Project if funds will be collected and the amount of those funds. Any compensatory mitigation measures will be consistent with the procedures described by Secretarial Orders 3289A-1 & 3330, Departmental Manuals 523 DM-1 & 600 DM-6, draft Regional Mitigation Handbook Section 1794, and the November 3rd, 2015 Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment, all of which include guidance for management of funds collected as part of the restoration, acquisition, or preservation portion of the total mitigation fee by an independent third party. In addition, offsite mitigation funds would be provided to develop BMPs and techniques for restoring cryptobiotic crusts.

Residual Impacts of the Proposed Action

Due to the long recovery rates for biological soil crusts and desert pavement, residual impacts are as described above and warrant off-site/compensatory mitigation.

Invasive Species and Noxious Weeds

Affected Environment

Invasive plants and noxious weeds are “alien (non-native) species whose introduction does, or is likely to cause, economic or environmental harm or harm to human health” (NISC 2008). Invasive and noxious weed management on public lands by the BLM is directed by the National Invasive Species Council established in 1999 (Executive Order [EO] 13112) and is regulated by the USDA under the Federal Noxious Weed Act (7 U.S.C. 2801 et seq. 1974).

Federal agencies have a responsibility to “prevent the introduction of invasive species”, and to “control populations of such species in a cost-effective and environmentally sound manner” in order to “minimize the economic, ecological and human health impacts that invasive species cause” (EO 13112).

The proposed project area has not been previously inventoried for the presence of invasive, non-native species. However, Sahara mustard (*Brassica tournefortii*), a listed noxious weed, is known to occur in the area and may be a management concern on the proposed site. Other noxious and/or invasive weeds that are known to occur within the Southern Nevada District that may be of concern are: camelthorn (*Alhagi maurorum*), perennial pepper weed (*Lepidium latifolium*), several knapweeds, malta starthistle (*Centaurea melitensis*), and yellow starthistle (*Centaurea solstitialis*), Johnson grass (*Sorghum halepense*), Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), fountain grass (*Pennisetum setaceum*), puncture vine (*Tribulus terrestris*), Russian thistle (*Salsola tragus*) and tamarisk (*Tamarix ramosissima*).

Environmental Effects of the No Action Alternative

Under the No Action Alternative, the Project ROW would be denied and non-native invasive plants species and noxious weeds would continue to grow and spread under current conditions. Soil disturbance associated with the proposed project would not occur. Most of the land would

remain open for future development which may result in similar impacts from invasive species and noxious weeds as the proposed action.

Environmental Effects of the Proposed Action

The proposed action has the potential to impact approximately 20 acres through ground disturbing activities and increased travel associated with construction activities that could exacerbate existing or introduce new weed populations. Construction associated with the proposed action would involve activities such as clearing and grubbing which would decrease native plant cover and increase soil disturbance. Vegetation removal and soil disturbance would provide opportunities for non-native species to establish and spread on the project site. Increased vehicle traffic associated with all phases of the Proposed Action would potentially contribute to increased spread of non-native invasive plant species and noxious weeds as vehicles are a primary vector of weed spread along roadways.

Although not designated as noxious weeds by the State of Nevada, non-native annual grasses such as red brome and cheatgrass threaten the Mojave Desert Ecosystem through increased fire and natural resource loss (Brooks 1998). Increased continuity and biomass of fine fuels associated with non-native annual grasses may result in increased fire ignitions and fire spread. Aggressively managing non-native invasive species would limit residual effects to manageable levels.

Cumulative Impacts of the Proposed Action

The Proposed Action would contribute to the cumulative impacts from invasive/noxious weeds. The Proposed Action, in conjunction with other projects would have a cumulative effect on the disturbance and loss of native vegetation communities and on the presence and potential spread of invasive and/or noxious weeds. The combined effects of the reasonable foreseeable future actions have the potential to increase the rate at which introduced invasive species colonize lands within the cumulative impacts area.

Mitigation Measures for the Proposed Action

Adoption of standard Best Management Practices (BMPs) would reduce the impacts due to non-native invasive and noxious plant species. Standard BMPs include:

- **Preconstruction Surveys for Vegetation.** Applicants shall conduct preconstruction surveys to determine the composition of the vegetation community in order to establish baseline conditions prior to construction for post-construction restoration efforts and document the presence of invasive weeds.
- **Minimize Vegetation Removal.** Applicants shall make every effort to minimize vegetation removal and permanent loss at construction sites.
- **Minimize Soil Disturbance.** Applicants shall make every effort to minimize soil disturbance to the extent practical, consistent with project objectives.
- **Invasive Plant Management Plan.** The applicant shall develop a Weed Management Plan, modeled on the BLM Las Vegas Office Draft Weed Plan. The plan shall include operation and maintenance activities, as well as construction activities. The content of the plan shall include results of the invasive weed inventory, identification and mapping of problem areas (i.e., infestations), preventative measures, treatment methods and prioritization, agency-specific requirements, monitoring requirements, and herbicide treatment protocol (as allowable by BLM in this area). The plan shall include BMPs that require that any biological material brought on-site (e.g., hay bales that may be used for controlling stormwater and native mixes for vegetation) shall

be certified weed-free. The plan shall clearly outline the responsibility by party for present and future weed monitoring and weed abatement activities on the project. The plan shall be submitted to the BLM and NDOW for approval prior to construction authorization.

- **BLM Guidance Documents for Treatments and Herbicides.** If herbicides or other pesticides are necessary, the applicant shall submit a Pesticide Use Plan (PUP) to the BLM for review and approval prior to use. Any pesticide use on BLM land shall comply with requirements within Vegetation Treatments on BLM Lands in 17 Western States (2007) and Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (2007).
- **Avoid Areas with Nonnative or Noxious Weed Species.** The applicant shall begin project operations in areas without nonnative or noxious weed species, and locate and use weed free project staging areas. Additionally, applicants shall avoid or minimize all types of travel through weed-infested areas or restrict travel to periods when the spread of seed or propagules is least likely (e.g. periods of high winds or rainfall).
- **Pretreatment.** The applicant shall pretreat high risk sites for weed establishment and spread before implementing projects.
- **Clean Vehicles and Equipment.** The applicant shall clean vehicles and equipment (remove soil and plant parts) before entering public land, and clean all equipment before leaving the site if operating in areas infested with weeds. The applicant shall employ standard contract provisions to ensure that contractors adhere to this guideline.

Residual Impacts of the Proposed Action

If the Proposed Project Area is not monitored and action is not taken to mitigate or eradicate any non-native invasive species within the Proposed Project Area, these species are likely to spread into adjacent area. This would result in degradation of not only the Proposed Project Area but surrounding lands as well.

Vegetation

Affected Environment

BLM uses vegetation mapping and community classifications developed by the U.S. Geological Survey for the Southwest Regional Gap Analysis Project (SWReGAP) (Lowry et. al. 2005). SWReGAP mapping and vegetation communities are based on ecological systems which are defined as a group of plant community types (associations) that tend to co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients. The proposed action is within the Sonora-Mojave Creosotebush-White Bursage Desert Scrub SWReGAP land cover classifications. This vegetation community is the most abundant vegetation type in the Las Vegas Field Office, occupying more than 70 percent of the vegetation cover. In these vegetation communities, creosote bush (*Larrea tridentata*) and bursage (*Ambrosia dumosa*) are generally the most conspicuous plant species present. These vegetation communities generally occur below 6,000 feet. Sonora-Mojave Creosotebush-White Bursage Desert Scrub is the primary habitat for the desert tortoise.

There have been declines of these vegetation types since 1998 because of BLM realty actions and congressionally mandated land transfers (land sales, patents, and rights-of-way authorizations). This decrease has predominantly been on multiple-use lands within designated disposal boundaries and utility corridors. Important threats to these ecosystems include direct and indirect impacts resulting from anthropogenic activity, invasion by non-native annual grasses and increased fire frequency. Anthropogenic activities include grazing; development; highway

and road construction; utility corridor construction; and recreational activity (casual OHV, concentrated OHV activities, and competitive races). Disturbances associated with these activities have fragmented habitat, increased edge effects, and created conditions that facilitate establishment on non-native annual grasses.

Since 1998, a significant portion of creosote bursage scrub in the planning area has burned due to colonization by non-native grasses. Compared to historic conditions, the quality of creosote bursage scrub in the planning area has also decreased because of non-native grasses. Due to the presence of non-native annual grasses, currently most of this vegetation category is classified as condition Class 2 at a moderate risk of losing key ecosystem components (see Wildland Fire Ecology and Management section). Higher densities of non-native annual grasses and increased fire frequency lead to decreased ecosystem functioning, a higher risk of wildfire, and result in lower quality habitats for wildlife. Historically, the Sonora-Mojave creosote bush-white bursage desert scrub ecosystem burned infrequently and contained substantial bare interspaces between shrubs with only low densities of annual grasses present. Currently, non-native annual grasses, including red brome (*Bromus madritensis* ssp *rubens*), cheat grass (*Bromus tectorum*), and Mediterranean grass (*Schismus* sp.), grow in significant densities under and between shrubs and create standing dead material that carries fire between shrubs and increases fire return intervals.

Temporary impacts to vegetation in this category can take decades to centuries to recover depending on the impact. Scott Abella (2010) estimates that without active restoration, it takes the Mojave Desert 76 years for re-establishment of perennial plant cover and 215 years for re-establishment of perennial and annual species cover. If disturbance is too frequent, recovery may be delayed or prevented entirely as soils become eroded or severely compacted. Slow recovery from disturbance means most impacts to this vegetation community will accumulate over time. The BLM restoration program is designed to facilitate natural recovery and reduce cumulative impacts to this vegetation type. Because this vegetation category does not recover quickly from disturbance, conservation actions may conflict with some multiple use management objectives.

Environmental Effects of the No Action Alternative

Under the no action alternative, there would be no direct or indirect impacts to vegetation from the Dev Loop. However, because the site is located near a designated a Solar Energy Zone and the APEX industrial development area, it is possible that some form of development could occur in this location if the proposed action were not authorized.

Environmental Effects of the Proposed Action

The proposed action would directly affect approximately 19.9 acres of creosote bursage scrub vegetation. Of the impact, 19.9 acres are expected to be permanent and 0 acres are expected to be temporary, the result of trampling during construction and drive and crush associated with parking vehicles and staging supplies. These vegetation types are widespread in the Las Vegas field offices; however, they are limited and finite resource. When combined with other reasonably foreseeable actions in the Las Vegas field offices, and impacts from fire, non-native, competition with non-native annual grasses, BLM reentry and minerals actions and casual recreation, the proposed action would result in an incremental addition to current declines in the quality and quantity of creosote bursage in the Las Vegas Field Office.

Cumulative Impacts of the Proposed Action

The proposed action, in conjunction with other projects, could have a cumulative effect on the disturbance and loss of native vegetation communities. However, implementation of the following mitigation measures would decrease the loss and aid in the protection of sensitive plants, cactus, and yucca.

Mitigation Measures for the Proposed Action

- BLM sensitive species, Rosy two-toned penstemon may be present within the project area. All washes within project area must be surveyed before ground disturbing activities. Surveys should be completed by a contractor (or other approved by the BLM botanist) with at least three years' experience surveying plants in the Mojave or Sonoran Deserts. Please contact BLM botanist for more information.
- All cactus and yucca within permanent and temporary impact areas must be salvaged and replanted in adjacent areas in a way that appears natural or in the nearest BLM salvage yard. Please coordinate with BLM botanist for more information.

Residual Impacts of the Proposed Action

By following the mitigation measures for Rosy two-toned penstemon, cactus, and yucca, residual impacts of the proposed action would be negligible.

Chapter 4 List of Preparers

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Boris Poff	Soils
Clay Stephens	Fuels and Fire
Jimmy Linares	Vegetation and Wildlife
John Schumacher	Visual Resources
Melanie Cota	Wildlife
Nicollee Gaddis	NEPA
Susanne Rowe	Cultural Resources

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TERMS AND CONDITIONS for ROWs: BO File No. 84320-2010-F-0365.R004

In order to be exempt from the prohibitions of section 9 of the Act, the Bureau must comply with the following terms and conditions and minimization measures, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

RPM 1: **Applies towards lands and realty, ROWs, and mining actions and other activities that involve vehicle and equipment use, excavations, or blasting.** *BLM, and other jurisdictional Federal agencies as appropriate, shall implement or ensure implementation of measures to minimize injury or mortality of desert tortoises due to project construction, operation and maintenance; and most actions involving habitat disturbance.*

Terms and Conditions:

1.a. ***Field Contact Representative***—BLM shall ensure a Field Contact Representative (FCR) (also called a Compliance Inspection Contractor) is generally designated for each contiguous stretch of construction activity for linear projects or isolated work areas for non-linear projects. The FCR will serve as an agent of BLM and the Service to ensure that all instances of non-compliance or incidental take are reported. BLM has discretion over approval of potential FCRs; however, those who also may be acting as authorized desert tortoise biologists, and must also be approved by the Service (see Term and Condition 1.c). All FCRs will report **directly** to BLM and the Service.

The FCR, authorized desert tortoise biologist, and monitors (see Term and Condition 1.c.) shall have a copy of all stipulations when work is being conducted on the site and will be responsible for overseeing compliance with terms and conditions of the ROW grant, including those for listed species. BLM shall ensure the FCR and authorized desert tortoise biologists have authority to halt any activity that is in violation of the stipulations. The FCR shall be on site year-round during all project activities.

Within 3 days of employment or assignment, the project proponent and BLM shall provide the Service with the names of the FCR.

1.b. ***Authorized desert tortoise biologist***— **This project will require an authorized desert tortoise biologist to present a tortoise education program to workers, to conduct desert tortoise clearance surveys, and to be on site during the desert tortoise active season (March 1 to October 31) and on call during the inactive season (November 1 to February 28/29) for construction activities.** All authorized desert tortoise biologists (and monitors) are agents of BLM and the Service and shall report directed to BLM and the proponent concurrently regarding all compliance issues and take of desert tortoises; this includes all draft and final reports of non-compliance or take. The initial draft report shall be

provided to BLM and Service within 24 hours of the observation of take or non-compliance.

An authorized desert tortoise biologist will be assigned to each piece/group of large equipment engaged in activities that may result in take of desert tortoise (*e.g.*, clearing, blasting, grading, lowering in pipe, hydrostatic testing, backfilling, recontouring, and reclamation activities) and other work areas that pose a risk to tortoises. BLM may use their discretion to require a monitor instead of an authorized desert tortoise biologist to monitor equipment that is low risk to tortoises.

1. c. Authorized desert tortoise biologists, monitors, and the FCR (see Term and Condition 1.a.) shall be responsible for ensuring compliance with all conservation measures for the project. This responsibility includes: (1) enforcing the litter-control program; (2) ensuring that desert tortoise habitat disturbance is restricted to authorized areas; (3) ensuring that all equipment and materials are stored within the boundaries of the construction zone or within the boundaries of previously-disturbed areas or designated areas; (4) ensuring that all vehicles associated with construction activities remain within the proposed construction zones; (5) ensuring that no tortoises are underneath project vehicles and equipment prior to use or movement; (6) ensuring that all monitors (including the authorized desert tortoise biologist) have a copy of the required measures in their possession, have read them, and they are readily available to the monitor when on the project site.

An authorized desert tortoise biologist will serve as a mentor to train desert tortoise monitors and will approve monitors if required. An authorized desert tortoise biologist is responsible for errors committed by desert tortoise monitors. An authorized desert tortoise biologist shall record each observation of desert tortoise handled in the tortoise monitoring reports. Information will include the following: location (GPS), date and time of observation, whether the desert tortoise was handled, general health and whether it voided its bladder, location desert tortoise was moved from and location moved to, unique physical characteristics of each tortoise, and effectiveness and compliance with the desert tortoise protection measures. This information will be provided **directly** to BLM and the Service.

An authorized desert tortoise biologist should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related field. The biologist must have demonstrated prior field experience using accepted resource agency techniques. As a guideline, Service approval of an authorized biologist requires that the applicant have at least 60 days project experience as a desert tortoise monitor. In addition, the biologist shall have the ability to recognize and accurately record survey results and must be familiar with the terms and conditions of the biological opinion that resulted from project-level consultation between BLM and the Service. All tortoise biologists shall be familiar with the field manual (Service 2009).

Potential authorized desert tortoise biologists must submit their statement of qualifications to the Service's Nevada Fish and Wildlife Office in Las Vegas for approval, allowing a minimum of 30 days for Service response. The statement

form is available on the internet

at: http://www.fws.gov/nevada/desert_tortoise/auth_dt_form.htm.

Prior to final approval to begin work on the project, the authorized desert tortoise biologists will have read the required measures (terms and conditions and other stipulations) and have a copy of the measures available at all times while on the project site. BLM shall provide the appropriate agency contact for the project to the Service and the Service will include the forms with approval letters.

Biologists and monitors should be visibly identifiable on the project site, which may include use of a uniquely designated hardhat or safety vest color.

1. d. ***Desert tortoise monitor***— **Required to be on site during construction during the inactive season (November 1 to February 28/29). Once construction is completed, required to be on site during maintenance activities using heavy equipment during the desert tortoise active season (March 1 – October 31).**
1. e. ***Desert tortoise education program***—A desert tortoise education program shall be presented to all personnel on site during construction activities by an agency or authorized desert tortoise biologist. The Service, BLM, and appropriate state agencies shall approve the program. At a minimum, the program shall cover desert-specific Leave-No-Trace guidelines, the distribution of desert tortoises, general behavior and ecology of this species, sensitivity to human activities, threats including introduction of exotic plants and animals, legal protection (the definition of “take” will also be explained), penalties for violation of State and Federal laws, reporting requirements, and project measures in this biological opinion. All field workers shall be instructed that activities must be confined to locations within the approved areas and their obligation to walk around and check underneath and vehicles and equipment before moving them (or be cleared by an authorized desert tortoise biologist). Workers and project associates will be encouraged to carpool to and from the project sites. In addition, the program shall include fire prevention measures to be implemented by employees during project activities. The program shall instruct participants to report all observations of desert tortoise and their sign during construction activities to the FCR and authorized desert tortoise biologist.
1. f. ***Vehicle travel***— Project personnel shall exercise vigilance when commuting to the project area to minimize risk for inadvertent injury or mortality of all wildlife species encountered on paved and unpaved roads leading to and from the project site. Speed limits will be clearly marked, and all workers will be made aware of these limits. On-site, personnel shall carpool to the greatest extent possible. During the desert tortoise less-active season (generally November through February), vehicle speed on project-related access roads and in the work area will not exceed 25 mph. All vehicles and construction equipment will be tightly grouped.
During the more-active season (generally March through October), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, vehicle speed on project-related access roads and in the work area will not exceed 15 mph. All vehicles and construction equipment will operate in groups of no more than three vehicles. An authorized desert tortoise biologist and desert tortoise monitor will escort or clear ahead of vehicles and equipment for ROW

travel. The escort will be on foot and clear the area of tortoises in front of each traveling construction equipment group (see *Desert tortoise clearance*). The escort will use a recreational vehicle with ground visibility (e.g., UTV); however, at least one authorized desert tortoise biologist and one desert tortoise monitor must ride together and survey both sides of the vehicle. The speed/pace will be determined by an authorized desert tortoise biologist and shall be slow enough to ensure adequate inspection.

New access and spur road locations will be sited to avoid potentially active tortoise burrows to the maximum extent practicable.

- 1.g. *Unauthorized access*—BLM shall ensure that unauthorized personnel, including the public and off-duty project personnel, do not travel on project-related temporary access roads, to the greatest extent practicable. During the more-active season (generally March through October), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, project- and non-project-related activities on all access roads that intersect the ROW will be monitored and logged. During construction, the ROW will be fenced at public roads that intersect the ROW. Signs will say that access on the ROW is strictly prohibited except by authorized personnel and that violators will be prosecuted.

- 1.h. *Desert tortoise clearance*— Prior to surface-disturbing activities, authorized desert tortoise biologists potentially assisted by desert tortoise monitors, shall conduct a clearance survey to locate and remove all desert tortoises from harm's way including areas to be disturbed using techniques that provide full coverage of all areas (Service 2009). During the more-active season, clearance surveys will be conducted either the day prior to, or the day of, any surface-disturbing activity. During the less-active season, clearance surveys will be conducted within 7 days prior to any surface-disturbing activity. No surface-disturbing activities shall begin until two consecutive surveys yield no individuals.

An authorized biologist shall excavate all burrows that have characteristics of potentially containing desert tortoises in the area to be disturbed with the goal of locating and removing all desert tortoises and desert tortoise eggs. During clearance surveys, all handling of desert tortoises and their eggs and excavation of burrows shall be conducted solely by an authorized desert tortoise biologist in accordance with the most current Service-approved guidance (currently Service 2009). If any tortoise active nests are encountered, the Service must be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action. Unoccupied burrows shall be collapsed or blocked to prevent desert tortoise entry. Outside construction work areas, all potential desert tortoise burrows and pallets within 50 ft of the edge of the construction work area shall be flagged. If the burrow is occupied by a desert tortoise during the less-active season, the tortoise shall be temporarily penned (see Term and Condition 1.k.). No stakes or flagging shall be placed on the berm or in the opening of a desert tortoise burrow. Desert tortoise burrows shall not be marked in a manner that facilitates poaching. Avoidance flagging shall be designed to be easily distinguished from access route or other flagging, and shall be designed in consultation with experienced construction personnel and

authorized biologists. All flagging shall be removed following construction activities.

An authorized desert tortoise biologist will inspect areas to be backfilled immediately prior to backfilling.

- 1.i. ***Desert tortoise in harm's way***—Any project-related activity that may endanger a desert tortoise shall cease if a desert tortoise is found on the project site. Project activities may resume after an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.d.) removes the desert tortoise from danger or after the desert tortoise has moved to a safe area on its own.

During the more-active season and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, at least 1 monitor shall be assigned to observe spoil piles prior to excavation and covering.

- 1.j. ***Handling of desert tortoises***—Desert tortoises shall only be moved by an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.d.) solely for the purpose of moving the tortoises out of harm's way. During construction, operation, and maintenance, an authorized desert tortoise biologist shall pen, capture, handle, and relocate desert tortoises from harm's way as appropriate and in accordance with the most current Service-approved guidance. No tortoise shall be handled by more than one person. Each tortoise handled will be given a unique number, photographed, and the biologist will record all relevant data on the Desert Tortoise Handling and Take Report (Appendix E) to be provided to BLM in accordance with the project reporting requirements.

Desert tortoises that occur aboveground and need to be moved from harm's way shall be placed in the shade of a shrub, 150 to 1,640 ft from the point of encounter. In situations where desert tortoises must be moved more than 1,640 ft (500 m), translocation procedures may be required. Translocation would likely result in a level of effect to the desert tortoise that would require the appended procedures.

If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (less than 40 ° F or greater than 95° F), they shall be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of an authorized biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes shall be discarded after one use and never hold more than one tortoise. If any tortoise active nests are encountered, the Service must be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action.

Desert tortoises located in the project area sheltering in a burrow during the less-active season may be temporarily penned in accordance with Term and Condition 1.k. at the discretion of an authorized desert tortoise biologist. Desert tortoises should not be penned in areas of moderate to heavy public use, rather they should be moved from harm's way in accordance with the most current Service-approved guidance (currently Service 2009).

Desert tortoises shall be handled in accordance with the Desert Tortoise Field

Manual (Service 2009). Equipment or materials that contact desert tortoises (including shirts and pants) shall be sterilized, disposed of, or changed before contacting another tortoise to prevent the spread of disease. All tortoises shall be handled using disposable surgical gloves and the gloves shall be disposed of after handling each tortoise. An authorized desert tortoise biologist shall document each tortoise handling by completing the Desert Tortoise Handling and Take Report (Appendix E).

- 1.k. *Penning*—Not required for this project.
- 1.l. *Temporary tortoise-proof fencing*— **not required for this project but may be implemented if proponent so desires.**
- 1.m. *Permanent tortoise-proof fencing*—Not required for this project.
- 1.n. *Wildlife escape ramps*— **Not required for this project. See measure 8.d. for trenches.**
- 1.o. ***Dust control***—Water applied to for dust control shall not be allowed to pool outside desert-tortoise fenced areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water. An authorized desert tortoise biologist will be assigned to patrol each area being watered immediately after the water is applied and at approximate 60-minute intervals until the ground is no longer wet enough to attract tortoises if conditions favor tortoise activity.
- 1.p. *Blasting*—Not required for this project.
- 1.q. *Power transmission projects*— **Proponent will follow BLM provided Raven Management Plan.**

Transmission line support structures and other facility structures shall be designed to discourage their use by raptors for perching or nesting (*e.g.*, by use of anti-perching devices) in accordance with the most current Avian Power Line Interaction Committee guidelines (see terms and conditions 2.b and 2.c.).
- 1.r. ***Timing of construction***—The BLM shall ensure that when possible, the project proponent schedules and conducts construction, operation, and maintenance activities within desert tortoise habitat during the less-active season (generally October 31 to March 1) and during periods of reduced desert tortoise activity (typically when ambient temperatures are less than 60 or greater than 95 °F). All vehicles and equipment that are not in areas enclosed by desert tortoise exclusion fencing will stop activities in desert tortoise habitat during rainfall events in the more-active season (generally March 1 to October 31), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days. The Field Contact Representative (FCR) or designee will determine, in coordination with the BLM and Service, when it is appropriate for project activities to continue.

RPM 2: Predator Control— Applies to all actions. *BLM, and other jurisdictional Federal agencies as appropriate, shall ensure their agency personnel, the project proponent, and their contractors implement the following measures to minimize injury to desert tortoises as a result of predators drawn to the project area from construction, operation, and minor maintenance activities:*

Terms and Conditions:

- 2.a. ***Litter control, applies to all projects***—A litter control program shall be

implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit foxes, coyotes, and common ravens. Trash and food items will be disposed of properly in predator-proof containers with predator-proof lids. Trash containers will be emptied and construction waste will be removed daily from the project area and disposed of in an approved landfill. Vehicles hauling trash to the landfill or transfer facility must be secured to prevent litter from blowing out along the road.

2.b. **Deterrence**—The project proponent will implement measures to discourage the presence of predators on site (coyotes, ravens, etc.), including elimination of available water sources, designing structures to discourage potential nest sites, and use of hazing to discourage raven presence.

2.c. **Monitoring and predator control**— **Proponent will follow BLM provided Raven Management Plan.**

Projects that may create nest sites for ravens: The project proponent will monitor for the increased presence of ravens and other potential human-subsidized predators in the vicinity of the project area. A qualified biologist (not necessarily an authorized desert tortoise biologist) shall conduct monthly nest surveys of potential nest sites (*e.g.*, power transmission towers/poles) during the raven breeding season (generally February 1 to April 30) and document the presence of all nests and the species using them. During these monthly surveys, an authorized biologist will also document any sign of predation of desert tortoises below the nest and in the vicinity of the transmission line. If sign of predation is found under a nest, control measures will be implemented in coordination with the Service. The frequency of these nest surveys may be modified as agreed upon by BLM and the Service.

2.d. **Evaporation ponds and open water sources**—Not required for this project.

RPM 3: Impacts to Desert Tortoise Habitat—**Applies towards all actions that involve habitat impacts.** *BLM, and other jurisdictional Federal agencies as appropriate, shall ensure their agency personnel, the project proponent, and their contractors implement the following measures to minimize loss and long-term degradation and fragmentation of desert tortoise habitat, such as soil compaction, erosion, crushed vegetation, and introduction of weeds or contaminants from construction, operation, and minor maintenance activities:*

Terms and Conditions:

3.a. **Habitat protection plans**— The proponent shall have a fire prevention and response plan, erosion control plan, and a weed management plan in place prior to surface disturbance.

3.b. **Restoration plan**— BLM shall ensure that the applicant develop and implement a restoration/reclamation plan. The plan will describe objectives and methods to be used, species of native plants and/or seed mixture to be used, time of planting, success standards, actions to take if restoration efforts fail to achieve the success standards, and follow-up monitoring. The plan will be prepared and approved prior to the surface disturbance phase of the project. Reclamation will be addressed on a case-by-case basis.

3.c. **Minimizing new disturbance**—Cross-country travel outside designated areas

shall be prohibited. All equipment, vehicles, and construction materials shall be restricted to the designated areas and new disturbance will be restricted to the minimum necessary to complete the task (e.g., such as construction of one-lane access roads with passing turnouts every mile rather than a wider two-lane road). All work area boundaries shall be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities.

3.d. **Weed prevention**—Vehicles and equipment shall be cleaned with a high pressure washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread these species.

3.e. **Chemical spills**—Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during construction will be controlled to prevent accidental spills. Any leak or accidental release of hazardous and toxic materials will be stopped immediately and cleaned up at the time of occurrence. Contaminated soils will be removed and disposed at an approved landfill site.

3.f. **Residual impacts from disturbance**— **As proposed, this project will disturb 19.92 acres of non-critical desert tortoise habitat therefore, remuneration fees are required as described below.**

BLM shall collect remuneration fees to offset residual impacts to desert tortoises from project-related disturbance to desert tortoise habitat. Remuneration fees will be used for management actions expected to promote recovery of the desert tortoise over time, including management and recovery of desert tortoise in Nevada. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species status and trend, and preserving distinct population attributes. Fees will be used to fund the highest priority recovery actions for desert tortoises in Nevada

The remuneration fees for this project will be \$16,912.08. The current base rate is \$849 per acre of disturbance, as indexed for inflation, effective March 1, 2016. Critical habitat rates are based on multipliers. The next adjustment will become effective March 1, 2017. The fee rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year, becoming effective March 1st. Fees assessed or collected for projects covered under this biological opinion will be adjusted based on the current CPI-U for the year they are collected. Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>.

RMP 7: Compliance and Reporting—Applies towards all actions. *BLM, and other jurisdictional Federal agencies as appropriate, shall ensure their agency personnel, the project proponent, and their contractors implement the following measures to comply with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion:*

Terms and Conditions:

7.a. **Desert tortoise deaths**—The deaths and injuries of desert tortoises shall be investigated as thoroughly as possible to determine the cause. The Service

(702/515-5230), BLM wildlife staff (702/515-5000) and appropriate state wildlife agency must be verbally informed immediately and within 5 business days in writing (electronic mail is sufficient). The Authorized Desert Tortoise Biologist shall complete the Desert Tortoise Handling and Take Report (Appendix E).

- 7.b. ***Non-compliance***—Any incident occurring during project activities that was considered by the FCR, authorized desert tortoise biologist, or biological monitor to be in non-compliance with this biological opinion shall be immediately documented by an authorized desert tortoise biologist. Documentation shall include photos, GPS coordinates, and details on the circumstances of the event. The incident will be included in the annual report and post-project report.
- 7.c. ***Fence inspection***—Not required for this project.
- 7.d. ***Project reporting requirements***— Project proponents will provide BLM with compliance reports. Quarter (non-appended actions), annual, and comprehensive final project reports will be submitted to BLM and the Service’s Nevada Fish and Wildlife Office in Las Vegas. Annual reports are required for all appended actions (except those completed and provided in a prior annual report). Annual reports will cover the calendar year and are due April 1st of the following year (e.g., the annual report for calendar year 2013 is due April 1, 2014). Quarterly reports for non-appended actions are due 15 calendar days following the quarter. Final project reports are due within 60 days following completion of the project or each phase of the project.
- The Programmatic Biological Opinion Report to the Fish and Wildlife Service (Appendix G) will be used for quarterly, annual, and final project reports, and shall include all Desert Tortoise Handling and Take Reports (Appendix E). If available, GIS shape files will be included.
- 7.e. ***Operation and maintenance***—A written assessment report shall be submitted annually to the Service outlining the operation and maintenance activities that occurred over the past year.
- Report to include: It will include frequency of implementation of minimization measures, biological observations, general success of each of the minimization measures. All deaths, injuries, and illnesses of endangered or threatened species within the project area, whether associated with project activities or not, will be summarized in the annual report. The report is due April 1 of each year.
- 7.f. ***Restoration monitoring***—Vegetation restoration success shall be monitored by project proponent and reported to BLM and the Service. Monitoring will include both qualitative and quantitative data collection and analysis. Monitoring frequency and parameters for restoration success will be described in the required restoration/reclamation plan.

RMP 8: Minimization Measures

- 8.a. The project applicant shall notify BLM wildlife staff at 702-515-5000 at least 10 days before initiation of the project. Notification shall occur before any activities begin that will damage or remove vegetation, such as off-road vehicle travel for surveys, soil testing, and clearing vegetation off the project site. The purpose of the notification is to ensure that the proper education program is given and to review expectations for compliance with the terms and conditions of the biological opinion.

- 8.b. Overnight parking and storage of equipment and materials, including stockpiling, shall be in previously disturbed areas or areas cleared by a tortoise biologist. If not possible, areas for overnight parking and storage of equipment shall be designated by the tortoise biologist in coordination with BLM and project proponent, which will minimize habitat disturbance.
- 8.c. Within desert tortoise habitat, any construction pipe, culvert, or similar structure with a diameter greater than 3 inches stored less than 8 inches above the ground will be inspected for tortoises before the material is moved, buried, or capped.
- 8.d. **Trenches:** All trenches and holes will be covered, fenced or backfilled to ensure desert tortoises do not become trapped unless alternate measures are in place as agreed by BLM and the Service. If trenches or holes are to remain open during construction, they will be checked for tortoises at least four times a day, at the start of day, at mid-morning, early afternoon, and at the end of the work day. The trenches or holes will also be checked immediately before backfilling regardless of the season. Tortoises found in the trench will be reported and moved out of harm's way in accordance with handling protocols (Service 2009).
- 8.e. **Vehicles:** All project/event-related individuals shall check underneath stationary vehicles before moving them. Tortoises often take cover under vehicles. All vehicle use will be restricted to existing roads. New access roads will be created only when absolutely necessary and only when approved by BLM. Workers shall not drive or park vehicles where catalytic converters can ignite dry vegetation and to exhibit care when smoking in natural areas. Fire protective mats or shields shall be used during grinding or welding.
- 8.f. All construction vehicle movement outside the ROW would normally be restricted to predesignated access, contractor-acquired access, or public roads.
- 8.g. In construction areas where recontouring is not required, vegetation would be left in place wherever possible, and original contours would be maintained to reduce root damage and allow for resprouting.
- 8.h. Prior to construction, all supervisory construction personnel would be instructed on the protection of biological resources. To assist in this effort, the environmental awareness training would address: (a) federal and state laws regarding plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
- 8.i. Roads would be built as near as possible at right angles to the streams and washes. Culverts would be installed where necessary. All construction and maintenance activities shall be conducted in a manner that minimizes disturbance to vegetation, drainage channels, and intermittent or perennial streambanks. Road construction would include dust-control measures during construction in sensitive areas. All existing roads would be left in a condition equal to or better than their condition

prior to the construction of the Project. Towers would be sited a minimum distance of 200 feet from streams.

- 8.j. Hazardous materials shall not be drained onto the ground or into streams or drainage areas. Totally enclosed containment shall be provided for all trash. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials shall be removed to a disposal facility authorized to accept such materials.
- 8.k. Pre-construction surveys for plants and wildlife species designated as sensitive or of concern will be conducted in areas of known or reasonably anticipated occurrence or habitat, including noxious weed surveys, as stipulated by the land-administering agency during the development of

APPENDIX E. DESERT TORTOISE HANDLING AND TAKE REPORT

If a desert tortoise is killed or injured, immediately contact the U.S. Fish and Wildlife Service and BLM, by phone at the numbers below and complete Section 1 of the form.

Completed forms should be submitted to the BLM and Fish and Wildlife Service:

Bureau of Land Management
 4701 North Torrey Pines Drive
 Las Vegas, Nevada 89130
 702-515-5000

Wildlife Service
 4701 North Torrey Pines Drive
 Las Vegas, Nevada 89130
 702-515-5230

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Project Name: Hyperloop NEPA No.: DOI-BLM-NV-S010-2016-0048-EA Case File No./SRP No.: N-94582 BLM Section 7 log no.: NV-052-16-049	Report Date:
Fish and Wildlife Service Append File No.- 84320-	
Authorized Desert Tortoise Biologist: _____ Employed by: _____	
Section 1: Complete all information below if a desert tortoise is injured or killed in addition to initial contact described above.	
If tortoise was injured <input type="checkbox"/> or killed <input type="checkbox"/> (check appropriate box):	
Date and time found: _____	
Found by: _____	
GPS location (NAD 83): easting: _____ northing: _____	
No. of photos taken: _____	
Disposition: _____ _____ _____	
Attach report with photos that describe in detail, the circumstances and potential cause of injury or mortality. For injuries include name of veterinarian and detailed assessment of injuries.	

Section 2: Complete all information below for each desert tortoise handled.

All instances of desert tortoise handling must be reported in this section and be included in the quarterly, annual, and final project reports.

Desert tortoise number: _____

Date and time found: _____ Sex of tortoise: _____

Air temperature when found: _____ Air temperature when released: _____

Tortoise activity when found: _____

Handled by: _____ Approx. carapace length _____

GPS location (NAD 83) found: easting: _____ northing: _____

GPS location released: easting: _____ northing: _____

Approximate distance moved: _____

Did tortoise void bladder; if so state approximate volume and actions taken:

Post handling or movement monitoring and observations:

Section 3: Complete for each tortoise burrow penned.

All instances of desert tortoise penning must be reported in this section and be included in the quarterly, annual, and final project reports.

Date and time of pen construction:

Began: _____ Completed: _____

Date and time pen removed: _____

Pen constructed by: _____

Why was tortoise penned? _____

How frequently was pen monitored? _____

Observations of desert tortoise behavior including time and date of observation:

Include photos of pen and burrow with report.

APPENDIX F. SECTION 7 FEE PAYMENT FORM

SECTION 7 LAND DISTURBANCE FEE PAYMENT FORM

Biological Opinion File Number: 84320-2010-F-0365.R004

Biological Opinion Issued By: Nevada Fish and Wildlife Office, Las Vegas, Nevada

Species: Mojave Desert Tortoise (*Gopherus agassizii*)

Project Name: Hyperloop

NEPA #: DOI-BLM-NV-S010-2016-1048-EA

Case File/Serial #: N-94582

BLM Sec 7 log #: NV-052-16-049

Project Proponent: _____

Phone Number: _____

Payment Calculations:	Clark County		_____ County		_____ County	
	Critical habitat	Non-critical habitat	Critical habitat	Non-critical habitat	Critical habitat	Non-critical habitat
# acres anticipated to be disturbed on federal land		19.92				
Fee rate (per acre)		\$849				
Total cost/habitat type (per county)		\$16,912.08	\$ -	\$ -	\$ -	\$ -
Total cost per county	\$16,912.08		\$ -		\$ -	

Total payment required (all counties): **\$ 16,912.08**

Amount paid: _____ **Date:** _____ **Check/Money Order #:** _____

Authorizing agencies: Bureau of Land Management, _____ Las Vegas, _____ Nevada

Make check payable to: Bureau of Land Management

Deliver check to: **Physical Address**
 Bureau of Land Management
 Attn: Information Access Ctr
 1340 Financial Blvd.
 Reno, NV 89502

Credit Card Payments: Contact BLM State Office Public room at 775-861-6500

For BLM Public Room

Process check to:

Contributed Funds-All Other
 WBS: LVTFFX000800
 7122 FLPMA
 All other Res. Dev. Project and Management
 Remarks: LLNV934000 L71220000.JP0000 LVTFFX000800 Desert Tortoise Conservation Program

Please provide a copy of this completed payment form and the payment receipt to NV-930, Attn: T&E Program Lead
 **T&E Program Lead will provide a copy to the appropriate District Office(s)

APPENDIX G. PROGRAMMATIC BIOLOGICAL OPINION (FILE NO. 84320-2010-F-0365.R003) REPORT TO THE FISH AND WILDLIFE SERVICE

The information below should be completed by BLM or the Authorized Desert Tortoise Biologist for the project/action. Reports for all appended actions are required annually (due March 1 of each year for prior calendar year activities) and upon completion of the project/action.

Project Name: Hyperloop

NEPA no.: DOI-BLM-NV-S010-2016-0048-EA

Case File no./SRP no.: N-94582

BLM Section 7 log no.: NV-052-16-049

Annual Report

Project Completion Report

1. Date: _____

2. Fish and Wildlife Service File No (for appended actions): 84320-_____

3. Species and critical habitat affected:

Desert tortoise

Desert tortoise critical habitat

Other (identify): _____

4. Project/action status:

Not begun

In progress*

Completed

date _____

If in progress, state approximate percent complete: _____

5. Desert tortoise habitat disturbed:

Non-critical habitat		Critical habitat	
Proposed disturbance (ac)	Actual disturbance (ac)	Proposed disturbance (ac)	Actual disturbance (ac)
19.92			

6. Habitat of other species disturbed (identify species, non-critical, and critical habitat affected below):

7. Summary of individual desert tortoises taken (appended action):

	Desert Tortoise:		
	Adults	Juveniles	Eggs
Exempted			
Actual			

Describe other individuals taken:

8. Name of authorized desert tortoise biologists and monitors on the project and the dates they were on the project.

9. Describe all non-compliance issues and events.

10. Desert tortoise burrow observed during activity/event:

Total number desert tortoises observed: _____ Total number desert tortoises burrows observed: _____ Attach a summary report detailing each desert tortoise and/or desert tortoise burrows observed during activity/event including tortoise activity when found, how the animal was avoided, what happened to the tortoise, the date and time encountered and GPS location (NAD 83 easting: _____ northing: _____)
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11. Contact Information

Name _____ Company _____

Address _____

Phone _____

Signature _____ Date _____

Send completed form to:
 Bureau of Land Management
 Attn: Wildlife Staff
 4701 North Torrey Pines Drive
 Las Vegas, Nevada 89130
 702-515-5000
 U.S. Fish and Wildlife Service
 4701 North Torrey Pines Drive

Raven Management Plan