APPENDIX A: BIOLOGICAL TECHNICAL REPORT

March 4, 2019

Amie Ashton
David J. Powers & Associates
1871 The Alameda, Suite 200
San Jose, CA 95126

Re: Revised Technical Report for North San Jose Illuminated Sign Project Impacts to Wildlife, Santa Clara County, California

Dear Ms. Ashton:

This report addresses the potential for installation of up to six illuminated freeway signs (Project) along the north side of Highway 237 in Santa Clara County, California to result in adverse effects to wildlife with a specific focus on the artificial nocturnal light that would be generated by the signs. The focal assessment area includes the six parcel blocks on which an illuminated sign may be allowed and areas within 500 feet of the nearest edge of the freeway in or near these parcel blocks (Study Area; Figure 1). Sensitive habitats that are proximate to these parcel blocks include the Guadalupe River, San Tomas Aquino Creek, and Coyote Creek. Measures are provided to reduce any potential impacts to a less than significant level.

Study Area Description

The Study Area consists of six parcel blocks adjacent to Highway 237 in North San Jose, Santa Clara County, California (Figure 1). The parcel blocks are located between North McCarthy Boulevard and San Tomas Aquino Creek, north of Highway 237. The Study Area north of Highway 237 is in the Alviso Master Plan Area (City of San Jose 2016), and the Study Area south of Highway 237 is in the North San Jose Development Policy Area (City of San Jose 2017). The Study Area includes industrial, residential, and commercial development.

The six parcel blocks within the Study Area for which illuminated signs may be considered are north of Highway 237 and include PDC15-058, PDC99-061, PDC99-054, PDC82-020, PDC83-064, and PDC01-088 (Figure 1). These parcel blocks are designated as light industrial, industrial park, and combined industrial/commercial in the Envision San Jose General Plan (ESJGP, City of San Jose 2018), and most parcels within the Study Area have been developed. Highway 237 is a heavily trafficked thoroughfare, and one electronic sign is present in the Study Area immediately east of First Street and south of Highway 237.

Areas within 500 feet of the freeway along these parcel blocks were included in the Study Area (Figure 1). Undeveloped habitat within the Study Area is dominated by non-native annual grassland. Riparian corridors including San Tomas Aquino Creek, Guadalupe River, and Coyote Creek are adjacent to the parcel blocks in the Study Area. Roads and pedestrian trails are present along most of the riparian areas and host habitual anthropogenic disturbances and influences, including automobile traffic (Highway 237 and arterial roads), dog walkers, joggers, and cyclists.

Illuminated Signage Local Policies and Regulations

The proposed Project may include the installation of up to six double-sided, free-standing freeway signs with face illuminated LED pan channel letters or programmable display face with up to 375 square feet of programmable area. Existing policies for illuminated signs and freeway signs are described in the City of San Jose's Municipal Code (i.e., Section 23.02.905 – "Limitations on programmable electronic signs" and Section 23.04.035 – "Freeway signs") and there are applicable regulations under the California Vehicle Code and California's Outdoor Advertising Act implemented by Caltrans to limit the potential for distracting vehicle drivers' viewing of the displays. Parameters and criteria of operation described in the existing policies and which electronic signs in the Study Area would also comply with include:

- Images on the sign would not change at a rate greater than once every eight seconds
- Signs would use automatic dimming technology to adjust the brightness of the sign relative to ambient light
- The signs will be no more than two hundred fifty feet from a freeway travel lane
- The sign area will not be in excess of five hundred square feet with up to 375 square feet of programmable sign area
- The signs will not exceed sixty feet above grade
- The signs will not be within one hundred feet of the edge of a riparian corridor
- No freeway sign that is visible from a riparian corridor shall be illuminated between 12:01 a.m. and 5:59 a.m.

In 2011 the City of San Jose adopted the Envision San Jose 2040 General Plan that includes, but is not limited to, Wildlife Movement Policy ER-7.1 that states, "In the area north of Highway 237 design and construct buildings and structures using bird-friendly design and practices to reduce the potential for bird strikes for species associated with the baylands or the riparian habitats of lower Coyote Creek. In 2016, the City Council also adopted City Council Policy 6-34 "Riparian Corridor Protection and Bird-safe Design," that states "turn non-emergency lighting off, or shield it, at night to minimize light from buildings that is visible to birds, especially during bird migration season (February - May and August - November)." To be consistent with these City policies, areas north of State Route 237 must use bird-friendly design for buildings and structures to reduce bird strikes.

Background Literature and Sources

A variety of available background literature concerning artificial night lighting was reviewed in preparation of this letter. The primary source of information used here is Ecological Consequences of Artificial Night Lighting (book) by Rich and Longcore (2006). Various journal articles in the primary scientific literature were also reviewed and include the following:

- "Evaluation of New Obstruction Lighting Techniques to Reduce Avian Fatalities" (Patterson 2012)
- "Bird-Friendly Building with Glass and Light" (Schmid et al. 2013)
- "Bird-Friendly Building Design" (Sheppard 2011)
- "Standards for Bird-Safe Buildings" (San Francisco Planning Department 2011)

Special-status and Non-status Wildlife Species

Special-status species

Special-status species are those with heightened legal protections above baseline levels (if any such exist). They include species/taxa that have been formally listed under the federal and/or California Endangered Species Acts, or are given another protective designation by the U.S. Fish and Wildlife Service (USFWS) or the California Department of Fish and Wildlife (CDFW). These designations include CDFW Species of Special Concern and CDFW Fully Protected Species. Several special-status wildlife species are either known or presumed to be present in the vicinity of the Study Area and are discussed below.

Burrowing owl (Athene cunicularia). CDFW Species of Special Concern; USFWS Bird of Conservation Concern. The burrowing owl occurs as a year-round resident and winter visitor in much of California's lowlands, inhabiting open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grassland, although human-modified areas such as agricultural lands and airports are also used (Poulin et al. 1993). This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and in northern California is typically found in close association with California ground squirrels (*Otospermophilus beecheyi*). Manmade substrates such as pipes or debris piles may also be occupied in place of burrows. Prey consists of insects and small vertebrates. Breeding typically takes place from March to July. Open, undeveloped fields in the Study Area may provide habitat for burrowing owl. This species has been recorded breeding in the Study Area and vicinity (CDFW 2018).

Tricolored blackbird (Agelaius tricolor). State Threatened, CDFW Species of Special Concern, USFWS Bird of Conservation Concern. The tricolored blackbird is a locally common resident in the Central Valley and along coastal California. Most tricolored blackbirds reside in the Central Valley March through August, then moving into the Sacramento-San Joaquin Delta and east to Merced County and coastal locations during winter (Meese et al. 2014). This species breeds adjacent to fresh water, preferring emergent wetlands with tall, dense cattails or tules, thickets of willow or blackberry, and/or tall herbs. Flooded agricultural fields with dense vegetation are also used (Shuford and Gardali 2008). This species is highly colonial; nesting habitat must be large enough to support a minimum of 30 pairs, and colonies are commonly substantially larger (up to thousands of pairs). The tricolored blackbird often intermingles with other blackbird species during the non-breeding season. Individuals typically forage up to 5.6 miles (9 kilometers) from their colonies although in most cases only a small part of the area within this range provides suitable foraging (Hamilton and Meese 2006). Areas with dense vegetation near the Study Area may provide suitable habitat for tricolored blackbird. This species was observed nesting in Coyote Creek during the mid-1990's (CDFW 2018).

California Ridgway's (clapper) rail (Rallus obsoletus obsoletus). State Endangered, CDFW Fully Protected Species; Federal Endangered. The California Ridgway's rail (CRR), formerly known as California clapper rail (*R. longirostris obsoletus*), is the resident Ridgway's/clapper rail subspecies of northern and central California. Although more widespread in the past, it is currently restricted to the San Francisco Bay estuary. The CRR occurs only within salt and brackish marshes. According to Harvey (1988), Shuford (1993) and Eddleman and Conway (1998), important CRR habitat components are: 1) well-developed tidal sloughs and secondary channels; 2) beds of cordgrass (*Spartina* spp.) in the lower marsh zone; 3) dense salt marsh vegetation for cover, nest sites, and brooding areas; 4) intertidal mudflats, gradually sloping banks of tidal channels, and cordgrass beds for foraging; 5) abundant invertebrate food

resources; and 6) transitional vegetation at the marsh edge to serve as a refuge during high tides. In south and central San Francisco Bay and along the perimeter of San Pablo Bay, CRR typically inhabits salt marshes dominated by pickleweed and cordgrass. This species is known to occur in the tidal marsh north of the Study Area (CDFW 2018).

Salt marsh harvest mouse (Reithrodontomys raviventris). State Endangered, CDFW Fully Protected; Federal Endangered. The salt marsh harvest mouse (SMHM) is a relatively small rodent found only in suitable salt- and brackish-marsh habitat in the greater San Francisco Bay, San Pablo Bay, and Suisun Bay areas. The habitat associated with SMHM has been described as pickleweed-dominated vegetation (Fisler 1965), though more recent studies have shown that SMHM is supported equally in pickleweed-dominated and mixed vegetation (including native and non-native salt- and brackish-marsh species) (Sustaita et al. 2005, Sustaita et al. 2011). SMHM prefers deep, dense vegetative cover between 11.8 and 23.6 inches height (USFWS 1984). Another key habitat requirement for this species is upland or tidal refuge habitat, which is used to escape high tides and storm events. Persistent, low numbers of SMHM are also found in grasslands at least 330 feet (100 meters) from the edge of marsh habitat, though their presence in grasslands may be seasonal and opportunistic (USFWS 2013). This species is known in the tidal marsh habitat north of the Study Area (CDFW 2018).

Steelhead - Central California Coast DPS (Oncorhynchus mykiss irideus). Federal Threatened. The Central California Coast DPS includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for 2 or 3 years prior to returning to their natal stream to spawn as 4-or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. Per a technical report by Leidy (2005) that summarizes the known distribution of steelhead populations in Santa Clara County, the Guadalupe River supports a steelhead run. Thus, steelhead (i.e., in- and out-migrating adults, as well as out-migrating juveniles) may be expected to be intermittently present within this reach of the river at certain times of year. Additionally, steelhead migration often occurs at night.

Chinook salmon (Oncorhynchus tshawytscha), various designations. As summarized by Leidy (2007), the Guadalupe River supports a small chinook population, but the origin and status of this population is uncertain; a genetic analysis of Guadalupe River chinook suggested that these fish are related to Central Valley and Oregon hatchery stock, and thus would not have legal protections. Even if found to be of non-hatchery origin, chinook salmon within the Guadalupe River would be considered “fall-run” or “late fall run” and thus would not warrant protection under the federal or California Endangered Species Acts, though they would likely be considered Species of Special Concern by the CDFW.

<u>General (non-status) wildlife</u>

General wildlife in the vicinity of the Study Area are primarily common species with at least some adaptations to urban/suburban environments, as well as brackish-marsh species within adjacent channels and sloughs. The Study Area and surrounding riparian areas provide

foraging and nesting habitat for variety of locally common bird species including mallard (*Anas platyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), common raven (*Corvus corax*), killdeer (*Charadrius vociferous*), Anna's hummingbird (*Calypte anna*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), California scrub-jay (*Aphelocoma californica*), and bushtit (*Psaltriparus minimus*). Additionally, San Tomas Aquino Creek, Guadalupe River, Coyote Creek, and adjacent tidal channels support a variety of aquatic and wetland-oriented birds, most particularly during the winter when relatively large numbers of such species are present during the non-breeding season.

Common mammal species such as California ground squirrel, Botta's pocket gopher (*Thomomys bottae*) and western harvest mouse (*Reithrodontomys megalotis*) may inhabit landscaped and ruderal portions of the Study Area. Common and widespread, urban-adapted mammals such as raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*) are also presumably present. Bat species adapted to urban environments including California myotis (*Myotis californicus*) and big brown bat (*Eptesicus fuscus*) may occur. Reptile species adapted to disturbed/urban environments, such as western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Elgaria multicarinata*) and gopher snake (*Pituophis catenifer*) are common in much of Santa Clara County and likely present within the Study Area. Amphibians are less likely to inhabit the Study Area due to the salinity of tidal waters. Fish species adapted to brackish water may enter nearby creeks and rivers with the tide, and may include striped bass (*Morone saxatilis*; non-native), Pacific staghorn sculpin (*Leptocottus armatus*), and threespine stickleback (*Gasterosteus aculeatus*).

Potential Impacts of Artificial Lighting on Wildlife Research Results

Birds

The phenomenon of birds being attracted to and disoriented by artificial lighting is well-documented, most particularly for powerful light sources such as lighthouses, lightships and floodlit buildings and structures. This phenomenon is especially pronounced for nocturnally-migrating birds during foggy conditions and/or when the cloud ceiling is low. Ogden (1996) suggested that structures located at critical points along migratory routes may present a greater hazard than those located elsewhere. Although elements of the literature conflict with each other regarding the susceptibility of birds to different types of lighting, Rich and Longcore (2006) suggest that wavelength and light intensity are the most important variables, and that shorter wavelength (ultra-violet) and less intense lights are far less likely to attract and/or disorient birds. Patterson (2012) states that LED light sources are generally regarded by wildlife biologists as less likely to attract birds than more traditional lighting mechanisms (e.g., incandescent lighting).

Lighting has been also shown to impact birds that are resident (whether permanently or seasonally) in habitats adjacent to lighting sources. These impacts are less direct than those of migrating birds, and both positive and negative impacts have been implicated. Rich and Longcore (2006) suggest that artificial alterations to the diurnal/nocturnal schedule can impact physiology and behavior, including singing, reproductive cycles, migration timing, and activity length. Most birds are diurnal, and increased night lighting can increase visibility for predators, increasing predation risk. Conversely, night lighting may increase available forage time, providing a benefit to these birds. A study by Dominoni et al. (2013a) found that songbirds began singing and foraging earlier in the day after being exposed to artificial lighting during a typical "night time." This change in habits may have broader implications on food-web dynamics as these birds may also be attracting urban predators that have acclimated to altered light regimes. A second study by Dominoni et al. (2013b) found that changes in lighting regimes also

had a greater effect on the reproductive cycles of birds in rural environments than those in urban ones, indicating that birds not acclimated to night lights may experience greater impacts.

Bats

As summarized by Rich and Longcore (2006), street lights and similar sources of fixed, bright nocturnal lighting are attended by many species of foraging bats, as they tend to attract and congregate insects. This tendency is associated with foraging guild: fast-flying species that forage in open areas typically show the strongest predilection for foraging near lights. Such artificial light sources likely increase foraging efficiency for these species, at least in some contexts, and thus may have positive effects on the local populations of these bats. Other bat species appear to avoid foraging in the vicinity of artificial nocturnal light, and thus well-lit areas may have a deterrence effect on these bats, resulting in potential negative effects to local populations if lighting is widespread within otherwise suitable foraging areas. A study by Schoeman (2015) supported this theory, finding that bat communities near urban lighting sources have been homogenized as "urban exploiter" bat species that take advantage of the night lighting to forage, while "urban avoider" species intolerant of urban areas and night lighting show much reduced abundance in these areas.

Fishes

Per Rich and Longcore (2006), fishes as well as their aquatic invertebrate prey have been documented to modify their behavior in response to artificial nocturnal lighting, including altering their activity patterns (both spatially and temporally) and avoiding lit areas. As might be expected, the effects tend to be strongest in aquatic features with shallow and/or clearer water, e.g. streams and creeks. Most examples provided involved strong light sources placed directly over or adjacent to the aquatic habitats in question, e.g. street lamps illuminating a discrete area. Such effects have shown in "Pacific salmon" species, including both steelhead and chinook salmon; adult and juvenile salmonids migrating in freshwaters may avoid and/or be attracted to areas subjected to artificial night lighting, with the responses varying between salmonid species and/or environmental contexts of the lit area(s).

Other wildlife

A brief summary of information provided by Rich and Longcore (2006) for other groups of wildlife is provided below.

- Little is known about the effects of artificial lighting on mammals other than bats. However, given what is known about mammal biology and behavior (e.g., the majority of species are nocturnal), artificial lighting should be presumed to have at least some negative baseline effects, including increased predation risk and decreased foraging and movement activity.
- In general, there is a dearth of information on the effects of night-lighting on reptiles and amphibians. Some nocturnal predatory reptiles may benefit from increased visibility of prey species such as insects attracted to lighting. Conversely, nocturnal prey species may decrease their activity resulting from increased risk of predation or decreased foraging success. Night lighting has been shown to prolong periods of activity in diurnal reptiles.

Davies et al. (2017) experimented with effects to invertebrate assemblages in a grassland ecosystem which had no previous nighttime lighting and observed that LED lighting did result in changes to the invertebrate assemblage. Changes to invertebrate populations may indirectly

impact foraging of some bird and bat species. However, it was observed that effects of nocturnal LED lighting were greatly minimized by use of dimming LEDs and turning off LEDs between midnight and 4:00 am. There are few studies on effects from increased artificial nocturnal lighting in already disturbed habitats, and effects to systems in which nighttime lighting is already present may not be translatable from studies in which nighttime lighting is introduced.

Assessment of Potential Project Impacts to Wildlife

California Ridgway's Rail

No suitable tidal marsh habitat for CRR is within 1,000 feet of the Study Area. This species is documented in well-developed sloughs and tidal channels to the north where intertidal mudflats and lower tidal marsh are present. No impacts to CRR are anticipated from installation of electronic signs within the Study Area.

Salt Marsh Harvest Mouse

Typical habitat is not present within the Study Area, and brackish marsh habitats along the riparian creek corridors or wetlands within the Study Area are narrow. However, this species is known in marsh habitats to the north and has been documented in mixed vegetation marsh habitat. Adjacent uplands are also disturbed or developed limiting SMHM, if present, to the vegetated creek banks or wetlands. Although the habitat is marginal there is a low potential for SMHM to be present in riparian areas or vegetated wetlands within the Study Area. There has been little studies on the effects of artificial nocturnal illumination on mammals including mice species; however, this species prefers densely vegetated cover, and is not typically in exposed areas. Artificial nighttime lighting from electronic signs is not anticipated to increase visibility of SMHM to predators because of this protected habitat preference. In addition, existing policy limiting electronic signs to no closer than 100 feet to riparian corridors, no illumination between midnight and 6:00am if visible from a riparian corridor, and installation of automatic dimming technology will further reduce potential for electronic signs within the Study Area to impact SMHM. It is not anticipated that electronic signs within the Study Area in compliance with existing regulations will result in significant impacts to SMHM, if present.

Birds

As stated previously, the effects of electronic signs on birds do not appear to have been studied especially in developed or disturbed areas. Recent guidance documents whose primary intent is to encourage bird-friendly infrastructure and architecture do not address electronic signs, suggesting that they are not currently viewed as a noteworthy contributor to incidental bird take. The literature review did find position documents from environmental and wildlife conservation groups expressing a general opposition to electronic signs (e.g., a formal Position Statement from the Golden Gate chapter of the Audubon Society dated February 2013), but such positions appeared to be based solely on principle and/or broad summaries of what is known about artificial light, with no specific data related to electronic signs.

Altered lighting regime has some potential to alter the behavior of and/or reduce the reproductive success of birds that nest locally within the river's riparian and emergent vegetation. Such potential impacts are difficult to quantify or estimate and may be discountable given the surrounding development and the proximity of the proposed signs to Highway 237. Existing policies including no illumination of freeway signs if visible from riparian corridors

between midnight and 6:00 am will further reduce the potential for impacts from the proposed signs in the Study Area.

The proposed signs seem unlikely to result in impacts to birds that would be considered "significant" under standard environmental analyses for the following reasons:

- The signs would be located on and visually oriented toward drivers along a highly urbanized transportation corridor (Highway 237) that is already subject to substantial and widespread artificial light, as well as a wide variety of other visual (and acoustic) disturbances. The Highway 237 corridor is thus unlikely to be used by low-flying migrating birds.
- The signs would be located amid a developed area with other sources of artificial light in close proximity, presumably including artificial night lighting on and/or within buildings and vehicular traffic; it seems unlikely that the proposed signs would increase the overall magnitude of artificial light in the vicinity to result in significant changes.
- While presumably a local movement corridor as well as general habitat for birds and other wildlife (see below), the portions of the San Tomas Aquino Creek, Guadalupe River, Coyote Creek Guadalupe River near the proposed signs are unlikely to be used as a true migration flyway or corridor for nocturnally-moving birds due to the proximity to Highway 237. Birds using the river and affiliated emergent marsh and riparian vegetation will most typically be year-round residents in the area or local summer residents (i.e., migratory birds breeding there).
- Per existing policy, signs visible from riparian corridors will not be illuminated between midnight and 6:00am. This has been shown to greatly minimize the change in invertebrate assemblages in undisturbed environment (Davies et al. 2017) and will likely reduce potential for indirect impacts to insectivorous bird species from changes in prey abundance.
- Per existing policy, when the signs are illuminated and regardless of position in relation to riparian corridors, dimming technology will be utilized to adjust brightness relative to ambient conditions.
- If present in the area at the time of sign installation and operation, burrowing owls may actually benefit from the signs, due to increased insect abundance near the sign at night and increased foraging efficiency. WRA biologists (personal observation) observed burrowing owls foraging in association with artificial nocturnal lighting at a semi-urban project site in Contra Costa County in 2014, successfully raising a broods in multiple years. Although the extent to which such behavior is common for this species is unknown.

Bats

The Study Area is predominantly within developed and disturbed habitats and is unlikely to support roosting (maternity or otherwise) by special-status bats. However, some non-special-status bats may roost in trees in the riparian areas, and these and other bat species likely forage in the area including along the river and creek corridors. Presumably the vast majority of these bats are common species, though some special-status or otherwise rare species may also occasionally forage there.

Although the magnitude of insect attraction to the proposed signs at night is difficult to even approximate, insects will presumably be attracted to the signs at night. As such, at least some

bats foraging in the area will presumably alter their behavior to forage near the sign (species prone to foraging near artificial nocturnal lighting), and others may alter their behavior to avoid the sign (species averse to foraging near artificial nocturnal lighting). The proposed sign thus may increase the foraging efficiency for some bat species (a beneficial effect), and discourage other species from using the immediate area (an adverse effect). However, given the abundance of artificial nocturnal lighting sources in urban San Jose in general, such effects should be considered discountable overall, particularly the potential adverse effects since the total area of foraging space that would be affected is relatively small. In addition, existing policy states that signs visible from riparian corridors will not be illuminated between midnight and 6:00am. This will likely reduce potential for changes in invertebrate assemblages (Davies et al. 2017) and minimize potential indirect impacts to insectivorous bat species. No significant impacts to bat species is anticipated from the installation of the proposed electronic signs based on existing policy and existing conditions.

Fishes

While artificial night lighting has been shown to alter the behavior of some fishes, including salmonids, any effects on special-status salmonids due to the Project are anticipated to be discountable. No spawning habitat for these species is present within the river near the proposed sign, and the amount of increased illuminance to be generated by the sign is unlikely to modify migration behavior given both the short periods of time that migrating salmonids are expected to be present in the area and the anticipated magnitude of illumination. In addition, existing policy states that signs visible from riparian corridors will not be illuminated between midnight and 6:00am, and dimming technology will be utilized to adjust brightness relative to ambient conditions so the signs will not be at full brightness in darker conditions. No significant impacts to fish species is anticipated from the installation of the proposed electronic signs based on existing policy and existing conditions.

Other Wildlife

Guadalupe River and Coyote Creek are presumed to be important movement corridors for animals within urban San Jose. Though generally narrow, and impacted in sections, the corridors connect south San Francisco Bay and associated fringe habitats (e.g., tidal wetlands, salt ponds) with undeveloped areas upstream of urban San Jose. Potential effects to the river's ability to function as a corridor resulting from increased nocturnal light are expected to be subtle and difficult to quantify or estimate, especially given the lack of information regarding electronic signs. Existing policy also states that signs visible from riparian corridors will not be illuminated between midnight and 6:00am, thus reducing the potential for impacts to local wildlife within the riparian corridors. Therefore, no significant impacts to other wildlife species are anticipated from the installation of the proposed electronic signs based on existing policy and existing conditions.

Summary and Recommendations

The proposed Project installing up to six electronic signs on the north side of Highway 237 are unlikely to significantly affect special-status species, birds, bats, fish, or other wildlife because of the following reasons:

- Existing policy: signs visible from riparian corridors will not be illuminated from 12:01 AM to 5:59 AM.
- Existing policy: signs will not be placed within 100 feet of riparian corridors.

- Existing policy: signs would use automatic dimming technology to adjust the brightness of the sign relative to ambient light.
- Signs will be in close proximity to Highway 237 within developed areas, where wildlife is already subject to substantial and widespread artificial light, as well as a wide variety of visual and acoustic disturbances.
- Signs will utilize LED lighting, which is suggested to be less likely to attract birds than other mechanisms such as incandescent lighting.

Although no significant impacts are anticipated, there is a lack of research on effects to wildlife specifically from electronic signs and artificial lighting in disturbed or developed habitats. Therefore, in addition to the existing policies, the following item is recommended to further reduce the potential for unforeseen impacts to bird and bat species:

- Electronic or artificially illuminated signs will utilize shaders to avoid direct lighting upward.

Please do not hesitate to contact me if you have questions or require additional information.

Sincerely,

Patricia Valcarcel
Senior Associate Wildlife Biologist

Attachment – Figure 1. Study Area Map

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ATTACHMENT

STUDY AREA MAP

Path: L:\Acad 2000 Files\28000\28164\GIS\ArcMap\Location_2.mxd

Sources: Esri Streaming - NAIP 2016, WRA | Prepared By: NJander, 11/2/2018

Figure 1. Study Area and Highway 237 Parcel Blocks with Potential for Illuminated Signage

North San Jose Illuminated Sign Project
Santa Clara County, California

0 0.25 0.5 Miles

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ENVIRONMENTAL CONSULTANTS