

**EXHIBIT D
BIOLOGICAL RESOURCES**

List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon.

Methods

Prior to conducting fieldwork, the ecology and habitat requirements of various species that could occur in Maricopa County were researched. A qualified biologist conducted an analysis evaluating the Project Red Hawk (Project) Site and vicinity.

The analysis determined that overall habitat quality, plant diversity, and density are very low. The Project Site consists of historic agriculture use and disturbed habitat.

Tables D-1, D-2, D-3, and D-4 contain lists of common plant life, mammals, birds, reptiles and amphibians potentially present in Maricopa County and within the vicinity of the Project Site.

Vegetation

The Project Site is located within Maricopa County. The Project sits on approximately 187 acres of historical agricultural lands that no longer support native vegetation. Elevations range from 1,338 to 1,357 feet. Vegetation communities found on the Project Site are described below, and **Table D-1** lists some common plant species that could be found within some of the native and disturbed habitats in the vicinity of the Project Site.

Agriculture – Active

The Project Site historically has supported active agriculture, which likely has cycled between periods when fields were planted and when they were allowed to lie fallow (the current state the Project Site). Irrigation canals and head ditches associated with agricultural operations exist along the edges of the Project Site, and the Roosevelt Water Conservation District (RWCD) Canal exists immediately west of the Project Site. These lands have been used for agriculture for many years and are mostly surrounded by other agricultural lands, residential areas, and disturbed vacant patches. Plants related to fallowed agricultural fields comprise the primary vegetation community and cover approximately 95% (177 acres) of the Project Site.

Disturbed Urban Habitat

The Project Site currently contains a limited amount of disturbed urban habitat. Disturbed urban habitat appears to be associated with historical agricultural practices on the Project Site. This habitat type only occurs on the edges of the property, primarily on the western and northern sides. Disturbed habitat is devoid of all vegetation, likely due to frequent vehicle and farming equipment use. There is a very small amount of disturbed urban habitat on the Project Site (approximately 5% [10 acres] of the total area).

Table D-1. Common Plant Species Potential Occurrence in Isolated Disturbed / Native Habitats in the Vicinity of the Project Site¹		
Common Name	Scientific Name	Ecosystem
Triangleleaf bursage	<i>Ambrosia deltoidea</i>	Sonoran Desertscrub, Sonoran Riparian
White bursage	<i>Ambrosia dumosa</i>	Sonoran Desertscrub
Fiddlehead	<i>Amsinckia intermedia</i>	Sonoran Riparian
Purple three-awn	<i>Aristida purpurea</i>	Sonoran Desertscrub
Four-wing saltbush	<i>Atriplex canescens</i>	Sonoran Desertscrub
All scale	<i>Atriplex polycarpa</i>	Sonoran Desertscrub
Datura	<i>Datura stramonium</i>	Sonoran Riparian
Englemann’s hedgehog cactus	<i>Echinocereus englemannii</i>	Sonoran Desertscrub
Brittlebush	<i>Encelia farinosa</i>	Sonoran Desertscrub, Sonoran Riparian
Skeletonweed	<i>Eriogonum deflexum</i>	Sonoran Desertscrub
Filaree	<i>Erodium cicutarium</i>	Sonoran Desertscrub
Barrel cactus	<i>Ferocactus wislizenii</i>	Sonoran Desertscrub
Ocotillo	<i>Fouquieria splendens</i>	Sonoran Desertscrub
Rhatany	<i>Krameria parviflora</i>	Sonoran Desertscrub, Sonoran Riparian
Creosote bush	<i>Larrea tridentata</i>	Sonoran Desertscrub, Sonoran Riparian
Wolfberry	<i>Lycium spp.</i>	Sonoran Desertscrub, Sonoran Riparian
Little fishhook cactus	<i>Mammillaria thornberi</i>	Sonoran Desertscrub
Teddybear cholla	<i>Opuntia bigelovii</i>	Sonoran Desertscrub
Prickly pear cactus	<i>Opuntia engelmannii</i>	Sonoran Desertscrub
Jumping cholla	<i>Opuntia fulgida</i>	Sonoran Desertscrub
Desert mistletoe	<i>Phoradendron californicum</i>	Sonoran Desertscrub
Galleta grass	<i>Pleuraphis jamesii</i>	Sonoran Desertscrub, Sonoran Riparian
Mesquite	<i>Prosopis spp.</i>	Sonoran Riparian
Bladdersage	<i>Salazaria Mexicana</i>	Sonoran Desertscrub
Russian thistle	<i>Salsola iberica</i>	Sonoran Desertscrub, Sonoran Riparian
London rocket	<i>Sisymbrium irio</i>	Sonoran Desertscrub, Sonoran Riparian
Globe mallow	<i>Sphaeralcea spp.</i>	Sonoran Desertscrub, Sonoran Riparian
¹ Brown 1994		

Wildlife

Wildlife resources in the Project area are predominantly associated with agricultural land, residential areas, disturbed habitat, and to a lesser extent, native habitats. Species occurrence, abundance, and distribution are strongly influenced by the presence of surface water, topography, and habitat types within and surrounding the Project Site.

Tables D-2, D-3, and D-4 present lists of common mammals, birds, reptiles, and amphibians that may occur or that have been observed within Maricopa County in habitats similar to those on the Project Site and its immediate vicinity. Some of the species are also listed in **Exhibit C** as Wildlife of Concern.

Mammals

Most mammalian species likely to be present are small, inconspicuous, largely nocturnal species of rodents and bats. Desert-adapted rodents such as pocket mice (*Perognathus sp.*) and kangaroo rats (*Dipodomys sp.*) could be present within and on the peripheries of the Project Site. Medium-sized mammals that could be found on the Project Site include desert cottontail (*Sylvilagus auduboni*), black-tailed jackrabbits (*Lepus californicus*), coyote (*Canis latrans*), gray fox (*Vulpes macrotis*), and American badger (*Taxidae taxus*). Bats may use the Project Site for foraging purposes and may roost in the vicinity of the Project area in buildings, under bridges, and in trees. **Table D-2** presents a more comprehensive list of mammalian species that may occur in the area.

Migratory Birds

Most bird species likely to be present are considered migratory birds and are associated with agricultural and urbanized land uses. The majority of the birds present during any given season are small songbirds and raptors like the mourning dove (*Zenaida macroura*) and red-tailed hawk (*Buteo jamaicensis*) (**Table D-3**). Some water birds may also be present in the area because they are attracted to the canals and ditches (such as the RWCD Canal immediately west) that exist near the Project Site.

Amphibians and Reptiles

Relatively undisturbed desert habitats represent the best habitat for reptiles, although some species could be found in agricultural or other disturbed areas. Water resources are very limited in the area, and reptiles and amphibians are not expected to be heavily encountered. **Table D-4** presents a list of amphibian and reptilian species that could be present in the vicinity of the Project Site.

Table D-2.
Mammal Species
Potential Occurrence in the Vicinity of the Project Site¹

Common Name	Scientific Name
Harris' antelope squirrel	<i>Ammospermophilus harrisi</i>
Pallid bat	<i>Antrozous pallidus</i>
Ringtail	<i>Bassariscus astutus</i>
Coyote	<i>Canis latrans</i>
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>
Desert kangaroo rat	<i>Dipodomys deserti</i>
Merriam's kangaroo rat	<i>Dipodomys merriami</i>
Big brown bat	<i>Eptesicus fuscus</i>
Spotted bat	<i>Euderma maculatum</i>
Western mastiff bat	<i>Eumops perotis</i>
Mountain lion	<i>Felis concolor</i>
Bobcat	<i>Felis rufus</i>
Red bat	<i>Lasiurus borealis</i>
Hoary bat	<i>Lasiurus cinereus</i>
Southern yellow bat	<i>Lasiurus ega xanthinus</i>
Mexican long-nosed bat	<i>Leptonycteris nivalis</i>
Black-tailed jackrabbit	<i>Lepus californicus</i>
Hooded skunk	<i>Mephitis macroura</i>
Striped skunk	<i>Mephitis</i>
California myotis	<i>Myotis californicus</i>
Fringed myotis	<i>Myotis thysanodes</i>
Cave myotis	<i>Myotis velifer</i>
Yuma myotis	<i>Myotis yumanensis</i>
White-throated woodrat	<i>Neotoma albigula</i>
Desert wood rat	<i>Neotoma lepida</i>
Desert shrew	<i>Notiosorex crawfordi</i>
Desert Mule deer	<i>Odocoileus hemionus crooki</i>
Muskrat	<i>Ondatra zibethicus</i>
Southern grasshopper mouse	<i>Onychomys torridus</i>
Collared peccary	<i>Pecari tajacu</i>
Arizona pocket mouse	<i>Perognathus amplus</i>
Bailey's pocket mouse	<i>Perognathus baileyi</i>
Long-tailed pocket mouse	<i>Perognathus formosus</i>
Rock pocket mouse	<i>Perognathus intermedius</i>
Little pocket gopher	<i>Perognathus longimembris</i>
Desert pocket mouse	<i>Perognathus penicillatus</i>
Brush mouse	<i>Peromyscus boylii</i>
Cactus mouse	<i>Peromyscus eremicus</i>

Table D-2 Mammal Species Potential Occurrence in the Vicinity of the Project Site¹	
Common Name	Scientific Name
Deer mouse	<i>Peromyscus maniculatus</i>
Western pipistrelle	<i>Pipistrellus Hesperus</i>
Townsend’s big-eared bat	<i>Plecotus townsendii</i>
Raccoon	<i>Procyon lotor</i>
Western harvest mouse	<i>Reithrodontomys megalotis</i>
Arizona gray squirrel	<i>Sciurus arizonensis</i>
Arizona cotton rat	<i>Sigmodon arizonae</i>
Round-tailed ground squirrel	<i>Spermophilus tereticaudus</i>
Rock squirrel	<i>Spermophilus variegatus</i>
Western spotted skunk	<i>Spilogale gracilis</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
American free-tailed bat	<i>Tadarida brasiliensis</i>
Pocketed free-tailed bat	<i>Tadarida femorosacca</i>
Big free-tailed bat	<i>Tadarida macrotis</i>
Badger	<i>Taxidae taxus</i>
Botta’s pocket gopher	<i>Thomomys bottae</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Kit fox	<i>Vulpes macrotis</i>

¹ D.F. Hoffmeister. 1986. Mammals of Arizona. University of Arizona Press

Table D-3 Bird Species Potential Occurrence in the Vicinity of the Project Site¹	
Common Name	Scientific Name
Cooper’s hawk	<i>Accipiter cooperii</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Sage sparrow	<i>Amphispiza belli</i>
Black-throated sparrow	<i>Amphispiza bilineata</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Mallard	<i>Anas platyrhynchos</i>
Black-chinned hummingbird	<i>Archilochus alexandri</i>
Great egret	<i>Ardea alba</i>
Great blue heron	<i>Ardea herodias</i>
Verdin	<i>Auriparus flaviceps</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Great horned owl	<i>Bubo virginianus</i>
Cattle egret	<i>Bubulcus ibis</i>

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Table D-3 Bird Species Potential Occurrence in the Vicinity of the Project Site¹	
Zone-tailed hawk	<i>Buteo albonotatus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Ferruginous hawk	<i>Buteo regalis</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Green heron	<i>Butorides virescens</i>
Lark bunting	<i>Calamospiza melanocorys</i>
Gambel's quail	<i>Callipepla gambelii</i>
Anna's hummingbird	<i>Calypte anna</i>
Costa's hummingbird	<i>Calypte costae</i>
Cactus wren	<i>Campylorhynchus brunneicapillus</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Pyrrhuloxia	<i>Cardinalis sinuatus</i>
Lesser goldfinch	<i>Carduelis psaltria</i>
House finch	<i>Carpodacus mexicanus</i>
Turkey vulture	<i>Cathartes aura</i>
Killdeer	<i>Charadrius vociferus</i>
Lark sparrow	<i>Chondestes grammacus</i>
Lesser nighthawk	<i>Chordeiles acutipennis</i>
Northern harrier	<i>Circus cyaneus</i>
Red-shafted northern flicker	<i>Colaptes cafer</i>
Gilded flicker	<i>Colaptes chrysoides</i>
Rock dove	<i>Columba livia</i>
Inca dove	<i>Columbina inca</i>
Common ground-dove	<i>Columbina passerine</i>
Western wood-pewee	<i>Contopus sordidulus</i>
Common raven	<i>Corvus corax</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Black-throated gray warbler	<i>Dendroica nigrescens</i>
Yellow warbler	<i>Dendroica petechia</i>
Snowy egret	<i>Egretta thula</i>
Pacific-slope flycatcher	<i>Empidonax difficilis</i>
Dusky flycatcher	<i>Empidonax oberholster</i>
Cordilleran flycatcher	<i>Empidonax occidentalis</i>
Gray flycatcher	<i>Empidonax wrightii</i>
Horned lark	<i>Eremophila alpestris</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
American kestrel	<i>Falco sparverius</i>
American coot	<i>Fulica americana</i>
Common moorhen	<i>Gallinula chloropus</i>
Greater roadrunner	<i>Geococcyx californianus</i>

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Table D-3 Bird Species Potential Occurrence in the Vicinity of the Project Site¹	
Blue grosbeak	<i>Guiraca carulea</i>
Cliff swallow	<i>Hirundo pyrrhonota</i>
Barn swallow	<i>Hirundo rustica</i>
Northern oriole	<i>Icterus bullockii</i>
Hooded oriole	<i>Icterus cucullatus</i>
Bullock's oriole	<i>Icterus galbula</i>
Dark-eyed junco	<i>Junco hyemalis</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Gila woodpecker	<i>Melanerpes uropygialis</i>
Lincoln's sparrow	<i>Melospiza lincolni</i>
Song sparrow	<i>Melospiza melodia</i>
Elf owl	<i>Micrathene whitneyi</i>
Northern mockingbird	<i>Mimus polyglottos</i>
Bronzed cowbird	<i>Molothrus aeneus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Brown-crested flycatcher	<i>Myiarchus tyrannulus</i>
Black-crowned night-heron	<i>Nycticorax</i>
MacGillivray's warbler	<i>Oporornis tolmiei</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Western screech owl	<i>Otus kennicottii</i>
Harris' hawk	<i>Parabuteo unicinctus</i>
House sparrow	<i>Passer domesticus</i>
Phainopepla	<i>Phainopepla nitens</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Neotropical Cormorant	<i>Phalacrocorax brasilianus</i>
Common poorwill	<i>Phalaenoptilus nuttallii</i>
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
Ladder-backed woodpecker	<i>Picoides scalaris</i>
Abert's towhee	<i>Pipilo aberti</i>
Green-tailed towhee	<i>Pipilo chlorurus</i>
Spotted towhee	<i>Pipilo erythrophthalmus</i>
Canyon towhee	<i>Pipilo fuscus</i>
Western tanager	<i>Piranga ludoviciana</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Black-tailed gnatcatcher	<i>Polioptila melanura</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Vermillion flycatcher	<i>Pyrocephalus rubinus</i>
Great-tailed grackle	<i>Quiscalus mexicanus</i>

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Ruby-crowned kinglet	<i>Regulus calendula</i>
Rock wren	<i>Salpinctes obsoletus</i>
Black phoebe	<i>Sayornis nigricans</i>
Say's phoebe	<i>Sayornis saya</i>
Rufus hummingbird	<i>Selasphorus rufus</i>
Western bluebird	<i>Sialia mexicana</i>
Brewer's sparrow	<i>Spizella breweri</i>
Chipping sparrow	<i>Spizella passerine</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Western meadowlark	<i>Sturnella neglecta</i>
European starling	<i>Sturnus vulgaris</i>
Tree swallow	<i>Tachycineta bicolor</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Bewick's wren	<i>Thryomanes bewickii</i>
Bendire's thrasher	<i>Toxostoma bendirei</i>
Curve-billed thrasher	<i>Toxostoma curvirostre</i>
House wren	<i>Troglodytes aedon</i>
American robin	<i>Turdus migratorius</i>
Western kingbird	<i>Tyrannus verticalis</i>
Barn owl	<i>Tyto alba</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Lucy's warbler	<i>Vermivora luciae</i>
Nashville warbler	<i>Vermivora ruficapilla</i>
Virginia's warbler	<i>Vermivora virginiae</i>
Bell's vireo	<i>Vireo bellii</i>
Warbling vireo	<i>Vireo gilvus</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
White-winged dove	<i>Zenaida asiatica</i>
Mourning dove	<i>Zenaida macroura</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
¹ Corman and Wise-Gervais 2005	

Table D-4 Reptile and Amphibian Species Potential Occurrence in the Vicinity of the Project Site¹	
Common Name	Scientific Name
Arizona glossy snake	<i>Arizona elegans noctivaga</i>
Sonoran desert toad	<i>Bufo alvarius</i>
Great plains toad	<i>Bufo cognatus</i>
Red-spotted toad	<i>Bufo punctatus</i>
Zebra tail lizard	<i>Callisaurus draconoides</i>
Banded sand snake	<i>Chilomeniscus cinctus</i>
Western shovel-nosed snake	<i>Chionactis occipitalis</i>
Gila spotted whiptail	<i>Cnemidophorus flagellicaudus</i>
Western whiptail	<i>Cnemidophorus tigris</i>
Desert banded gecko	<i>Coleonyx variegatus</i>
Western diamondback rattlesnake	<i>Crotalus atrox</i>
Sonoran sidewinder	<i>Crotalus cerastes cercobombus</i>
Speckled rattlesnake	<i>Crotalus mitchellii pyrrhus</i>
Black-tailed rattlesnake	<i>Crotalus molossus</i>
Mojave rattlesnake	<i>Crotalus scutulatus</i>
Arizona black rattlesnake	<i>Crotalus viridis cerberus</i>
Common collared lizard	<i>Crotaphytus collaris</i>
Western collared lizard	<i>Crotaphytus collaris baileyi</i>
Desert iguana	<i>Dipsosaurus dorsalis</i>
Large spotted leopard lizard	<i>Gambelia wislizenii</i>
Desert tortoise	<i>Gopherus agassizii</i>
Gila monster	<i>Heloderma suspectum</i>
Canyon tree frog	<i>Hyla arenicolor</i>
Night snake	<i>Hypsiglena torquata</i>
Sonoran mud turtle	<i>Kinosternon sonoriense</i>
Common kingsnake	<i>Lampropeltis getula</i>
Western blind snake	<i>Leptotyphlops humilis</i>
Rosy boa	<i>Lichanura trivirgata</i>
Red coachwhip	<i>Masticophis flagellum piceus</i>
Arizona coral snake	<i>Micruroides euryxanthus</i>
Desert horned lizard	<i>Phrynosoma platyrhinos</i>
Desert horned lizard	<i>Phrynosoma platyrhinos calidiarum</i>
Regal horned lizard	<i>Phrynosoma solare</i>
Saddled leaf-nosed snake	<i>Phyllorhynchus browni</i>
Western leaf-nosed snake	<i>Phyllorhynchus decurtatus perkinsi</i>
Sonoran gopher snake	<i>Pituophis melanoleucus affinis</i>

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Bullfrog	<i>Rana catesbeiana</i>
Western long-nosed snake	<i>Rhinocheilus lecontei</i>
Western patch-nosed snake	<i>Salvadora hexalepis</i>
Western chuckwalla	<i>Sauromalus obesus</i>
Couch spadefoot	<i>Scaphiopus couchi</i>
Western spadefoot	<i>Scaphiopus hammondii</i>
Southern spadefoot	<i>Scaphiopus multiplicatus</i>
Sonoran spiny lizard	<i>Sceloporus magister</i>
Yellow-backed spiny lizard	<i>Sceloporus magister uniformis</i>
Ground snake	<i>Sonora semiannulata</i>
SW black-headed snake	<i>Tantilla hobartsmithi</i>
Lyre snake	<i>Trimorphodon biscutatus</i>
Spiny softshell	<i>Trionyx spiniferus</i>
Arizona brush lizard	<i>Urosaurus graciosus shannoni</i>
Tree lizard	<i>Urosaurus ornatus</i>
Side-blotched lizard	<i>Uta stansburiana</i>
¹ Stebbins, R.C. 1985. A Field Guide to Western Reptiles and Amphibians. Peterson Field Guides.	

Invasive Weed Species and Noxious Weeds

Non-native, weedy, and crop species typically dominate remnant agricultural lands and other disturbed and unmaintained areas. It is possible that invasive weed species and/or noxious weeds are present in disturbed areas surrounding the agricultural fields. Common weed species that may exist on the Project Site that are not included in the state's noxious weed list include filaree (*Erodium cicutarium*) and Russian thistle (*Salsola tragus*).

Potential Effects

General Vegetation

Direct Impacts

The Project is expected to result in permanent impacts to approximately 187 acres of existing agricultural and disturbed habitats (the entire Project Site). The vegetation on the Project Site is all expected to be removed. These areas are not considered high quality habitat for a large number of species, and are frequently disturbed further reducing the potential for occurrence of native vegetation, but direct impacts will include a change in the biological community and ecosystem on the Project Site.

Indirect Impacts

Potential indirect impacts on vegetation communities could include introduction of invasive weed species, which can out-compete native or other desirable vegetation (though no native vegetation occurs on the Project Site).

Cumulative Impacts

Agricultural development, along with its associated roads, infrastructure, and high amounts of frequent disturbance, has converted and degraded areas of natural vegetation (wildlife habitat) on the Project Site. The Project is expected to permanently impact the entire Project Site and remove all agricultural vegetation. Therefore, the Project would have a large impact on the current agricultural vegetation on the Project Site, but would have a negligible impact on native vegetation.

General Wildlife

Direct Impacts

The Project would result in the temporary and permanent disturbance of very low quality wildlife habitat (agricultural and disturbed habitat) on approximately 187 acres of land. Construction-related impacts would be both permanent/long-term and temporary/short-term. Permanent, long-term direct impacts might include displacement of resident wildlife species, vehicle strikes during operation, and permanent change to wildlife movement patterns through the area. Temporary, short-term direct impacts might include possible injury/death of small burrowing reptiles or mammals during ground-disturbing activities, vehicle strikes during construction, temporary displacement of wildlife species during construction activities, temporary impacts on wildlife movements due to construction activities, and noise-related disturbance. With the lack of overall wildlife diversity that is expected to occur on the Project Site and the immediate area, direct impacts on wildlife associated with the construction of the Project are expected to be low. Operation of the facilities would include regular worker activity, and there will not be any habitat present on the Project for most wildlife species. As a result, direct impacts to wildlife during operation are expected to be minimal.

Indirect Impacts

Potential indirect impacts could include loss of agricultural habitat for some wildlife species that rely on it for breeding or foraging purposes, potential avian electrocution risk (depending on final Project features), and increased raptor roosting sites on poles and components (depending on final Project features), which can increase predation rates on certain prey species. Indirect impacts will be reduced, but the Project would result in long-term loss of the vegetation type/agricultural land. However, this would result in only minor impacts to the biological community given the low quality of the existing habitat.

Cumulative Impacts

Agricultural development and other related infrastructure have converted and degraded areas of natural vegetation (wildlife habitat). The Project would permanently impact approximately 187 acres of non-native vegetation that is generally considered to be low quality habitat for most species in an area that has been frequently disturbed over a long period of time.

Migratory Birds

Pre-construction protocol surveys for BUOW per the *Burrowing Owl Project Clearing Guidance for Landowners* (AGFD 2009) would be conducted to ensure that any active BUOW burrows are avoided. If active burrows are found (burrows being currently used by BUOW), an appropriate avoidance buffer would be established (per AGFD guidelines) or a permit would be obtained to relocate the owls. Therefore, there would be no impacts to active burrowing owl (*Athene cunicularia hypugaea*) nests. Similar protocols will be established in coordination with the AGFD and USFWS and followed for other bird species that may have the potential to nest on the Project Site during construction activities.

The Project could create a slight collision risk to birds. However, due to the degraded nature of the habitats within and adjacent to the Project, the amount of industrial, residential, and commercial development in the vicinity of the Project Site, and the lack of high-quality foraging and migration areas in the Project vicinity, this risk would be low and would represent a minor adverse impact on these species. To minimize risk to migratory birds, the lines will be constructed following industry suggested practices aimed at reducing avian collisions and electrocutions (Avian Power Line Interaction Committee [APLIC] 2006 and 2012). If avian/power line interactions become an issue, the Proponent will move quickly to evaluate and address the issue.

Conclusions

The entire Project Site has been previously disturbed and developed for agriculture, significantly reducing the overall habitat quality. Construction of the Project would occur in previously disturbed areas. The biological resources with the potential to occur on the Project Site would not be expected to be negatively affected because habitat on the site is in a degraded condition.

References

- Arizona Burrowing Owl Working Group. 2009. *Burrowing Owl Project Clearance Guidance for Landowners*. AGFD. Phoenix, Arizona.
- APLIC. 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute and Avian Power Line Interaction Committee. Washington D.C.
- APLIC. 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute and Avian Power Line Interaction Committee. Washington D.C.
- Brown D.E. 1994. *Biotic Communities: Southwestern United States and Northwestern Mexico*. University of Utah Press.
- Corman, T. and C. Wise-Gervais (editors). 2005. *Arizona Breeding Bird Atlas*. University of New Mexico Press. Albuquerque, New México. 636 pp.
- Hoffmeister, D.F. 1986. *Mammals of Arizona*. University of Arizona Press.
- Stebbins, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Peterson Field Guides.