Appendix A: Avoidance and Minimization Measures

APPENDIX A
AVOIDANCE AND MINIMIZATION MEASURES

The following describes best management practices and other measures to be implemented as appropriate to assist in implementation of General Plan Conservation and Open Space Element goals, policies, and actions that minimize impacts to biological resources. These measures are based on the avoidance and minimization measures that are applicable to Vacaville, as drafted in the working version of the Final Administrative Draft of the Solano Habitat Conservation Plan, which is expected to be published in summer/fall 2014.

NOTE

If there are conflicts or overlap between general measures and natural community or special-status species avoidance and minimization measures, the more restrictive natural community or species measures shall apply.

GENERAL CONSTRUCTION BEST MANAGEMENT PRACTICES

Vehicular/Equipment Operation and Maintenance

1. When working in or adjacent to wetlands (e.g. vernal pools, seasonal wetlands, and marshes), streams, and riparian areas, the number of new temporary access routes or use of existing access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. The boundaries of all new and existing access routes shall be clearly marked or flagged. These areas shall be outside of preserved riparian, wetlands, and other sensitive areas.
2. All fueling and maintenance of vehicles and other mechanized equipment shall be conducted in designated areas located at least 100 feet away from any aquatic habitat where possible. Each designated fueling/maintenance area shall be protected by a containment barrier designed to prevent any spilled or leaked fuel or other contaminants from running into an aquatic habitat. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
3. All vehicles and other mechanized equipment used during construction shall be checked for oil, fuel, and coolant leaks prior to initiating work. Any equipment found to be leaking fluids shall not be used in or around aquatic habitat features.
4. The potential for wildfires shall be reduced by parking vehicles away from vegetation and by the use of shields, protective mats, and other fire prevention methods when welding, grinding, or conducting other activities that are likely to create a fire hazard. All construction sites shall have adequate sources of water, shovels, and fire extinguishers available for immediate use. All vehicles and heavy equipment used on construction sites shall have on-board fire extinguishers.

5. During the dry season, vehicles shall never be parked or idled so that the undercarriage is in contact with vegetation.
6. In order to reduce the risk of spreading harmful pathogens into natural areas, vehicles and construction equipment that have been off-road in natural areas shall have their tires thoroughly cleaned (by manual scrubbing down or cleaning with a pressure washer) before the vehicle/equipment is allowed to be used in other natural areas. If the vehicle or equipment was operated in a creek or stream, the tires shall also be decontaminated by one of the following procedures:
    a. Allowing the tires to completely dry (for at least 24 hours) before being allowed use or entry in or in the vicinity of another creek or stream.
    b. Cleaning with a 5-percent bleach solution or 99-percent copper sulfate pentahydrate solution (3/4 teaspoon per gallon of water).
    c. Vehicular cleaning work shall be conducted in self-contained work areas at least 100 feet from any aquatic habitat; wash water shall not be disposed of in any natural areas.

Work Area Maintenance/Hazardous Materials

1. Food, trash, and other solid wastes shall be disposed of in properly contained, covered refuse containers and regularly removed from the various structures and facilities. Following construction, all trash and construction debris shall be removed from the work area.

2. Building material storage areas containing hazardous or potentially toxic materials shall have an impermeable membrane between the ground and the hazardous material and shall be bermed to prevent the discharge of pollutants to groundwater and storm water runoff.

3. Materials deleterious or toxic to fish and wildlife including, but not limited to, asphalt, tires, concrete, construction materials, treated wood, and creosote-containing materials must be stockpiled in bermed containment areas that are lined with an impermeable membrane and designed to hold 125 percent of the total capacity of stored materials. All such materials may not be stored within 100 feet from the edge of any water body for more than 48 hours. Contaminated absorbent materials shall be stored in each containment area. Water collected in containment areas shall be disposed of according to federal, State, and local regulations.

4. An emergency response and cleanup plan shall be prepared prior to beginning work at the site. The plan shall detail the methods to be used to contain and clean up spills of petroleum products or other hazardous materials in the work area.

5. Containers for storage, transportation, and disposal of contaminated absorbent materials shall be provided on the project site. Petroleum products and contaminated soils shall be disposed of according to federal, State, and local regulations.

Erosion Control and Water Quality Management

1. A Storm Water Pollution Prevention Plan (SWPPP), prepared in accordance with the State Water Resources Control Board (SWRCB), National Pollutant Discharge Elimination System (NPDES)

Construction General Permit, shall be implemented for all construction activities where required under SWRCB regulations. The SWPPP shall include Best Management Practices (BMPs) for controlling sediment, turbidity, and the release of other pollutants into aquatic habitats during construction. The SWPPP shall be subject to the approval of the Regional Water Quality Control Board (RWQCB) prior to the start of work.

2. Seed mixes shall be composed of native or noninvasive naturalized species. No invasive exotic plant species shall be allowed, including those identified in the California Exotic Pest Plant Council's database, which is accessible at: http://www.cal-ipc.org/ip/inventory/weedlist.php.

3. Any concrete structures below the tops of banks of creeks, wetlands, or other aquatic habitats shall be poured in tightly sealed forms and shall not be allowed contact with surface waters until the cement has fully cured (minimum of 30 days). During that time, the poured concrete shall be kept moist, and runoff from the concrete shall not be allowed to enter aquatic habitats. Commercial sealants may be applied to the poured concrete surface in locations where the exclusion of water flow for a long period is difficult. If a sealant is used, water shall be excluded from the site until the sealant is dry and fully cured according to the manufacturer's specifications.

4. Water that contacts wet concrete and has a pH greater than 9.0 shall be pumped out and disposed of outside an aquatic habitat.

5. No substances toxic to aquatic life shall be discharged or allowed to leach into an aquatic habitat. Every reasonable precaution to protect aquatic habitats from pollution with fuels, oils, bitumens, calcium chloride, dust suppressants, and other harmful materials shall be implemented.

6. If cofferdams and pumps are used to isolate and dry channel work areas, the water pumped from a work area shall not be allowed to re-enter the stream channel until sediment has settled out using a settling pond, silt basin, Baker tank, or similar detention/settling device.

7. Booms with attached silt curtains with filtering capabilities shall be used around dredging areas to minimize the spread of resuspended sediments in the water column.

Diversion and Dewatering

1. Water drafting, pumping, or other water diversion shall be done in a manner that is not harmful to fish or other aquatic or semiaquatic life. Pump in-flow tubes or hoses shall be screened in a 0.5-millimeter mesh-screened cage to exclude aquatic wildlife that may otherwise be harmed in the process.

2. Any equipment or structures placed in the active channel for water drafting, pumping, or diversion shall be done in a manner that: (a) prevents pollution or siltation, (b) provides sufficient water to pass downstream to maintain adequate flows and temperature for aquatic life below the obstruction, and (c) restores normal flows to the affected stream reach immediately upon completion of work.

Worker Training

When working in or adjacent to sensitive habitat areas, construction personnel shall receive training concerning sensitive species and habitat occurring in the project area. Training shall be provided by a qualified biologist and shall include:

1. Descriptions of the sensitive habitats, special-status, and regulatory requirements for protection of biological resources potentially occurring with work areas;
2. All routine measures required to protect the species/Natural Community during work and the possible State and/or federal penalties for not complying with these requirements;
3. The requirement to stop all work and notify a supervisor or the project biologist if a special-status species is observed in the project site; and
4. Construction personnel shall report to their supervisor any observed incident of death or injury to any State or federally listed threatened or endangered species or damage to a protected habitat area. The supervisor shall immediately notify the City and shall report to the United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Association, National Marine Fisheries Service (NOAA NMFS), and/or California Department of Fish and Wildlife (CDFW), as appropriate. The report shall be made to the appropriate agencies within 24 hours of the incident and shall include pertinent information such as the date, time, location, species or habitat, and possible cause of the incident (if known).

Vegetation Management Measures

1. Mechanical control methods such as mowing shall be used as an alternative to the application of herbicides whenever practicable in or near sensitive habitats and areas known to or likely to support special-status species, including riparian and marsh areas, creeks, ponds, vernal pools, and other seasonal wetlands and coastal marshes.

2. Mass application of herbicides shall be avoided to the maximum extent practicable. Spot spraying or more localized applications shall be used instead.

3. Herbicide mixing shall be limited to areas not prone to runoff such as concrete mixing/loading pads, disked soil in flat terrain, or graveled mixing pads.

4. The use of all herbicides shall comply with the requirements specified on the pesticide product labeling and Solano County Department of Pesticide Regulation regulations.

Exclusion Fencing

1. Exclusion fencing, when required, shall be installed and maintained between project work areas and adjacent preserved habitat during all work activities. Exclusion fencing shall be installed prior to required preconstruction surveys and will consist of silt fabric, plywood, aluminum, or other City-approved material. Exclusion fences shall be designed and installed to achieve species and habitats protection objectives based on recommendation from a qualified biologist or as required under applicable permits from USFWS, CDFW, US Army Corps of Engineers, or RWQCB. In general, fences shall be pulled taut at each support to prevent folds or snags.

Support poles will be located on the inside of the exclusion area. Construction personnel will also install an orange plastic-mesh construction fence 1 foot on the development side of the exclusion fence to increase visibility unless the exclusion fence is composed of high visibility materials. Exclusion fencing shall be inspected weekly and repaired immediately when damage is observed during construction work.

NATURAL COMMUNITY AND ASSOCIATED SPECIES MEASURES

Valley Floor Grassland and Vernal Pool

This section provides avoidance and minimization measures for species and sensitive habitats in the Valley Floor Grassland and Vernal Pool Natural Community.

Habitat Avoidance. Maximum avoidance is required in the following locations[1] where:

1. The wetlands contribute to the habitat quality and value of reserve/preserve lands established (or expected to be established) in perpetuity for conservation purposes;
2. The wetlands are adjacent to or contiguous with riparian or stream corridors, or other permanently protected lands; and
3. The wetlands are located in or contiguous to High Value Vernal Pool Conservation Areas.

Where temporary or permanent fill is proposed in any vernal pools or other seasonal wetlands, the project proponent shall provide documentation explaining why avoidance is not practicable.

Site Design Standards. The following site design standards shall apply to all development activities that would affect Valley Floor Grassland and Vernal Pools:

1. All avoided areas shall be preserved and managed consistent with General Plan Policies COS-P1.2 and COS-P1.3 and Action COS-A1.4.
2. Development shall be designed to minimize direct and indirect impacts to wetlands and edge effects to preserved areas.
3. The applicant shall incorporate measures into the project design to accomplish the following:
    a. Preserve and maintain sufficient unaltered watershed area to prevent significant adverse changes in water quality and the volume and timing of inflows to preserved wetlands.
    b. Avoid changes in nutrient input from adjacent upland sources into preserved wetlands.
    c. Provide sufficient upland habitat to support associated amphibian and terrestrial fauna and vernal pool plant pollinator species.
    d. Accommodate linkages/corridors between individual aggregations of vernal pools in a larger vernal pool complex.
    e. Provide a terrestrial buffer to protect the core wetland and associated upland habitat from edge effects associated with surrounding land uses (i.e. prohibit backyards from backing up to

[1] Compliance with these conditions will be determined during the City's environmental review.

preserves, place firebreaks on the development side of preserve/development boundaries, and provide for a vegetated buffer between roads and preserve boundaries).

f. Minimize the potential for spread of invasive species from the development into preserved lands.

4. Development shall not isolate existing populations or suitable habitat areas. To maintain connectivity between adjacent reserves, a corridor shall be established linking these areas.

Buffer Criteria for Development Activities. Vegetated buffers shall be established around preserved vernal pools and seasonal wetlands. Buffers shall be consistent with the following criteria:

1. Vegetated buffers shall consist of valley floor grassland and vernal pool vegetation and/or other natural vegetation (i.e. oak savanna/woodland, coastal marsh or riparian habitats, if applicable).
2. Buffers shall not contain any irrigated or landscaped lands, fire breaks, or public or maintenance access trails or roads.
3. Buffers shall be preserved in perpetuity and managed consistent with Policy COS-1.3

Biological Monitor. A qualified biologist shall monitor all ground-disturbing activities within 100 feet of preserved habitats (or as otherwise specified for species-specific avoidance requirements) to ensure that no unnecessary take of listed species or destruction of their habitat occurs. The biologist shall have the authority to stop all activities that may result in such take or destruction until appropriate corrective measures have been completed. The biologist shall immediately notify the City of any unauthorized impacts and shall report to the USFWS and CDFW within 24 hours of any activities that result in take of listed species.

The biological monitor shall provide instructions to all on-site construction personnel regarding the presence of listed species, the measures required by law to avoid impacts to vernal pool species and their habitat, and the possible penalties for not complying with these requirements.

Habitat Protection During Work Activities. Vernal pool habitat and adjacent grassland/upland areas within the immediate work areas shall be identified and marked in the field prior to staging and construction/ground-disturbing activities.

1. Exclusion fencing shall be installed prior to any required preconstruction surveys and maintained between project work areas and adjacent preserved habitat during all work activities. Exclusion fencing will consist of silt fabric, plywood, aluminum, or other material approved by a qualified biologist or mandated in respective State or federal permits. In California tiger salamander habitat, the base of the fence will be buried a minimum of 3 to 5 inches in the ground to prevent animals from crawling under and be a minimum of 3 feet in height above ground to serve as a barrier for animals moving on the ground surface. Exclusion fences shall also include provisions (e.g. ramps, one-way doors, or exit funnels) for California tiger salamanders and reptile and amphibian species to leave the work area. The fence will be pulled taut at each support to prevent folds or snags. Construction personnel will also install an orange plastic-mesh construction fence 1 foot on the development side of the exclusion fence to increase visibility unless the exclusion fence is composed on high visibility materials. Exclusion fencing shall be inspected weekly and repaired immediately when damage is observed during construction work.

2. The following activities are prohibited, except as otherwise identified in an approved management plan, in all protected vernal pool and grassland habitat: (a) alteration of existing topography or any other alteration or uses for any purposes, including the exploration for or development of mineral extraction; (b) erection of any new structures; (c) dumping, burning, and/or burying of rubbish, garbage, or any other wastes or fill materials; (d) building of any new roads or trails; (e) killing, removal, or alteration of any existing native vegetation; (f) placement of storm water drains; and (g) use of pesticides or other toxic chemicals inconsistent with the product labeling.

Riparian, Stream, and Freshwater Marsh

The Riparian, Stream, and Freshwater Marsh Natural Community avoidance and minimization measures apply to all freshwater, aquatic, marsh and riparian habitats in Vacaville, excluding vernal pools and seasonal wetlands associated with the Valley Floor Grassland and Vernal Pool Natural Community.

Habitat Avoidance. Consistent with General Plan Conservation and Open Space Element Goal COS-2 and associated policies, project proponents shall avoid activities that will result in the loss of riparian or stream habitat that meet any one of the following conditions:

1. Riparian, stream, and associated buffer habitats located in Priority Drainages and Watersheds.
2. More than 300 feet of channel in first or second order streams lacking woody riparian vegetation.
3. Second order streams with riparian vegetation.
4. Third, fourth, and higher order streams in non-priority watersheds.
5. Activities that will create a significant barrier to wildlife movement along the stream corridor and/or significantly affect hydrological connectivity.

If project proponents are proposing to fill any portion of a stream or permanently remove riparian habitat in any of the conditions described above, they must provide documentation explaining why avoidance is not practicable and/or would not contribute to the General Plan Conservation Element goals, policies, and actions. In general, the level of documentation required for a project varies by the significance of the project. Activities involving perpendicular crossings for roads or utility lines are preferable and will generally require less documentation than longitudinal impacts.

Setbacks and Buffer Zones. Native vegetated buffer zones shall be established between development and stream corridors to protect riparian and stream habitats in accordance with the following standards:

1. For infill projects[1], buffer zone widths shall, at a minimum, correspond to existing buffer widths found in the existing adjacent developed areas or a minimum of 1.5 times the drip line of trees and shrubs at maturity, whichever is greater. To the maximum extent practicable, buffer zones

[1] For the purposes of this measure, an infill project must be 5 acres or less in size and be located between two adjacent developments bordering the stream channel (one upstream and one downstream).

shall be widened to accomplish all of the following: (a) restoration of historic riparian vegetation stands; (b) establishment of protected zones of riparian vegetation that are at least the width of four mature riparian tree canopies; and (c) incorporation of existing native perennial upland vegetation (e.g. native grassland, oak woodland, elderberry stands, and other native shrubs).

2. For projects in the urban expansion areas along third or higher order streams and lower order streams that support riparian vegetation, buffer zones shall extend at least 100 feet from either: (a) the top of the bank, or (b) the outside edge of the existing riparian vegetation, whichever distance is greater.
3. Development may encroach into the buffer zone required under Conditions 1 and 2 provided that offsets are provided elsewhere in the buffer zone. The offsets shall be situated in the remainder of the buffer zone and shall be equal or greater in size to the encroachment areas. Under no circumstances shall the total area of all encroachments exceed 25 percent of the total buffer zone area or length as specified in Condition 2.
4. The outer edges of the buffer (not to exceed 25 percent of the buffer width along third or higher order streams and lower order streams that support riparian vegetation) may also be used for public access and passive recreation such as hiking, wildlife viewing, and bicycling. For avoided first and second order streams lacking riparian vegetation, public access is limited to no more than 5 percent of the outer edge of the buffer.
5. For projects in the urban expansion areas along avoided first and second order streams lacking riparian vegetation, stream setbacks shall be at least 25 feet from the top of the bank.
6. For those projects that involve reconstruction/restoration of channelized streams (including both widening of riparian corridors and re-establishment of watercourse meander patterns), setbacks shall be at least 50 feet from either: (a) the top of the bank, or (b) the edge of the restored riparian corridor, whichever distance is greater. Creating meanders from a straight watercourse will require a wide area that encompasses the meanders and the additional 50 feet buffer from the top of bank (of the edge of the meandering watercourse) or edge of riparian vegetation (of a non-meandering watercourse). This area should provide a sufficient buffer for the watercourse and can support other native upland communities such as grasslands and oak woodlands.
7. All buffers and avoided habitats shall be preserved and managed consistent with General Plan Policies COS-P1.2 and COS-P1.3 and Action COS-A1.4.

Project Implementation and Construction

This section addresses the mandatory avoidance and minimization requirements for the post-project approval/project implementation and construction requirements.

Riparian Tree Protection. Where trees and/or riparian shrubs are present and will be preserved, the following measures shall be implemented:

1. Ground disturbance shall avoid the drip line of the riparian trees and shrubs. Temporary construction fencing shall be placed at the edge of the work outside the edge of the tree drip lines. No construction work, storage of equipment or materials, or other disturbance shall be allowed in the protected areas.

1. Excavation work within a distance of 1.5 times the radius of the drip line or within a 25-foot radius of the drip lines, whichever is greater, of native riparian trees shall be done with hand tools or with light mechanized equipment (e.g. mini or light excavator or backhoe) in order to minimize disturbance or damage to roots.
2. An air spade or the equivalent shall be used to aerate and loosen any compacted soil in the structural root zone of protected trees to minimize physical injury to the tree roots.
3. Branch or root pruning of native riparian trees, if required, shall be conducted under the supervision of a Certified Arborist.
4. Equipment staging areas/storage areas shall not be located within a distance of 1.5 times the radius of the drip line or within a 25-foot radius of the drip line, whichever is greater, of native riparian trees.
5. Fill, gravel, or other construction materials shall not be stockpiled in the drip lines of native riparian trees.

Dewatering Activities. Water drafting, pumping, or other water diversion shall be done in a manner that is not harmful to fish or other aquatic or semi-aquatic life:

1. Pump inflow tubes or hoses shall be screened within a 0.5 millimeter mesh-screened cage to exclude aquatic wildlife that may otherwise be harmed in the process.
2. Prior to dewatering, a qualified biologist shall capture and relocate any native fish or other native vertebrate species found at the project site. Captured animals shall be relocated to another suitable water body preapproved by CDFW unaffected by the work or downstream of the work area[1]. All nonnative invasive species shall be captured, removed from the project site, and humanely euthanized.
3. All dewatering shall be pumped into a temporary siltation pond/desilting basin, Baker tank, or similar detention device in order to allow adequate time for settling of sediments prior to their release downstream in accordance with the approved SWPPP.
4. Following adequate settling time, water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
5. If coffer dams are used, turbid water pumped out of the dam shall not re-enter the channel until the sediment has settled out to prevent any increase in turbidity in downstream waters.

Habitat Protection and Site Restoration. The following measures shall be implemented to minimize impacts to stream and riparian habitats:

1. Disturbed areas shall be hydroseeded or stabilized using other erosion control measures prior to October 15. Hydroseed mixes used along and immediately above stream banks to stabilize

[1] Transportation of exotic wildlife, without appropriate permits, is prohibited under California Fish and Game Code.

disturbed areas shall not contain fertilizers or nonnative invasive species. When necessary, the City, in consultation with CDFW, may grant extensions of this deadline on a case-by-case basis.

2. Streambed and bank construction work shall not create any physical barriers to fish migration such as artificial berms or a uniformly flat channel profile.
3. Bank stabilization projects shall also incorporate bioengineering techniques and other measures to promote re-establishment of native vegetation (e.g. anchored rootwads or ballast bucket plantings in riprap). The use of hardscape such as rock riprap and floodwalls shall be minimized.
4. All debris, sediment, rubbish, vegetation, or other material removed from the channel banks, channel bottom, or sediment basins shall be disposed of at an approved upland disposal site.
5. Excess drainage from the construction site shall be routed away from riparian, stream, and freshwater marsh habitats.
6. Any riprap placed such that it will encounter water shall incorporate large woody cover (logs), other applicable bioengineering techniques, and/or vegetation planting depending on the character of the surrounding (natural) stream banks.
7. During construction, inspection of in-stream habitat and performance of sediment control devices shall occur at least once a day when there are surface waters in the channel to ensure devices are functioning properly.
8. Where erosion control blankets are placed in riparian zones, plantings of native riparian trees and shrub species shall occur in small openings in the erosion control blanket.
9. Plastic monofilament or wire mesh straw waddles or erosion control blankets shall not be used. Only erosion control materials (e.g. blankets, roles, and mats) with a minimum 2-inch square mesh made of natural coir fibers or other netting approved by CDFW shall be used.

Valley Elderberry Longhorn Beetle. The following measures apply to all activities that would entail ground-disturbing activities within 100 feet of elderberry plants[1]:

1. A minimum setback of 20 feet from the drip line of each elderberry plant shall be established between the development and all elderberry plants containing stems measuring 1 inch in diameter or greater at ground level, except where elderberry plants are established immediately along existing roads or other paved or graveled surfaces (e.g. sidewalks, bike/pedestrian paths, and facility access roads). The setback shall be fenced and flagged consistent with the general construction avoidance and minimization measures for exclusion fencing in order to prevent encroachment of equipment and materials.
2. Where elderberry plants are established adjacent to existing roads and facilities, construction avoidance fencing shall be provided to protect the trunk and main stems of the plant.
3. All contractors shall be briefed on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. Work crews shall be instructed on

[1] Visual evidence of valley elderberry longhorn beetle is not always evident; for the purposes of compliance with this HCP, all elderberry plants with stems meeting this minimum size should be considered occupied habitat.

the status of the Valley Elderberry Longhorn Beetle and the need to protect its elderberry host plant.

4. Signs shall be placed every 50 feet along the edge of the buffer zone with the following information: *"This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Federal Endangered Species Act. Violators are subject to prosecution, fines, and imprisonment."* The signs shall be clearly readable from a distance of 20 feet and must be maintained for the duration of construction.
5. Routine trimming of overgrown and overhanging elderberry shrubs that may pose a human safety threat along pathways, trails, bike paths, roadways shall adhere to the following restrictions:
    a. Only branches and stems less than 1 inch in diameter may be trimmed or cut.
    b. Trimming may only occur between September 1 and March 14. Trimming is recommended from November through the first two weeks in February, when plants are dormant and have lost their leaves.
    c. Trimming shall not occur after the shrubs have leafed out (when adult valley elderberry longhorn beetles are likely to be active).
    d. Vegetation clearing within 5 feet of elderberry shrub stems shall be done by hand (e.g. pulling or clipping).
6. Following completion of construction work affecting the buffer zone, any damage done to the buffer zone shall be restored using native erosion control seed mixes and native riparian plant species, as appropriate.
7. After construction, buffer zones must continue to be protected from adverse effects of the development project. Protection measures such as fencing and signage shall be included in the project plans and are subject to the approval of city.
8. No insecticides, herbicides, fertilizers, or other chemicals that might harm the valley elderberry longhorn beetle or its host plant shall be used in the buffer areas or within 100 feet of any elderberry plant with one or more stems measuring 1 inch in diameter or greater at ground level.
9. Fire fuel breaks (disked land) may not be included within the 100-foot setback; however, vegetation in the setback may be cleared by mowing (e.g. mower, mechanical trimmers, or hand tools) to less than 2 inches in height. The mowing of grasses/ground cover in the buffer zone may occur from July through April to reduce fire hazards. No mowing shall occur within 5 feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g. stripping away bark through careless use of mowing/trimming equipment).
10. A qualified biologist shall be retained to monitor implementation and compliance of all the above measures.

Tricolored Blackbird. The following measures are for development activities that are within 250 feet of suitable tricolored blackbird breeding habitat:

1. During the breeding season (February 1 through August 31), a qualified biologist shall conduct pre-construction surveys for all development activities in known or suitable nesting habitat areas no more than 15 days prior to scheduled work. Suitable nesting habitat includes any of the

following: (a) dense vegetation near open water; (b) emergent marsh vegetation, especially cattails and tules; (c) thickets of willow, blackberry, wild rose, or thistles; (d) silage and other grain fields such as sorghum.

Pre-construction surveys shall be conducted for each phase of development. If ground-disturbing activities are delayed or suspended for more than 15 days following completion of the pre-construction survey, a qualified biologist shall resurvey the site and shall conduct a second follow-up survey at least five days prior to the start of construction activities.

2. A minimum 250-foot buffer shall be established between work activities and any active nests. Construction buffers may be reduced under the following conditions:

    a. A site-specific analysis prepared by a qualified biologist indicates that construction activities would not adversely affect nesting birds. The City, in consultation with CDFW, must approve the analysis in writing before construction can proceed.

    b. Nesting birds do not exhibit significant adverse reaction to construction activities (e.g. changes in behavioral patterns or reactions to noise) based on sufficient monitoring (minimum of three consecutive days following construction initiation). Construction will stop if a significant adverse reaction is observed during any of the monitoring days and will only commence again with a 250-foot buffer once behavioral patterns return to preconstruction activities.

    c. Additional monitoring shall be required any time there is a change in heavy equipment use or activity that results in greater noise levels. A change in heavy equipment use or greater noise levels that may require additional monitoring will be determined by a qualified biologist.

    d. Monitoring is continued at least once a week through the nesting cycle until the young have fledged and left the nest area.

    e. Monitoring reports are submitted to the City.

3. The qualified biologist has the authority to stop work at any time if signs of disturbance to the nesting colony are noted. If adverse effects are identified, construction activities shall cease immediately and construction shall not resume until City and CDFW are consulted to determine if construction may continue under modified restrictions or shall be suspended until nesting activity is complete.

Swainson's Hawk

The following avoidance and minimization measures are applicable to almost all development activities in the city. These measures are primarily intended for compliance with the Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code, Sections 3503 and 3503.5, regarding protection requirements for active bird nests. Removal of known Swainson's hawk nests may also require an incidental take permit from CDFW. While the long-term viability of protecting traditional Swainson's hawk nest sites in urban environments is questionable, Swainson's hawk has been documented to persist and continue to nest in urban settings for many years. Therefore, the following measures require protection of traditional nest sites in urban areas where retention of the nest tree or associated grove of trees does not create a health or safety hazard or is impracticable from a project design and cost consideration.

Nest Tree Preservation. Trees with active Swainson's hawk nests or with historically active nests (i.e. occupied within the last ten years) shall be avoided to the maximum extent practicable. Applicants proposing to remove an otherwise healthy nest tree shall provide written justification for the tree removal to the City and CDFW. Sufficient rationale for tree removal shall be primarily based on declining or poor suitability of the tree as a nesting site for Swainson's hawk and/or to meet public safety needs. The justification letter shall provide a clear analysis of the biological value of the tree to Swainson's hawk under pre-project conditions and post-project conditions (if the tree were to be avoided), and will consider the presence of alternate nest sites in the vicinity of the project site. Nest trees shall only be removed if there is a biological basis that the use of the tree is unlikely under post-project conditions. The City and CDFW will be responsible for approval of the requests to remove healthy nest trees.

Pre-Construction Nest Surveys. Between March 1 and August 31[1], a qualified biologist shall conduct pre-construction surveys to identify and subsequently avoid nesting areas for Swainson's hawk. Surveys shall be conducted within 15 days of the anticipated start of construction, and shall be designed and of sufficient intensity to document nesting within 0.25 miles (1,320 feet) of planned work activities. If a lapse in project-related construction work of 15 days or longer occurs, additional pre-construction surveys shall be required before project work may be reinitiated.

Active Nest Buffers. Construction work (including grading, earthmoving, and any operation of construction equipment) shall not occur within a 0.25-mile buffer zone around an active Swainson's hawk nest except as provided below. Construction work may commence in the buffer zone when a qualified biologist has confirmed that nesting activity is complete (e.g. Swainson's hawk young have fully fledged and are capable of flight and have left the nest, or the adults have abandoned the nest for a minimum of seven days and there is no evidence of re-nesting activity). Nest trees may be removed between September 16 and February 1 when nests are unoccupied.

The size of nest site buffer zones may be reduced only under the following conditions:

1. A site-specific analysis prepared by a qualified biologist indicates that the nesting pair under consideration are not likely to be adversely affected by construction activities[2] (e.g. the nest is located in an area where the hawks are habituated to human activity and noise levels comparable to anticipated construction work). The City and CDFW must approve this analysis before construction may begin within 0.25 miles of a nest.
2. Monitoring by a qualified biologist is conducted for a sufficient time (during all construction activities for a minimum of ten consecutive days following the initiation of construction), and the nesting pair does not exhibit adverse reactions to construction activities (e.g. changes in behavioral patterns, reactions to construction noise).
3. Monitoring is continued at least once a week through the nesting cycle at that nest. This longer-term monitoring may be reduced to a minimum of 2 hours in the morning and 2 hours in the

[1] Swainson's hawk in this region is typically incubating during June and active nests can be difficult to find. As such, June surveys may not be acceptable for determining the absence of Swainson's hawk nests.

[2] Construction period nest buffers are more likely to be approved later in the nesting cycle, when the likelihood of nest abandonment is less (e.g. after the young have hatched).

afternoon during construction activities; however, additional and more frequent monitoring may be required if any adverse reactions are noted.

4. Weekly monitoring reports shall be submitted to the City and CDFW during construction and monitoring activities.

If adverse effects are identified, construction activities shall cease immediately and construction shall not be resumed until the qualified biologist, in consultation with the City and CDFW, has determined that construction may continue under modified restrictions or that nesting activity is complete.

Post-Construction Occupied Nest Avoidance. If a nest tree becomes occupied by Swainson's hawk during ongoing construction activities, construction activities shall not occur within 500 feet of the nest, except where monitoring consistent with the criteria above documents that adverse effects will not occur.

Burrowing Owl

The following avoidance and minimization measures are applicable to almost all development activities in the City. These measures are primarily intended for compliance with the Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code, Sections 3503 and 3503.5, regarding protection requirements for active bird nests.

Pre-Construction Surveys. Between February 1 and August 31, a qualified biologist shall conduct pre-construction surveys in known or suitable habitat areas to identify and subsequently avoid nesting areas for burrowing owls. An initial pre-construction survey shall be conducted within 14 days of the anticipated start of construction, followed by a second survey within 24 hours of the start of construction. All surveys shall follow standard CDFW protocols. If a lapse in project-related construction work of 14 days or longer occurs during the nesting season, an additional pre-construction survey shall be required within 24 hours before project work may be reinitiated.

Vegetation Management. If burrowing owls or suitable nesting habitat are identified on site during the initial pre-application surveys, applicants shall allow vegetation to grow over the entire project site (except for required fuel breaks) to a height of 36 inches or more above the ground, unless impracticable due to surrounding or adjacent land uses. The increased vegetation height, if in place by the beginning of the nesting season (e.g. retention of previous year's growth or planting during the previous winter), will discourage burrowing owl use of the site.

Construction Buffers and Exclusion. The following measures shall be implemented for new construction activities within 160 to 250 feet of an active nest or burrow (depending on the season):

1. During the non-breeding season (September 1 through January 31), a circular exclusion zone with a radius of 160 feet shall be established around occupied burrows.
2. If a buffer cannot be established during the non-breeding season, burrowing owls shall be evicted from the entire construction area using passive relocation techniques. The Applicant shall prepare an Exclusion Plan for review and approval by the City and CDFW. This plan shall addresses the following minimum requirements:

a. Protocols to confirm that the burrow(s) is unoccupied by burrowing owls and other species prior to destruction. Protocols shall include:

   1) one-way doors in place a minimum of 48 hours prior to burrow excavation;

   2) twice daily monitoring to confirm evidence that owls have been excluded from the burrow; and

   3) scoping of the burrows to confirm absence.

b. Procedures for how the burrow(s) will be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible; this may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow.

c. Removal of other potential owl burrow surrogates or refugia on site.

d. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take.

e. Measures to make the site inhospitable to burrowing owls and fossorial mammals (e.g. by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until activity is complete.

f. Reports describing the exclusion activities shall be submitted to the City and CDFW.

3. During the breeding season (February 1 through August 31), a qualified biologist shall establish a circular exclusion zone with a radius of 250 feet around each occupied burrow. No construction-related activity (e.g. site grading, staking, surveying, or any use of construction equipment) shall occur in the exclusion zone during the breeding season. Once the breeding season is over, passive relocation may proceed as described in Condition 2 above.

5. Construction buffer widths may be reduced from the 250-foot wide breeding season buffers and 160-foot wide non-breeding season buffers in accordance with the following requirements:

   a. A site-specific analysis prepared by a qualified biologist indicates that the nesting pair(s) or wintering owl(s) would not be adversely affected by construction activities. The City and CDFW must approve this analysis in writing before construction can proceed.

   b. Monitoring by a qualified biologist is conducted for a sufficient time (during all construction activities for a minimum of ten consecutive days following the initiation of construction), the nesting pair does not exhibit adverse reactions to construction activities (e.g. changes in behavioral patterns or reactions to noise), and the burrows are not in danger of collapse due to equipment traffic.

   c. Monitoring is continued at least once a week through the nesting/wintering cycle at that site, and no change in behavior by the owls is observed. This longer-term monitoring may be reduced to a minimum of 2 hours in the morning and 2 hours in the afternoon during construction activities; however, additional and more frequent monitoring may be required if any adverse reactions are noted.

   d. Monitoring reports are submitted to City and CDFW.

If adverse effects are identified, construction activities shall cease immediately, and construction shall not be resumed until the qualified biologist, in consultation with the City and CDFW, has determined that construction may continue under modified restrictions or that nesting activity is complete.