

**APPENDIX 6-A**



**Mosquito Abatement**

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MOSQUITO ABATEMENT PROGRAM**

Urbanized areas experience mosquito infestations from off-site sources or from on-site sources which have not been drained, especially wetland restoration or other wildlife habitat creation projects. As mosquitoes can take as little as three weeks to hatch under favorable conditions, the creation of wildlife habitat, such as Mountain House Creek corridor, could produce large numbers of mosquitoes unless properly designed. Restored or created wetlands, therefore, provide the most significant potential for mosquito production on-site after development.

The objective of this mosquito abatement program is to provide mosquito abatement measures for all potential breeding areas within the Mountain House Creek corridor.

To accomplish this, the Mountain House Creek corridor and other potential standing water areas in the Mountain House community shall be designed using sound ecological methods employed to reduce and, to the extent possible, eliminate mosquito production.

The following measures serve to implement the objectives and policies for mosquito abatement as stated in the Master Plan.

- a) **Water Level Control System:**  
An independent water level control system shall be provided for each permanent wet area. Water levels shall be controlled using structures such as weirs, pumps, and siphons. These structures shall allow rapid and complete draining of wetlands during times of severe mosquito production or disease outbreaks.
- b) **Banks:**  
The banks of areas with water after June 1 (the beginning of the optimal mosquito breeding period) shall be steep enough to prevent ponding as water level recedes and to allow wave action and access by predators.
- c) **Shoreline Configurations:**  
Shoreline configurations for all wet areas shall provide for continuous connections among the waterbodies and channels and not isolate channels or ponds from the main body of water.
- d) **Drainage Requirements:**  
During warm mosquito breeding months (June-October), areas shall be drained to allow for soil saturation near the surface only, or permanent water depths of two feet minimum shall be maintained. Hydroperiod analyses have shown that perennial marsh will flourish with two to three feet of water depth during the warmer months while seasonal marshes are typically dry by June 1. These hydroperiod objectives should be used as design criteria for both marsh types.
- e) **Water Levels:**  
Water levels shall not fluctuate during the summer months.

- f) **Winter Wet Areas:**  
Winter wet areas shall drain into a deep detention area with outlets to maintain water elevations and to give refuge to insectivorous fish and predatory insects.
- g) **Aquatic Vegetation:**  
Dense stands of aquatic vegetation shall be limited in shallow areas to lower harborage and enhance wave action. When aquatic vegetation is present, it shall be maintained in small islands. Avoid plants that mat on the surface such as water hyacinth, smartweed, water primrose, knotgrass, pondweed, Hydrilla or filamentous algae.
- h) **Marsh Plants:**  
Certain perennial marsh plants, such as cattails and bullrushes in moderate stands, generally do not promote mosquito productivity and can function as substrate for mosquito predators.
- i) **Contaminants:**  
All organically enriched effluent, biological or chemical pollutants and contaminants shall be prevented from entering wetlands.
- j) **Mosquito Fish:**  
All wetlands should be stocked with mosquito fish, *Gambusia affinis*, or other insectivorous fish. Avoid stocking permanent water bodies with game fishes or other predatory fishes that will reduce the population of mosquito fish.
- k) **Biological Agents:**  
Inoculate and promote the development of any other approved biological agent for the control of mosquitoes, including predators and parasites of mosquito larvae.
- l) **Spraying:**  
Provisions shall be allowed for air and ground applications of *Bacillus thuringiensis* var. These provisions would include road access around all wet areas for continual larval and adult mosquito surveillance and the continual monitoring of water quality and vegetation density.
- m) **Implementation and Maintenance Plans:**  
Construction plans for any detention basins and any plans for wetland enhancement/maintenance shall include implementation and maintenance schedules. Implementation and maintenance plans shall be developed in consultation with the CSD or Mosquito Abatement District.