

3 Urban and Rural Land Uses

Chapter 3 evaluates potential impacts on urban and rural land uses from Program implementation. The focus of this chapter is on the consistency of the Program with local and regional land use plans and policies in effect in the Program Area. Because the exact location and timing of potential vector control activities are unknown, this analysis has been conducted at a programmatic level.

Section 3.1, Environmental Setting, presents an overview of the types of land uses found in the Program Area, including a description of public lands in the Program Area where vector control measures could be implemented. It also presents federal, state, and local ordinances and regulations that are related to pesticide use in the Program Area. Section 3.2, Environmental Impacts and Mitigation Measures, presents the following:

- > Environmental concerns and evaluation criteria
- > Evaluation methods and assumptions
- > Discussion of the land use impacts from the Program alternatives
- > Cumulative impacts related to land use
- > Summary of environmental impacts due to land use conflicts

3.1 Environmental Setting

3.1.1 Overview of Urban and Rural Land Use

Generally, implementation of vector control activities could occur on a wide range of land uses within the San Mateo County Mosquito and Vector Control District's Service Area, which covers all of San Mateo County. In addition, action can also be taken in adjacent counties as needed and upon request, including San Francisco, Santa Cruz, and Santa Clara counties. This 4-county region representing the Program Area is characterized by both urban and rural settings. Urban areas include residential, commercial, and industrial uses that tend to be located in incorporated areas. In fact, portions of the Program Area cover the San Francisco Bay Area region, which is densely populated. Other parts of the Program Area are rural in character, including agricultural land, rural residential, open space, and other public lands that are generally undeveloped.

Control measures specific to mosquitoes are focused on aquatic habitats, including natural areas, such as marshes, lakes and ponds, rivers and streams, vernal pools and other seasonal wetlands, and irrigated pastures. These types of habitats typically are found in rural areas. Mosquito control measures can also occur at developed facilities found in urban areas or other areas that retain water, such as stormwater detention basins, flood control channels, spreading grounds, street drains and gutters, wash drains, animal troughs, artificial containers, tire piles, fountains, ornamental fishponds, and swimming pools. Rodents occupy different areas where control becomes important to protect public health, including underground sewers and aboveground storm drains and urban creeks primarily in residential and commercial areas. Norway rats are known to invade homes and businesses from sanitary sewers. Roof rats are known to invade homes and businesses. Control is conducted either within the sewer system or vaults or within 50 feet of a structure primarily in residential and commercial areas. Yellow jackets and ticks are terrestrial, and their control is triggered by public requests or if there is a high risk of tick-borne disease to the public.

3.1.2 Public Lands

Although vector control measures can be implemented on lands irrespective of land ownership, large expanses of aquatic and terrestrial habitat are commonly found on public lands, such as National Wildlife Refuges (NWRs) administered at the federal level by the USFWS. Table 3-1 presents the extent of federal land in the Program Area based on US Department of the Interior information for lands eligible for payments in lieu of taxes to county governments. Many lands within the NWR system administered by USFWS are not eligible for payments in lieu of taxes and are not included in the table, which is focused on lands eligible for payments in lieu of taxes. Federal lands (e.g., Bureau of Land Management and NWRs) do not pay property taxes to the state, counties, or local governments. To address this issue, the federal government has established a program called Payment In Lieu of Taxes (PILT) that makes nominal payments to the state and counties to help defray part of the tax revenues lost due to the establishment of designated federal lands (e.g., some NWRs). Local (noncounty) governments such as the District are not eligible to receive the funds, as they are not a state or county taxing entity that has lost tax base due to federal action.

The Program Area also has extensive areas of public land managed by state agencies, namely California State Parks, as well as community and regional parks managed by local parks and recreation departments of affected municipalities and special districts.

Table 3-1 Federal Lands in the SMCMVCD Program Area, FY-2012 (acres)

County	Agency						Total
	BLM	USFS	USBR	NPS	USACE	USFWS*	
San Francisco	0	0	0	2,273	0	91	2,364
San Mateo	0	0	0	2,349	0	0	2,349
Santa Clara	1,636	0	175	0	0	0	1,811
Santa Cruz	12	0	0	0	0	0	12
Total	1,648	0	175	4,622	0	91	6,536

Source: US Department of Interior (2013)

Notes:

*Many lands within the National Wildlife Refuge system administered by USFWS are not eligible for payments in lieu of taxes and are not included in the table.

- BLM = Bureau of Land Management
- NPS = National Park Service
- USACE = US Army Corps of Engineers
- USBR = US Bureau of Reclamation
- USFS = USDA Forest Service
- USFWS = US Fish and Wildlife Service

Federal lands within San Mateo and Santa Clara counties include portions of Don Edwards San Francisco Bay NWR, which is managed by the USFWS. The 30,000-acre NWR provides habitat for migratory birds and endangered species, including Ridgway’s rail, salt marsh harvest mouse, and California least tern. Approximately 37 percent of this NWR is made up of salt marsh, brackish marsh, and freshwater marsh; 48 percent is salt ponds; and most of the remainder is composed of mudflats and vernal pools, although no vernal pools are located within San Mateo County (USFWS 2015a). Numerous recreational activities are allowed at this NWR. Boating (preferably using canoes and kayaks) is permitted in the bay and its tributaries. Fishing is permitted in a number of locations, as is waterfowl hunting on the 10,285 acres of tidal areas and salt ponds that are open to hunting every October to January. This NWR

contains more than 30 miles of hiking trails, most of which accommodate bicycles. Other activities include wildlife viewing, interpretive walks, and photography.

Golden Gate National Recreation Area (NRA), which is managed by the National Park Service, is partially located in San Francisco and San Mateo counties. This 80,000-acre NRA comprises 19 separate ecosystems and is home to 1,273 plant and animal species. It has numerous ways to recreate, including horseback riding, ranger-led programs, bicycling, hiking, walking, viewing historical sites, wildlife viewing, and camping. Among the attractions are restored wetlands at Crissy Field. As part of the restoration, over 100,000 native plants representing 110 species were planted or seeded around the site. Since the restoration, biologists have identified over 17 fish species and 135 bird species in the tidal marsh, including herons, egrets, ducks, and gulls (National Park Service 2015). This NRA includes walking and biking paths, as well as a popular trail that winds through Crissy Field between Marina Green and Fort Point. This NRA also contains beaches, picnic tables, and tidal marsh overlooks.

San Mateo County comprises 20 cities and unincorporated areas covering 455 square miles of land and 292 square miles of water (US Census 2015). San Mateo County Parks Department operates 20 separate parks, encompassing 17,071 acres, and 190 miles of county and local trails, including 3 regional trails. Parks are located throughout the county and represent a wide variety of natural settings, including a coastside marine reserve, a bayside recreation area, coastal mountain woodland areas, and urban sites (County of San Mateo 2015a). The State Department of Parks and Recreation owns and operates over 8,000 acres of recreational facilities in San Mateo County, including parks, beaches, and marine reserves. These facilities are located along the coast and in southern San Mateo County (San Mateo County 1986).

Central San Mateo County includes three reservoirs operated by the San Francisco Public Utilities Commission. San Andreas and Crystal Springs are adjacent to Highway 280 in the east, and Pilarcitos is to the northwest. Recreational activities are permitted in the Scenic and Recreation Easement located adjacent to I-280. Hiking, biking, walking, and running are popular activities along 6-mile long Sawyer Camp Trail, and golfers use the public Crystal Springs Golf Course. Additional public trails in this general area include Sheep Camp Trail, Sweeney Ridge Trail, San Andreas Trail, Crystal Springs Trail, Ralston Trail, and Edgewood Trail (San Francisco Public Utilities Commission 2015). Midpeninsula Regional Open Space District (2015) has jurisdiction over several open-space preserves in the county. They include Teague Hill Preserve, which is located in the Santa Cruz Mountains above the Town of Woodside and includes a 1-mile-long section of the Bay Area Ridge Trail. Additionally, 376-acre Ravenswood Open Space Preserve has a publicly accessible trail to the marsh located in its southern area near Cooley Landing in East Palo Alto, which attracts a variety of migratory birds.

San Francisco County, which is a consolidated city-county with the City of San Francisco, contains approximately 47 square miles of land area (US Census Bureau 2015). Although it is a largely urban area, San Francisco has over 3,400 acres of recreation and open space the Recreation and Parks Department owns and manages. It also contains over 250 acres of open space the State of California owns and manages, and another 1,600 acres of federally owned open space, including a portion of the Golden Gate NRA. These publicly owned open spaces make up almost 20 percent of the City's total land area (City and County of San Francisco 2014).

Santa Clara County comprises approximately 1,290 acres of land area and 14 acres of water area (US Census Bureau 2015) and includes 15 cities and towns. The County Parks Department oversees one of the largest regional park systems in California, which includes 29 regional parks encompassing nearly 48,000 acres of land (Santa Clara County Parks Department 2015). Other entities overseeing open-space or other recreation areas include various city parks departments; Midpeninsula Regional Open Space District; Santa Clara Valley Open Space Authority (2015); the State Parks Department, which manages Castle Rock, Henry W. Coe, and Big Basin state parks; and the USFWS, which manages Don Edwards San Francisco Bay NWR (Santa Clara County 1994). Among the county's parks are Alviso Marina County Park, a 20-acre park along Alviso Slough at the southern end of San Francisco Bay, which includes many

miles of levee trails that wrap around adjacent salt ponds. Other trails are located around the sloughs and marshes of Palo Alto Baylands Nature Preserve and at Shoreline at Mountain View, a 750-acre recreation area with a saltwater lake.

Santa Cruz County has a total land area of 445 square miles and a water area of 162 square miles (US Census 2015) and has 4 incorporated cities. Ellicott Slough NWR includes oak woodlands, coastal grasslands, and freshwater wetlands and is closed to visitors due to the sensitive nature of the habitat. Fourteen state parks are located in the county, each with distinctive characteristics. Rancho del Oso – Big Basin Redwoods State Park includes trails leading to old-growth redwoods, as well as bike trails, backpacking and hiking trails, camping, horseback riding, and beach activities. This park includes Theodore J. Hoover Natural Preserve, a 23-acre coastal freshwater marsh that is home to many special-status species and frequented by birdwatchers and hikers. A number of state parks are located along the coast and provide picnicking, hiking, and camping opportunities. Other state parks are historic sites. Santa Cruz County Parks Department has jurisdiction over nearly 50 parks located throughout the county (Santa Cruz Chamber of Commerce 2011). Other parks and open spaces are under the jurisdiction of municipalities, and entities such as Midpeninsula Regional Open Space District and Land Trust of Santa Cruz County manage a variety of open-space preserves, including a variety of habitats, such as grasslands, riparian forests, wetlands, and redwoods.

3.1.3 Regulatory Setting

3.1.3.1 *Federal*

No federal regulations and/or policies govern land use in the Program Area, except for management plans related to federal land holdings. However, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)¹ regulates, at the federal level, pesticide distribution, sale, and use. For more information on FIFRA, refer to Section 7.1.5.1 (Human Health).

3.1.3.2 *State*

Similar to the federal level, the State of California has no direct authority on local land use on private lands with the exception of requirements related to general plan development and zoning consistency. Specifically, California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. A general plan is a comprehensive, long-term strategy document that sets forth the expected location and general type of physical development expected in the city or county developing the document. In addition, State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses in a specific district, are required to be consistent with the general plan and any applicable specific plans. Land use on state-managed public lands is regulated pursuant to any applicable land use plans and policies administered by each state agency.

From a land use perspective, the key regulatory consideration at the state level is related to the concept of preemption. Preemption refers to laws at one level of government taking precedence over laws of a lower level. As such, no entity at the lower level can pass a law inconsistent with the law at the higher level. The California Constitution also allows the state to preempt local jurisdictions. California Food and Agricultural Code Section 11501.1 states that no ordinance or regulation of local government “*may prohibit or in any way attempt to regulate any matter relating to the registration, sale, transportation, or use of pesticides, and any of these ordinances, laws or regulations are void and of no force or effect.*”

¹ 7 United States Code Section 136 et seq. (1996)

3.1.3.3 *Local*

Each of the municipalities (i.e., counties and incorporated cities) in the Program Area maintains its own general plan and/or zoning ordinance that regulates allowable land use within its jurisdiction. For example, the Land Use Element of the San Mateo County General Plan provides the distribution, location, and extent of uses of land for housing, business, industry, open space, agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other uses (San Mateo County 1986). For each appropriate land-use category, it includes standards for population density and building intensity.

Typically, policies and programs related directly to pesticide use are outside the purview of local planning and zoning regulation. However, some cities and counties have enacted regulations on pesticide use as part of their municipal code. Local governing bodies may pass ordinances that regulate or restrict pesticide use in their own operations. However, these restrictions do not apply to state operations and would not be applicable to treatments proposed by the District under the Program because California state law preempts local regulation and restriction of pesticide use. The District is a regulatory agency formed pursuant to California Health and Safety Code Section 2000 et seq. State law charges the District with the authority and responsibility to take all necessary or proper steps for the control of mosquitoes and other vectors in the District (see Section 1.1.3).

The San Mateo County General Plan, in its section on “Man-Made Hazardous Materials Policies” includes the following policies related to pesticide use:

16.59 Regulate Against Environmental Contamination Resulting From Rural Development, Agriculture and Oil and Gas Well Operations

Regulate against environmental contamination resulting from use of pesticides, herbicides and other chemicals including, but not limited to, measures which govern general application of toxic chemicals, storage, disposal, runoff of pesticides associated with agricultural operations, and disposal of oil field waste.

16.64 County Agricultural Commissioner

Encourage and support the County Agricultural Commissioner to continue existing efforts toward safe pesticide management and use through measures including, but not limited to, issuance of pesticide application permits, monitoring pesticide storage, application and disposal, and crop inspection.

San Mateo County also has adopted an Integrated Pest Management (IPM) policy. Its goal is to “protect the health and safety of its employees and the general public, the environment and water quality, as well as to provide sustainable solutions for pest control, through the reduced use of pesticides on property owned or managed by the County to the maximum extent practicable.”

The county IPM policy specifies that employees implementing pest management operations will use IPM techniques that emphasize nonpesticide alternatives where feasible and, when necessary, employ the least toxic chemicals. Preference will be given to IPM-certified contractors or contractors who implement IPM. IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides will be used only if the above techniques are found to be either ineffective or economically infeasible. Pesticide use will be in accordance with established guidelines, and treatments will be made with the goal of removing only target organisms. Pest control materials will be selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.

County-owned or managed property includes, but is not limited to, parks and open space; golf courses; roadsides; landscaped medians; flood control channels; and buildings, structures, and other outdoor property the County owns or manages.

Several municipalities within the Program Area have adopted the San Mateo Countywide Water Pollution Prevention Program Model IPM Policy, including the cities of Brisbane, Daly City, East Palo Alto, Half Moon Bay, Pacifica, Redwood City, San Carlos, San Bruno, and South San Francisco, and the Towns of Hillsborough and Woodside. The model policy states that the local jurisdiction seeks to protect the health and safety of its employees and the general public, the environment and water quality, as well as to provide sustainable solutions for pest control through the reduced use of pesticides on property including buildings the jurisdiction owns or manages by applying IPM principles and techniques. The municipal regional stormwater permit requires the local jurisdiction to minimize reliance on pesticides that threaten water quality.

Among the provisions of this ordinance are the following:

- > Employees implementing pest management controls are to use IPM techniques that emphasize nonpesticide alternatives.
- > Pesticides will only be used after careful consideration of nonchemical alternatives and then the least toxic chemicals that are effective will be used.
- > Pest control contractors hired by the local jurisdiction are required to implement IPM to control pests, which the County will achieve by hiring only IPM-certified pest control contractors or by including contract specifications requiring contractors to implement IPM methods.
- > The IPM-based hierarchical decision-making process will follow 10 steps to control pests, though a process that includes pest prevention, biological and habitat controls, and chemical controls when needed, using reduced risk pesticides at the minimum amount needed to be effective.

Other municipalities have adopted their own specific regulations regarding the use of pesticides and/or have developed IPM plans or programs. In the Program Area, these municipalities include, but are not limited to (Californians for Pesticide Reform 2013):

- > City of Belmont. Adopted an IPM in 2010 that minimizes the use and reliance on pesticides that threaten water quality by implementing the IPM policy for all municipal employees and contractors hired to manage pests on municipal property. Employees are to use IPM techniques that emphasize nonpesticide alternatives and, when necessary, use the least toxic chemicals.
- > City of Burlingame. Adopted an updated IPM in 2011 per Resolution No. 86-2011 that requires reduced use of pesticides on property the City owns or manages to the maximum extent practicable.
- > City and County of San Francisco. Passed its Integrated Pest Management Ordinance in 1996 (San Francisco Environment Code, Chapter 3: Integrated Pest Management Program). The Ordinance governs the way pests are managed on all City properties, but does not apply to private property. It contains requirements for how IPM is implemented; limitations on pesticide products and exemptions (no pesticides may be used on or applied to property the City and County of San Francisco owns, except for pesticides granted an exemption); posting and notification for pesticide treatments; record-keeping and data requirements; and accountability.
- > City of San Mateo. Adopted an updated IPM in 2015 that strives to promote IPM strategies to improve water quality in local creeks and the Bay, and independent of the policy, minimizes health hazards to people from pesticide exposure. The City may elect to restrict or discourage the use of certain pesticides on City-controlled properties, pending identification of an effective control alternative. These pesticides include copper-containing products, organophosphates, synthetic pyrethroids, and clopyralid. The project manager can authorize emergency applications of certain restricted chemical

pesticides by submitting a written recommendation from a Pest Control Advisor for use of the particular chemical and describing why less toxic alternatives are not practical.

- > City of Santa Cruz. Passed an ordinance via Resolution No. NS-24,067 in 1998 to limit pesticide use on City property, and created an IPM program. The IPM program's goal is to reduce or eliminate the use of chemicals by the evaluation and selection of the least disruptive alternative control strategy for the elimination of pests and plant diseases. Priority will be given to reduce or eliminate pesticides near watercourses and riparian areas. Nothing in this policy is intended to apply to pesticide applications that are required to comply with federal, state, or local laws or regulations.

3.2 Environmental Impacts and Mitigation Measures

The evaluation of land use impacts in the Program Area is presented below. Program impacts on urban and rural land uses were evaluated based on the significance criteria presented in Section 3.2.1. While impacts are evaluated for each alternative (Program component), the alternatives' impacts when combined represent the impacts associated with the entire Proposed Program.

3.2.1 Evaluation Concerns and Criteria

The following concerns associated with urban and rural land uses were raised during the public scoping process:

- > The Town of Woodside adopted the San Mateo Countywide Pollution Prevention Program Model Integrated Pest Management Policy in 2011 and indicated that SMCMVCD staff or its contractors are required to perform in accordance with the adopted IPM policy and Provision C.9 of Water Board Order No. R2-2009-0074, Municipal Regional Stormwater NPDES Permit No. CAS612008.
 - This issue is primarily addressed in Chapter 9, Water Quality. However, local IPM policies are listed in this chapter in Section 3.1.3.3.
- > Aspects of the Program that diminish recreational experience of park visitors of the regional parks and trails within the Program Area.
 - Effects on recreational land use are covered in this section.
- > Impacts at school sites.
 - The Program would not affect the extent or distribution of residential land uses nor population levels throughout the Program Area. However, the District coordinates and often works collaboratively with individual schools and school districts regarding vector control. The District notifies schools prior to performing vector control activities on school grounds (i.e., mosquito larvicide and adulticide and yellow jacket/tick control applications, trapping, and surveillance). The timing of these activities have been based on the response from the school involved. Most chemical treatments occur when students are not present (i.e., summer break or late afternoon).
- > Local community regulations regarding pesticides.
 - Potential effects related to consistency with local community regulations are covered in this section.

Based on the CEQA Guidelines and professional judgment, Program impacts to urban and rural land uses would be considered potentially significant if the Program would:

- > Physically divide an established community.
 - The Program does not propose any change in land use or new developments and, therefore, would have no impact related to physically dividing an established community; as a result, this criterion is not applicable to the Program.
- > Result in adverse impacts on the quantity and/or quality of recreational land uses.

- > Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Program (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- > Conflict with any applicable habitat conservation plan or natural community conservation plan.
 - The Program's potential to conflict with any applicable habitat conservation plan or natural community conservation plan is discussed in Chapter 4, Biological Resources – Aquatic, and in Chapter 5, Biological Resources - Terrestrial.

The environmental impact topics of the potential to conflict with applicable plans, policies, or regulations within the Program treatment areas and effects on recreational land uses are evaluated for each Program alternative below. Vector management activities have the potential to affect the experience of recreationists on designated park lands and human activities occurring in rural areas (e.g., bicyclists along rural roads, hikers, and winery visitors). Program activities would occur in agricultural areas but not inhibit normal operations in these areas.

3.2.2 Evaluation Methods and Assumptions

The methodology for evaluating land use impacts consists of (1) reviewing existing recreational opportunities in the Program Area and analyzing how proposed vector control measures would affect recreational land uses and (2) reviewing the Program alternatives in the context of state and local laws and regulations pertaining to pesticide use.

The District has implemented and will continue to implement the following BMPs (from Table 2-8) that are applicable to District activities in all areas within the Program Area including rural recreational, agricultural, and open-space areas:

- > District staff has had long standing and continues to have cooperative, collaborative relationships with federal, state, and local agencies. The District regularly communicates with agencies regarding the District's operations and/or the necessity and opportunity for increased access for surveillance, source reduction, habitat enhancement, and the presence of special-status species and wildlife. The District often participates in and contributes to interagency projects. The District will continue to foster these relationships, communication, and collaboration. (BMP A1)
- > District staff will work with care and caution to minimize potential disturbance to wildlife while performing surveillance and vector treatment/population management activities. (BMP A6)
- > Vehicles driving on levees to travel through tidal marsh or to access sloughs or channels for surveillance or treatment activities will travel at speeds no greater than 10 miles per hour to minimize noise and dust disturbance. (BMP A8)
- > Operation of noise-generating equipment (e.g., chainsaws, wood chippers, brush-cutters, pickup trucks) will abide by the time-of-day restrictions established by the applicable local jurisdiction (i.e., City and/or County) if such noise activities would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship) located in the applicable local jurisdiction. Shut down all motorized equipment when not in use. (BMP A11)
- > For operations that generate noise expected to be of concern to the public, the following measures will be implemented: (BMP A12)
 - Measure 1: Provide Advance Notices: A variety of measures are implemented depending on the nature and magnitude of the activities including press releases, social media, District website, hand-delivered flyers, posted signs and/or emails. Public agencies and elected officials also may be notified of the nature and duration of the activities, including the local Board of Supervisors or City Council, environmental health and agricultural agencies, emergency service providers, and airports.

- Measure 2: Provide Mechanism to Address Complaints: District staff is available during regular business hours to respond to service calls and may staff phone lines to address concerns during nighttime operations.

3.2.3 Surveillance Alternative

Impacts on Recreational Land Uses

The Surveillance Alternative involves utilization of various methods to monitor targeted vectors in terms of their location and distribution. District staff may implement surveillance techniques in recreational settings, but they would not likely interfere with existing recreational uses. Recreationists would continue to use recreation areas and potential impacts on the quality of the recreational experience, such as from noise, would be minor.

Impact LU-1: Surveillance of vectors would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is **less than significant** and no mitigation is required.

Conflict with Applicable Land Use Regulations and Policies

This alternative does not involve the use of chemical pesticides to control vectors and, therefore, would not conflict with local ordinances restricting pesticide use.

Impact LU-2: Surveillance of vectors would not conflict with applicable land use regulations. **No impact** would occur.

3.2.4 Physical Control Alternative

Impacts on Recreational Land Uses

The Physical Control Alternative entails changes to the extent or composition of vector habitats as a means of vector control or “source reduction.” Alterations of certain types of habitats for vector control may adversely affect the recreational quality of that habitat, particularly applicable to aquatic habitats that are used either directly or indirectly for recreational purposes, e.g., waterbodies used by anglers or waterfowl that are targeted by hunters. The District undertakes a variety of physical control projects in freshwater bodies and saline habitats, including marshes and ponds, consistent with regulatory requirements (see Section 2.8) in a manner that generally maintains or improves habitat values for desirable species to control mosquitoes. The control of mosquitoes in aquatic habitats prevents them from annoying/biting recreationists, which enhances the recreational experience. In addition, physical control measures that would be implemented would target other types of vector habitats that generally do not support recreational uses. As a result, this alternative would continue with practices used under existing conditions, and would not likely interfere with existing recreational uses except on a limited basis (i.e., ditch/channel maintenance using equipment and vehicles that could close a trail or introduce noise), and recreationists would continue to use recreation areas in a similar fashion to the present. Potential impacts on the quality of the recreational experience, including noise-related effects, would be minor.

Impact LU-3: Physical control of vector habitat would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is **less than significant** and no mitigation is required.

Conflict with Applicable Land Use Regulations and Policies

This alternative does not involve the use of chemical pesticides to control vectors and, therefore, would not conflict with local ordinances restricting pesticide use.

Impact LU-4: Physical control of vectors would not conflict with applicable land use regulations. **No impact** would occur.

3.2.5 Vegetation Management Alternative

Impacts on Recreational Land Uses

The Vegetation Management Alternative involves control or removal of vegetation in an effort to control vectors and invasive plants and could occur in parks and wildlife protection areas. The District coordinates with landowners/managers and, where applicable, resource agencies prior to commencing work, whether trimming or herbiciding. Recreational uses generally do not rely on vegetation removal to be carried out, except for trail maintenance, and vegetation management techniques, including herbicides, would not likely interfere with existing recreational uses. The herbicides would be applied from the ground using a truck-mounted sprayer, backpack sprayer, handcan, or ATV sprayer. These measures would not require closure of treated areas but areas would be posted if herbicide treatments were conducted near trails and staging areas. Recreationists would maintain access and continue to use recreation areas, and potential impacts on the quality of the recreational experience, including noise-related effects, would be minor.

Impact LU-5: Vegetation management would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is **less than significant** and no mitigation is required.

Conflict with Applicable Land Use Regulations and Policies

This alternative does involve the use of herbicides to control vectors and, therefore, could conflict with local ordinances restricting pesticide use if those ordinances apply to herbicide use. However, because state law preempts local restrictions on the use of pesticides, local ordinances prohibiting their use are not applicable to the Program.

Impact LU-6: Vegetation management would not conflict with applicable land use regulations. **No impact** would occur.

3.2.6 Biological Control Alternative

Impacts on Recreational Land Uses

The Biological Control Alternative entails the use of pathogens and predators to control target vectors. Mosquito pathogens are covered under the Chemical Control Alternative. The predator technique requires placement of mosquitofish in controlled waterbodies such as ornamental ponds and water gardens. Such methods would not be noticeable in recreational settings and would not likely interfere with existing recreational uses. Recreationists would maintain access and continue to use recreation areas as they do under existing conditions, and potential impacts on the quality of the recreational experience would be negligible.

Impact LU-7: Biological control of vectors would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. **No impact** would occur.

Conflict with Applicable Land Use Regulations and Policies

This alternative does not involve the use of chemical pesticides to control vectors and, therefore, would not conflict with local ordinances restricting pesticide use.

Impact LU-8: Biological control of vectors would not conflict with applicable land use regulations. **No impact** would occur.

3.2.7 Chemical Control Alternative

Impacts on Recreational Land Uses

The Chemical Control Alternative entails the periodic use of insecticides, herbicides, and rodenticides to control target vectors, which would be implemented based on a number of factors including, but not limited to, the vector's abundance, density, species composition, proximity to human settlements, water temperature, and presence of predators. Chemical applications may occur in public recreation areas, such as parks and refuges, thereby potentially affecting recreational uses.² Chemical applications in recreation areas would improve the quality of recreational opportunities due to the elimination of public health and nuisance effects from vectors such as mosquitoes and ticks. However, some factors may result in adverse effects on recreation. First, chemical application techniques may involve the use of heavy equipment, including aircraft for aerial applications, which would diminish the quality of the recreational experience realized by recreationists. Such equipment generates noise, particularly aircraft, and alters the visual landscape, which is inconsistent with the overall character of many recreation areas. Second, the potential exists that chemical applications would deter people from recreating in certain areas in an effort to avoid direct exposure, thereby limiting recreational access for local residents and visitors. The public notice BMPs (A12 and H13) of the Proposed Program calls for public notification in advance of chemical application in public areas (as necessary), which would allow recreationists to adjust their recreational patterns, e.g., visiting alternative recreational sites in the region. Together, potential impacts on recreational quality from the use of heavy equipment in public areas and impacts on recreational access from deterred visitors would generate impacts on recreational land uses in the Program Area. However, chemical applications in recreation areas would be isolated events similar to existing conditions and implemented on an as-needed basis; therefore, impacts on recreation would be temporary.

Impact LU-9: Chemical application to control vectors would impact recreational access and the quality of recreational opportunities in the Program Area. However, because these impacts would be isolated and short term, they are considered **less than significant** and no mitigation is required.

Conflict with Applicable Land Use Regulations and Policies

The Chemical Control Alternative could conflict with local land use regulations that restrict pesticide use in some jurisdictions, such as those outlined in Section 3.1.3.3. However, because state law preempts local restrictions on the use of pesticides, local ordinances prohibiting their use are not applicable to the Program.

Impact LU-10: The Chemical Control Alternative would not conflict with applicable land use regulations because state law preempts local ordinances. **No impact** would occur.

3.2.8 Other Nonchemical Control/Trapping Alternative

Impacts on Recreational Land Uses

The Other Nonchemical Control/Trapping Alternative involves the use of traps to control vectors. Although such traps may be placed in recreational settings, they would not be directly placed in high-use areas during the day and, therefore, would not likely interfere with existing recreational uses. Recreationists would maintain access and continue to use recreation areas, and potential impacts on the quality of the recreational experience, including noise--related effects, would be negligible.

Impact LU-11: Trapping of vectors would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is **less than significant** and no mitigation is required.

² Table 3-1 shows the extent of federal land holdings in the Program Area, which includes areas used for recreational purposes.

Conflict with Applicable Land Use Regulations and Policies

This alternative does not involve the use of chemical pesticides to control vectors and, therefore, would not conflict with local ordinances restricting pesticide use.

Impact LU-12: Other nonchemical control and trapping of vectors would not conflict with applicable land use regulations. **No impact** would occur.

3.2.9 Cumulative Impacts

See Section 13.1 for a complete discussion of cumulative impacts, including a definition of what constitutes a significant cumulative impact. In summary, Due to the extensive recreational opportunities on public lands within the Program Area (i.e., no existing significant cumulative impact within the Program Area), the small incremental potential impacts on recreational opportunities from five of the Proposed Program alternatives when combined would not likely cumulatively contribute to recreational impacts in the region. **No cumulative significant impacts to urban and rural land uses** are anticipated when all of the Program's incremental impacts and the impacts of other activities in the region are considered together.

3.2.10 Environmental Impacts Summary

Table 3-2 presents a summary of impacts related to land use including recreational opportunities and applicable land use regulations by alternative. These alternatives would be combined into the overall Proposed Program.

Table 3-2 Summary of Land Use Impacts by Alternative

Impact Statement	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
Effects on Land Uses						
Impact LU-1: Surveillance of vectors would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is less than significant and no mitigation is required.	LS	na	na	na	na	na
Impact LU-2: Surveillance of vectors would not conflict with applicable land use regulations. No impact would occur.	N	na	na	na	na	na
Impact LU-3: Physical control of vector habitat would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is less than significant and no mitigation is required.	na	LS	na	na	na	na
Impact LU-4: Physical control of vectors would not conflict with applicable land use regulations. No impact would occur.	na	N	na	na	na	na
Impact LU-5: Vegetation management would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is less than significant and no mitigation is required.	na	na	LS	na	na	na
Impact LU-6: Vegetation management would not conflict with applicable land use regulations. No impact would occur.	na	na	N	na	na	na
Impact LU-7: Biological control of vectors would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. No impact would occur.	na	na	na	N	na	na
Impact LU-8: Biological control of vectors would not conflict with applicable land use regulations. No impact would occur.	na	na	na	N	na	na
Impact LU-9: Chemical application to control vectors would impact recreational access and the quality of recreational opportunities in the Program Area. However, because these impacts would be isolated and short term, they are considered less than significant and no mitigation is required.	na	na	na	na	LS	na
Impact LU-10: The Chemical Control Alternative would not conflict with applicable land use regulations because state law preempts local ordinances. No impact would occur.	na	na	na	na	N	na

Table 3-2 Summary of Land Use Impacts by Alternative

Impact Statement	Surveillance	Physical Control	Vegetation Management	Biological Control	Chemical Control	Other Nonchemical/ Trapping
Impact LU-11: Trapping of vectors would not appreciably impact the quantity and/or quality of recreational opportunities in the Program Area. This impact is less than significant and no mitigation is required.	na	na	na	na	na	LS
Impact LU-12: Other nonchemical control and trapping of vectors would not conflict with applicable land use regulations. No impact would occur.	na	na	na	na	na	N

LS = Less-than-significant impact

N = No impact

na = Not applicable

SM = Potentially significant but mitigable impact

SU = Significant and unavoidable impact

3.2.11 Mitigation and Monitoring

No mitigation or monitoring is required as it relates to land use. BMP A12 addresses operations that generate noise.

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