



Adelanto Gateway Logistic Center Project

Desert Tortoise Survey Report

City of Adelanto, San Bernardino County, California

PROJECT APPLICANT:

Mileski Living Trust C/O Synergy Consulting

1971 190th Street
Torrance, CA 90504

Contact: Michael Mileski

PREPARED BY:

FirstCarbon Solutions

967 Kendall Drive, #A-537
San Bernardino, CA 92407
714.508.4100

Contact: Jason Brandman, Project Director
Michael W. Tuma, PhD, Principal Biologist

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1 - INTRODUCTION

FirstCarbon Solutions (FCS) conducted a site assessment and protocol survey for the Mojave desert tortoises (*Gopherus agassizii*) in support of the proposed Adelanto Gateway Logistic Center Project (proposed project) in the City of Adelanto, in San Bernardino County, California. The following report provides details about the project, its environmental setting, methods and results of the site assessment and survey, and recommendations for further action.

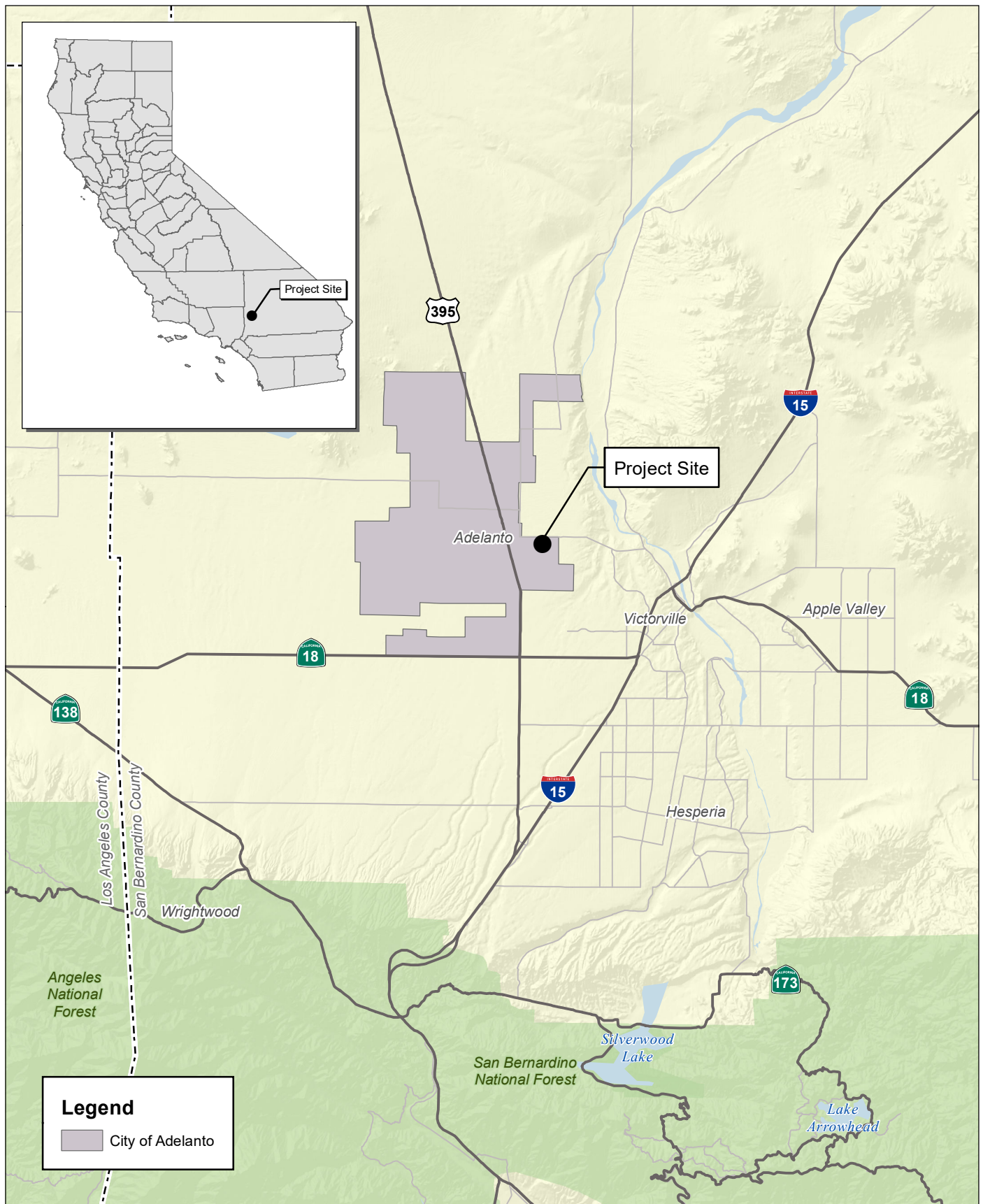
1.1 - Project Site Location and Description

The approximately 487.20-acre project site is located in the City of Adelanto, in San Bernardino County, California (Exhibit 1). The project site is centered around 34.568588° latitude and -117.387749° longitude. The location of the project site within the Mojave Desert region is shown on Exhibit 1, and the project site boundaries on a recent high-resolution aerial image are shown on Exhibit 2. The project site is located on the *Adelanto, California* United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map, Township 6 North, Range 5 West, Section 34.

The project site is situated in an area characterized by urban development, including the Federal Correctional Complex to the east of the site and several corporate businesses, including a trucking company, concrete company, and a diesel engine repair shop to the south. Additionally, a cannabis store, open land, and Adelanto Road are located to the west of the site, and Air Expressway, the DHL Supply Chain, and the Southern California Logistics Airport are located to the north. However, undeveloped land is also present to the west, north, and east of the project site. Significant landmarks in the project vicinity include U.S. Route 395 located approximately 0.45 mile west and the Southern California Logistics Airport located approximately 0.34 mile north of the project site.

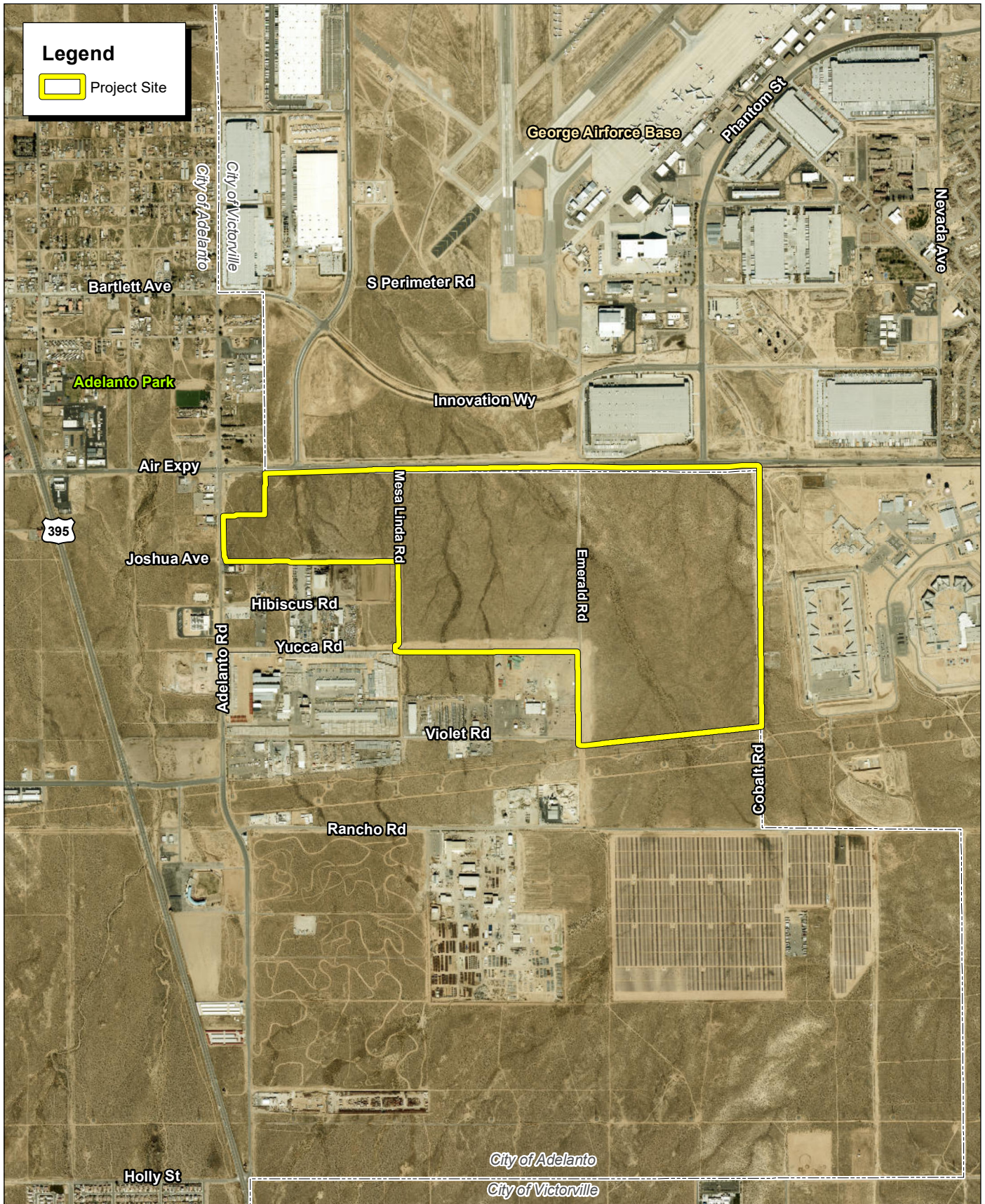
The proposed project would consist of an industrial distribution facility comprised of industrial warehouses and office space.

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Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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Source: ESRI Aerial Imagery. BLUE Engineering & Consulting, Inc.

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2 - REQUIREMENT FOR DESERT TORTOISE SURVEY

The Mojave desert tortoise (*Gopherus agassizii*; desert tortoise or tortoise) is listed as Threatened under the Endangered Species Act and Threatened on the California Endangered Species Act (CESA). The United States Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under the Endangered Species Act. Section 9 of the Endangered Species Act protects listed species from “take,” which is broadly defined as actions taken to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” CESA prohibits take (defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) of listed species and directs agencies to consult with the California Department of Fish and Wildlife (CDFW) on projects or actions that could affect listed species.

The USFWS recommends that projects or actions within the known range of the Mojave desert tortoise conduct an assessment of the site to determine whether implementation of the project or action could affect tortoises.¹ The assessment should include an evaluation of whether the project is within the known range of the Mojave desert tortoise and contains habitat suitable for supporting desert tortoise occurrence. The USFWS recommends that a qualified Biologist perform a survey of the site to search for desert tortoises and their sign and evaluate it for the following conditions:²

1. Does the site contain any natural or anthropogenic features that would preclude desert tortoises from residing or moving through the area?
2. Does the site support native annual plants upon which desert tortoises forage? Are the soil conditions appropriate to support these species?
3. Is the substrate appropriate for desert tortoises to burrow, nest, and overwinter?
4. Does the site support burrows, caliche caves, and other shelter sites or have the ability to support such sites?
5. What is the status of the perennial plant community? Are shrubs large enough to provide shelter to desert tortoises? Are they too dense or too sparse to allow for desert tortoises to reside in the area?
6. What evidence do you see of past or ongoing disturbance as a result of human activities? Do common ravens seem to be overly abundant? Are feral or free-roaming dogs present?

USFWS guidance recommends that for small projects (<500 acres), surveys should be conducted over the entire project site to determine whether tortoises are present. Detection of tortoise sign (e.g., scat, tracks, burrows, carcasses) is particularly important on small projects, and biologists conducting the survey must be diligent about searching for, observing, and describing sign.³

¹ United States Fish and Wildlife Service (USFWS). 2019. Preparing for Any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). Accessed November 26, 2024.

² Ibid.

³ United States Fish and Wildlife Service (USFWS). 2019. Preparing for Any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). Accessed November 26, 2024.

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3 - EXISTING SITE CONDITIONS

The project site lies within the Victor Valley, which comprises the south-central portion of the Mojave Desert. The valley spans approximately 20,105 square miles and consists of a largely desert scrub ecosystem, primarily dominated by creosote bushes and Joshua trees. The valley lies north of the San Bernardino Mountains, northeast of the San Gabriel Mountains, north of the Cajon Pass, and east of Antelope Valley. The Mojave River runs through Victor Valley and is located to the south and east of the project site.

3.1 - Topography and Hydrology

The project site lies between 2,900 and 2,925 above sea level in elevation. The project site and vicinity are generally flat and slope gently toward the north. The site contains an unvegetated ephemeral drainage that flows in a south to north direction through the site and ranges from 2 to 3 feet in width. The drainage originates off-site to the south and flows north before dissipating on-site. The site also contains several non-jurisdictional drainage swales.⁴

3.2 - Vegetation Communities and Land Cover

FCS Biologists recorded one vegetation community on the project site, creosote bush–white bursage scrub, described below.

3.2.1 - *Larrea tridentata*–*Ambrosia dumosa* Shrubland Alliance

The entirety of the project site consists of Creosote bush-white bursage scrub (*Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance) (Exhibit 3). This community is dominated by creosote bush (*Larrea tridentata*) with white bursage (*Ambrosia dumosa*) as the subdominant shrub. Other species observed in this community consist of athel tamarisk (*Tamarix aphylla*), silver cholla (*Cylindropuntia echinocarpa*), cotton thorn (*Tetradymia comosa*), desert globe mallow (*Sphaeralcea ambigua*), Mojave lupine (*Lupinus odoratus*), Nevada ephedra (*Ephedra nevadensis*), box-thorn (*Lycium* spp.), desert mariposa lily (*Calochortus kennedyi*), Jerusalem thorn (*Parkinsonia aculeata*), western Joshua tree (*Yucca brevifolia*), desert woollystar (*Eriastrum eremicum*), horseweed (*Erigeron canadensis*), shortpod mustard (*Hirschfeldia incana*), rubber rabbitbrush (*Ericameria nauseosa*), dove weed (*Croton setigerus*), common tarweed (*Madia elegans*), and red brome (*Bromus rubens*). This vegetation alliance is commonly found on alluvial fans, bajadas, valleys, basins, upland slopes, and mesas. It thrives in areas with well-drained soils and minimal water retention. This natural vegetation community has a state rarity of S5 under the Manual of California Vegetation (MCV), which considers it secure within California.

⁴ United States Geological Survey (USGS). 2024. National Geospatial Program. Website: https://www.usgs.gov/core-science-systems/national-geospatial-program/us-topo-maps-america?qt-science_support_page_related_con=4#qt-science_support_page_related_con. Accessed November 26, 2024.

3.3 - Soils

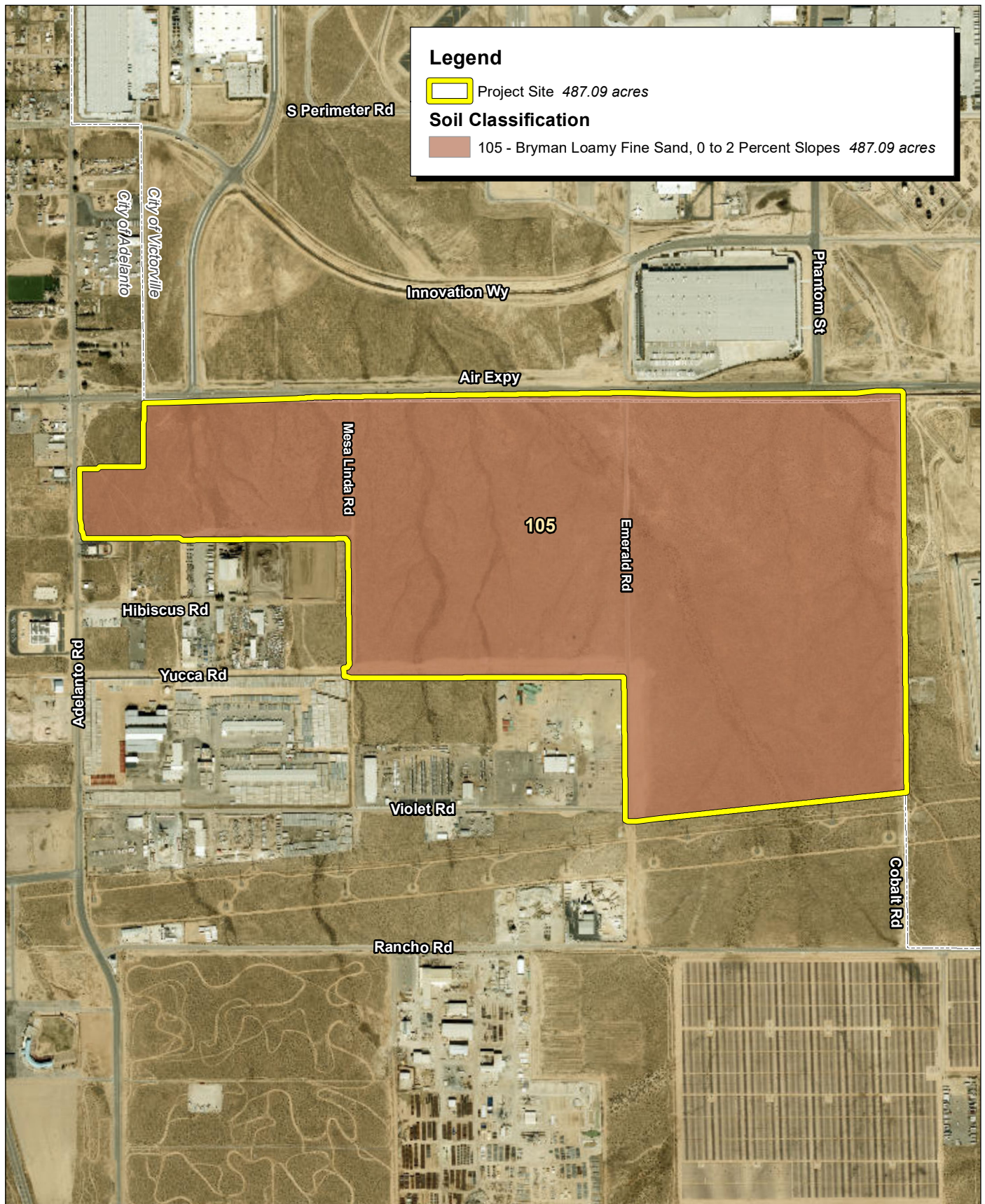
The Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS) depicts one soil type on the project site.⁵ This soil type and its primary characteristics are summarized in Table 1.

Table 1: Soil Types Present within Project Site

Soil Name	Symbol	Slope	Description	Acreage On-site
Bryman Loamy Fine Sand	105	0–2%	The Bryman series consists of alluvium derived from granite sources. This soil is well draining and is nonsaline to very slight saline. It is typically found on terraces and older alluvial fans with slopes ranging.	487.09
Source: Natural Resources Conservation Service. 2024. Official Soil Series Descriptions. United States Department of Agriculture (USDA). Website: http://www.nrcs.usda.gov/ . Accessed November 26, 2024.				

Bryman loamy fine sand is the only soil type on-site, covering 487.09 acres (Exhibit 4). These soils are well-drained and friable and provide excellent burrowing opportunities.

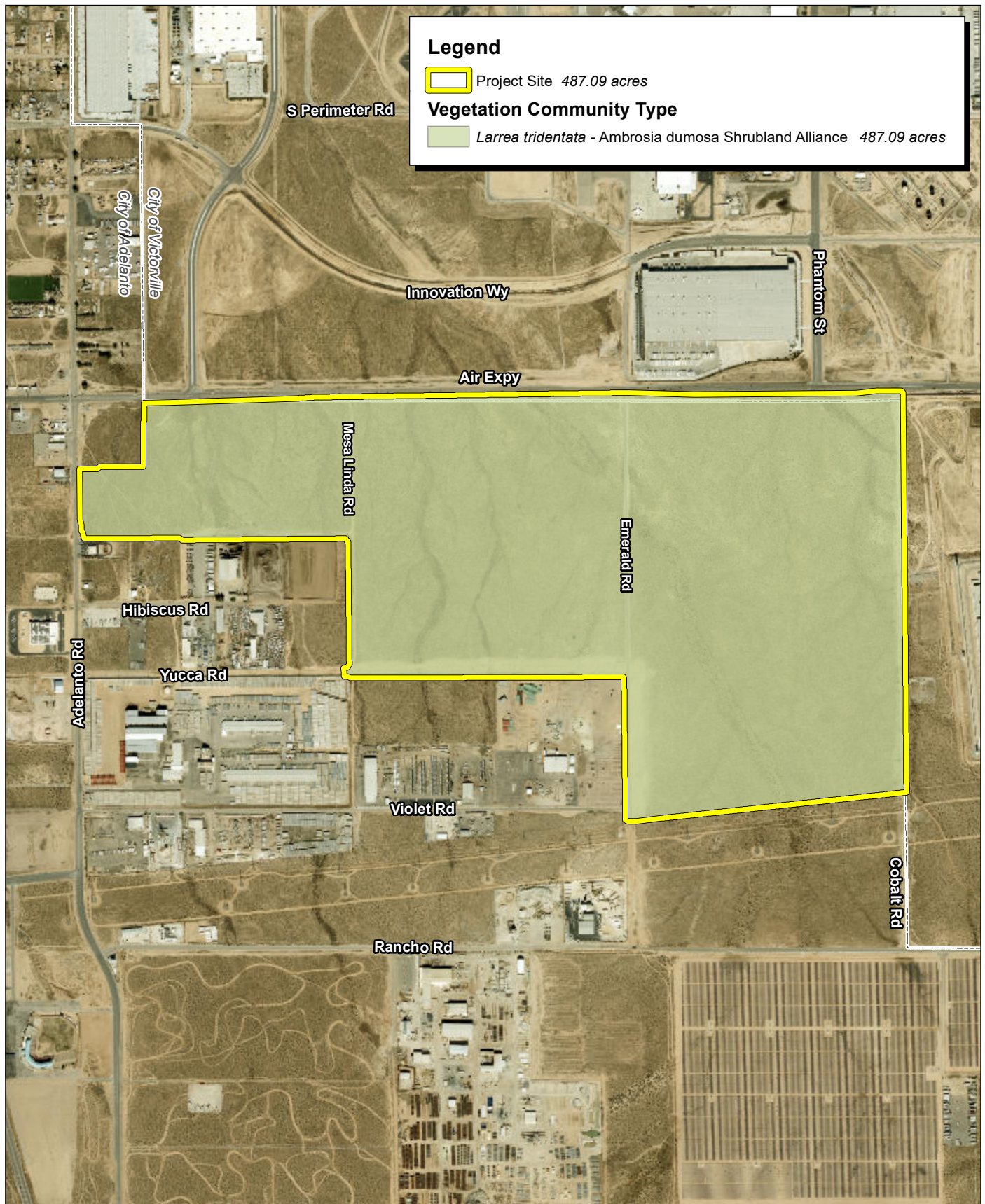
⁵ Natural Resources Conservation Service (NRCS). 2024. Web Soil Survey (WSS). United States Department of Agriculture (USDA). Website: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed November 26, 2024.



Source: ESRI Aerial Imagery. BLUE Engineering & Consulting, Inc. USDA Soils Data Mart, San Bernardino Mojave River Area.



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Source: ESRI Aerial Imagery. BLUE Engineering & Consulting, Inc.



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4 - METHODS

4.1 - Background Review

FCS reviewed existing environmental documentation for the project site and vicinity. This documentation included literature pertaining to the habitat requirements of desert tortoises and federal register listings, protocols, and species occurrence data provided by the USFWS and CDFW. An FCS Biologist compiled desert tortoise occurrences previously recorded within the project vicinity based on a search of the USFWS Information for Planning and Consultation (IPaC) database⁶ and the California Natural Diversity Database (CNDDDB).⁷ The CNDDDB Biogeographic Information and Observation System (BIOS 6) was used to determine the distance between the known occurrences of desert tortoises and the project site.⁸ FCS plotted the USGS (2009) Species Distribution Model for Mojave desert tortoise over the project vicinity to assess their potential for occurrence. Finally, FCS reviewed aerial photographs of the project vicinity to gain perspective of the current site conditions relative to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

4.2 - Desert Tortoise Survey

An FCS Biologist familiar with desert tortoises and their sign conducted a survey of the project site per USFWS (2019) protocol. This included walking transects spaced at 10 meters over the entire project site to search for live tortoises and tortoise sign (e.g., tortoise carcasses, burrows, scat, tracks, drinking depressions, and mating rings). The survey was conducted in May 2024. Desert tortoises are typically active from March to August; thus, the surveys were conducted during the tortoise activity period, as recommended in the USFWS (2019) guidance. The Biologist searched for live tortoises on the surface, under shrubs, and within burrows and described signs, particularly scat and carcasses, to categorize their condition according to the USFWS Field Manual.⁹ During the survey, the FCS Biologist recorded the locations of all burrows observed, including those excavated by other wildlife. The Biologist illuminated the burrow tunnels by reflecting sunlight into the tunnel with a handheld mirror to determine whether they were occupied by tortoises. When possible, the Biologist attributed the burrow to a particular wildlife species based on burrow characteristics (e.g., burrow entrance shape and size, spoil pile shape, angle of tunnel floor, tracks, scat). The locations of live tortoises, their sign, and wildlife burrows detected on-site were recorded using ArcGIS Collector and described in field notes.

⁶ United States Fish and Wildlife Service (USFWS). 2024. Information for Planning and Consultation (IPaC). Website: <https://ecos.fws.gov/ipac/>. Accessed November 26, 2024.

⁷ California Department of Fish and Wildlife (CDFW). 2024. CNDDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: <https://wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. Accessed November 26, 2024.

⁸ California Department of Fish and Wildlife (CDFW). 2024. Biogeographic Information and Observation System (BIOS 6). Website: <https://wildlife.ca.gov/Data/BIOS>. Accessed November 26, 2024.

⁹ U.S. Fish and Wildlife Service. 2009. Desert Tortoise (Mojave Population) Field Manual: (*Gopherus agassizii*). Region 8, Sacramento, California.

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5 - RESULTS

5.1 - Background Review

The USFWS IPaC review of the project site indicated that Mojave desert tortoises could potentially be affected by the project. According to the CNDDDB, there are 44 occurrences of desert tortoises within 25 miles of the project site (Exhibit 5).^{10,11} Twenty-three of these observations were recorded within the past 20 years. The USGS (2009) Species Distribution Model indicates that the project site is within modeled desert tortoise habitat and in a cell that is predicted to be occupied. The closest known CNDDDB desert tortoise occurrence is located 1.6 miles east of the project site and was recorded in 2018. This data suggests that habitat in the project vicinity is suitable for desert tortoises and the species is likely present in the area.

A review of aerial photography determined that the project site is located within a portion of the City of Adelanto that includes both developed and undeveloped lands. The undeveloped lands within which the project is situated are surrounded by a mixture of urban development to the south and undeveloped land and urbanized land to the north, east, and west. The undeveloped lands surrounded by these developments contain multiple acres that support potential desert tortoise habitat. The project site is part of this undeveloped area.

5.2 - Desert Tortoise Survey

The desert tortoise survey of the project site was accomplished on May 15 and 30, 2024, by FCS Biologist Kayla Belanger (Table 2). No desert tortoises and no sign of desert tortoises were detected on the project site.

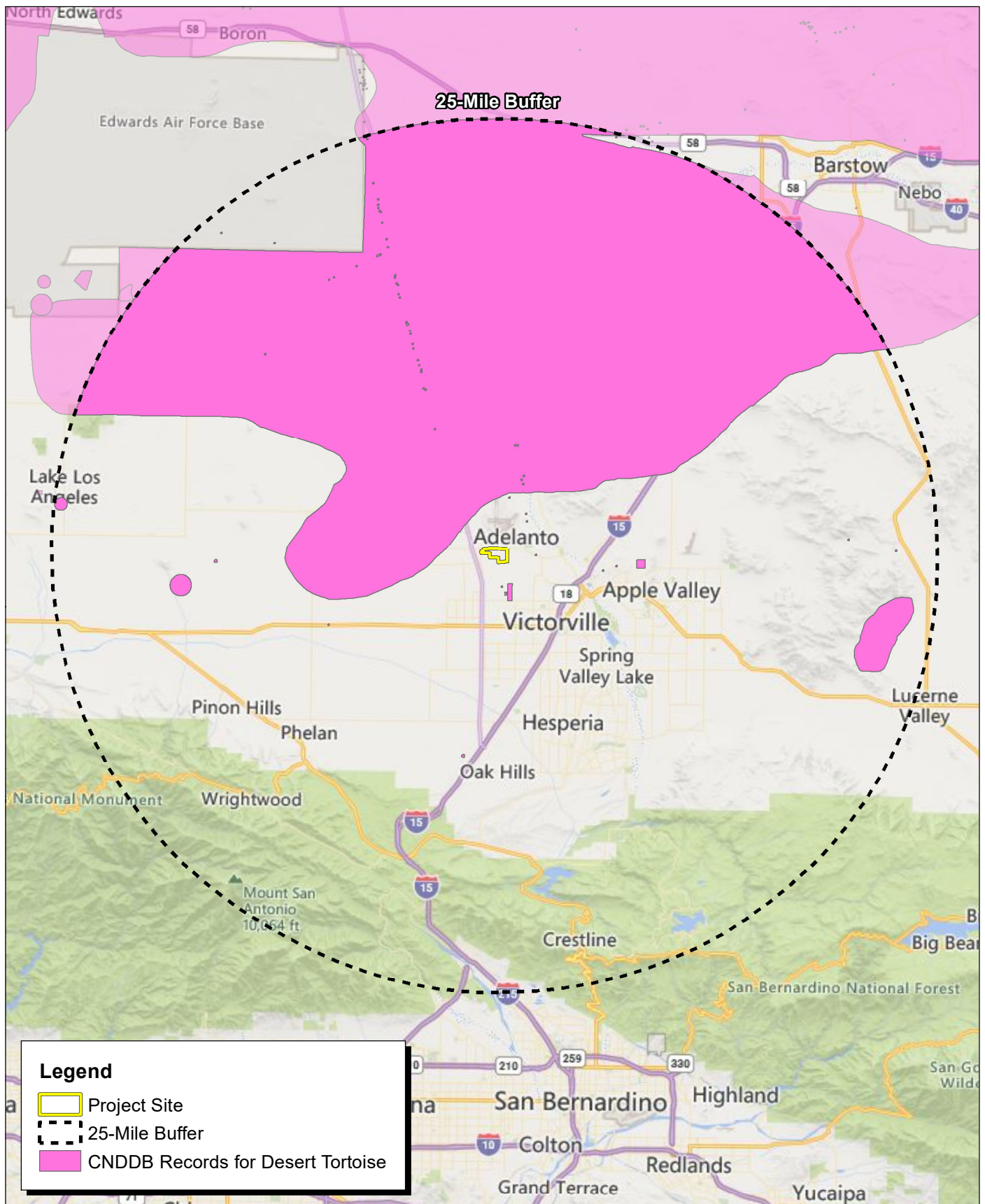
Table 2: 2024 Burrowing Owl Survey Dates, Surveyors, and Survey Conditions

Date	Survey Type	Surveyor(s)	Time	Weather Conditions
5/15/24	Desert Tortoise Survey	Kayla Belanger	9:00 a.m.–2:00 p.m.	Sunny, clear, Temp: 60–76°F Wind: 7–10 mph
5/30/24	Desert Tortoise Survey	Kayla Belanger	9:00 a.m.–2:00 p.m.	Sunny, clear, Temp: 63–75°F Wind: 0–5 mph
Notes: °F = degrees Fahrenheit mph = miles per hour				

¹⁰ California Department of Fish and Wildlife (CDFW). 2024. CNDDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: <https://wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. Accessed November 26, 2024.

¹¹ California Department of Fish and Wildlife (CDFW). 2024. Biogeographic Information and Observation System (BIOS 5). Website: <https://wildlife.ca.gov/Data/BIOS>. Accessed November 26, 2024.

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Source: Bing Aerial Imagery. California Natural Diversity Database (CNDDDB), December 2024.



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6 - CONCLUSIONS AND RECOMMENDATIONS

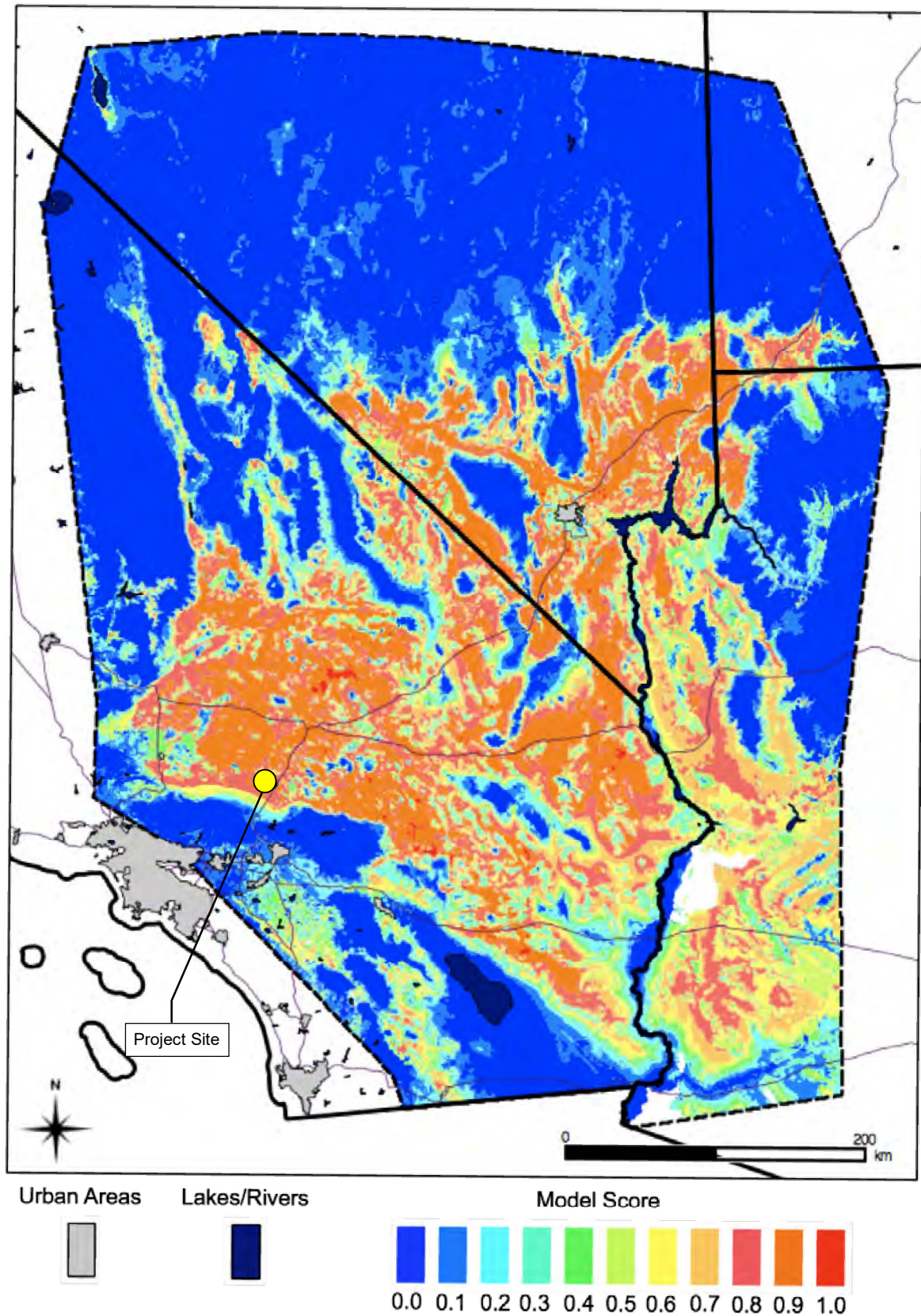
The project site is within the distributional range of desert tortoises in an area of Adelanto that is partially surrounded by urban development. Urban development is a significant barrier to tortoise dispersal, especially major highways and railroads, which surround the project site on its northern, western, and southern boundaries. The project site contains biological conditions that could support occurrence of desert tortoises, including creosote bush–white bursage scrub and sandy, friable soils that provide suitable burrowing substrate. The project site is within modeled desert tortoise habitat¹² and there are several CNDDDB recorded occurrences of desert tortoises within dispersal distance of the project area, suggesting the potential dispersal of this species into the project site.

The surveys of the project site determined that tortoises are not currently present on the project site. No tortoises or sign of tortoises were detected during the survey. Numerous subsequent surveys (Joshua tree, Crotch's bumble bee, and burrowing owl surveys and jurisdictional delineation) of the project provided additional opportunities for FCS Biologists to observe desert tortoises and their sign, but none were detected.

FCS recommends that a pre-construction survey of the project site be implemented prior to the initiation of ground-disturbing project construction activities. During the pre-construction survey, the project Biologist(s) shall search the project site for desert tortoises. The pre-construction survey shall be performed no more than 14 days prior to the initiation of ground-disturbing construction activities. If more than 14 days pass between the pre-construction survey and initiation of ground-disturbing construction activities, another pre-construction survey shall be performed.

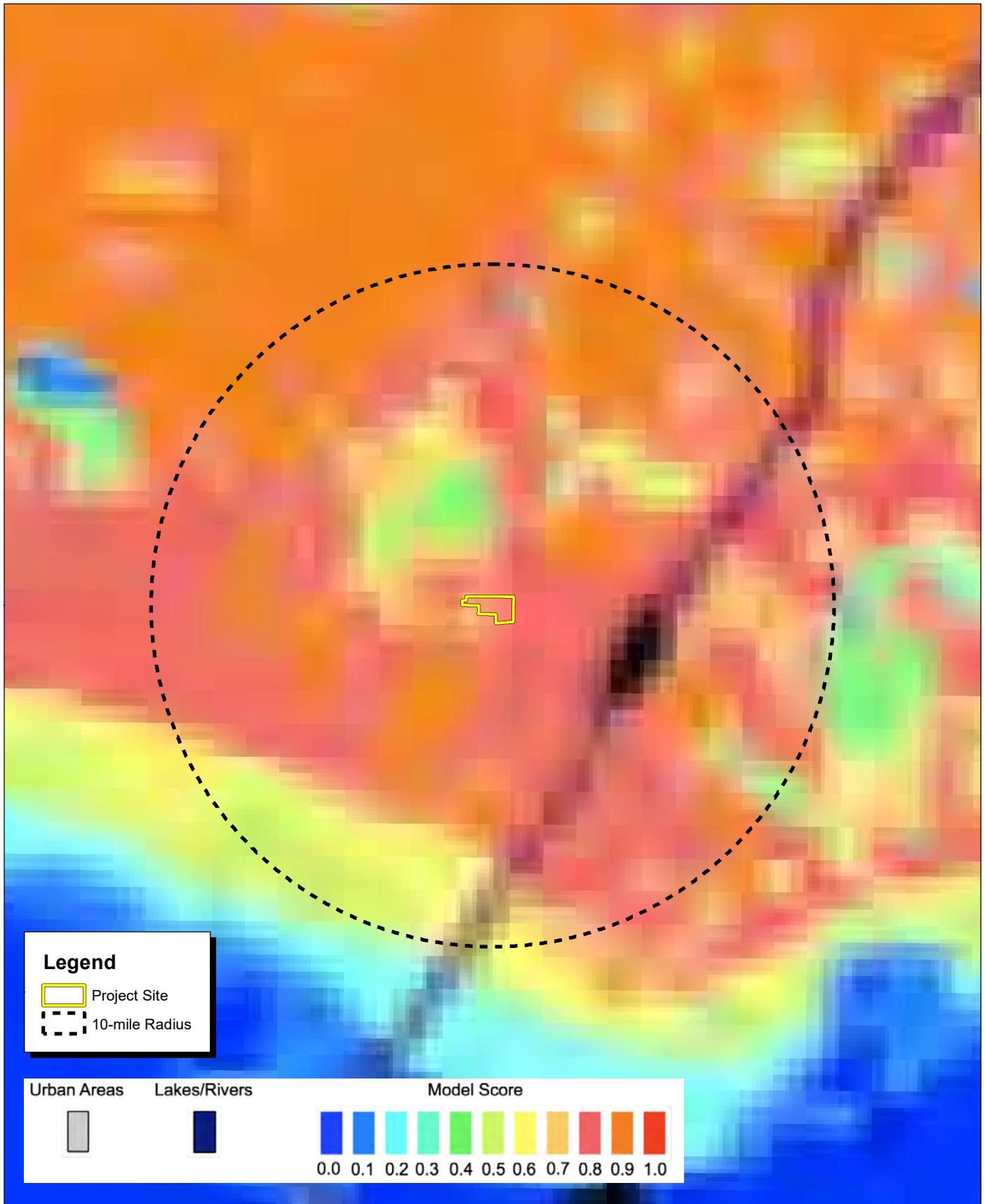
¹² Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.
<https://doi.org/10.3133/ofr20091102>

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Source: U.S. Geological Survey, Maxent Model for predicted habitat potential index, 2009.

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Source: U.S. Geological Survey, Maxent Model for predicted habitat potential index, 2009.

Exhibit 6b

Project Vicinity

USGS Desert Tortoise Habitat Model



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Adelanto Gateway Logistic Center Project

Desert Tortoise Survey Report

Appendix A:

Site Photographs

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Photograph 1: View of the *Larrea tridentata* - *Ambrosia dumosa* Shrubland Alliance on the project site, facing northeast



Photograph 2: View of the *Larrea tridentata* - *Ambrosia dumosa* Shrubland Alliance on the project site, facing north



Photograph 3: View of the *Larrea tridentata* - *Ambrosia dumosa* Shrubland Alliance on the project site and development adjacent to the site, facing south



Photograph 4: View of the *Larrea tridentata* - *Ambrosia dumosa* Shrubland Alliance and development adjacent to the site, facing east



Photograph 5: View of the *Larrea tridentata* - *Ambrosia dumosa* Shrubland Alliance on the project site, facing north



Photograph 6: View of the *Larrea tridentata* - *Ambrosia dumosa* Shrubland Alliance on the project site, facing west

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