

ALAMEDA COUNTY
VECTOR CONTROL

ANNUAL REPORT 2015



Mission

The mission of the Vector Control Services District is to prevent the spread of vector-borne diseases, injury, and discomfort to the residents of the District by controlling insects, rodents, and other vectors and eliminating causal environmental conditions through education and pest management practices.



District Services

Request for Service Investigations

- Conduct investigations pertaining to service requests for disease vectors, assess the extent of the problem, and take the appropriate action including controlling the vector if warranted.
- Investigate reported public health and vermin problems related to rodents, cockroaches, flies, fleas, bed bugs, lice, stinging insects (yellow jackets and bees), as well as, ticks, mites, and spiders, and render the appropriate services based on best management practices and integrated pest management strategies.
- Provide insect, tick and spider identifications and recommend the least-toxic control strategies.
- Conduct surveys of rodents, insects and arthropods of public health importance, and maintain a reference collection.
- Survey and control cockroaches in public sewers, utility boxes, and storm drains.
- Conduct yellow jacket and bee control in public areas.



Wildlife Management and Rabies Control

- Oversees the administration of rabies quarantine measures resulting from animal bites.
- Conduct investigations of nuisance wildlife problems relating to bats, skunks, opossums, raccoons, turkeys, feral pigs, foxes, coyotes, dogs, cats, rabbits, and birds (pigeons).
- Trap nuisance animals when preventative alternatives or exclusion practices are not possible or unlikely to be effective.
- Work in coordination with local animal control agencies, and submit annual statistics reports to the California Department of Public Health.

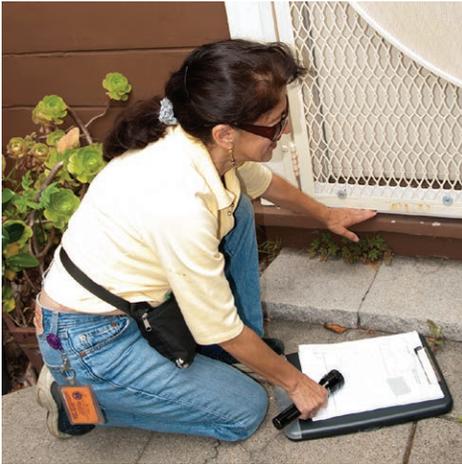


Rodent Control

- Provide recommendations for rodent proofing and suppression control in homes, neighborhoods, open areas, and businesses.
- Conduct rodent suppression during vector-borne disease outbreaks, public health emergencies, or when the residents are experiencing a public health risk from rodents and their ectoparasites.
- Conduct surveys of rat populations to assess species abundance, distribution, and disease carrying potentials.
- Conduct District-wide inspection and baiting of sanitary sewers for rats.
- Inspect and test sewer laterals and mains to detect breaks, which may provide entry portals for rodents to move into adjacent neighborhoods.

Solid Waste Problems

- Investigate complaints regarding solid waste handling and disposal problems involving garbage, human or animal wastes, and odors at residential properties and businesses.



Vector Borne Disease Surveillance and Control

- Investigate reports of animal or human cases of disease such as Lyme disease, psittacosis, plague, hantavirus (HPS), head lice, malaria, Dengue fever, Chikungunya virus, Zika virus, reptilian salmonellosis, Ehrlichiosis, Anaplasmosis, and rabies to determine cause, incidence, distribution, and recommend preventative, and remediation measures.
- Mosquito-borne virus surveillance for the City of Albany, includes the monitoring, visualization, and analysis of data on climatic factors, immature and adult mosquito abundance, and virus activity measured by testing mosquitoes, sentinel chickens, and dead birds for evidence of West Nile virus infections.
- Implement an invasive mosquito surveillance program for *Aedes aegypti* and *Aedes albopictus* for the City of Albany. These invasive mosquitoes are vectors of the Zika virus, Dengue fever, and Chikungunya virus.
- Assist the public with tick identification, and submissions of ticks to laboratories for Lyme disease testing.
- Collect rodent ectoparasites and determine plague, or other vector-borne disease transmission potentials and implement disease suppression strategies as required.

Public Education and Information

- Provide vector control presentations to schools, civic groups, property managements, homeowner associations and public, and participate in public events.
- Disseminate educational materials on vector-borne diseases to residents and interested groups.
- Staff displays booths at local health fairs, special events, and the Alameda County Fair.
- Post annual shellfish harvesting quarantine notices at the Alameda County bay shoreline.
- Maintain a current, informative, and interactive web site.
- Provide timely and informative media releases on vector control issues.

Legal Enforcement

- Provide assistance to local code enforcement agencies to enforce state laws, regulations, and local ordinances when necessary to protect the public from disease vectors and nuisance problems.

Introduction

This Annual Report for County Service Area (CSA) VC 1984-1 for Vector Control is presented to the Alameda County Board of Supervisors (BOS) in compliance with Section 25214 and 25215.3 of the Government Code; County Service Area Law Chapter 13.20, and California Health and Safety Code Section 116110-116180.

This report gives a history on how and why the County Service Area (CSA) known as the Alameda County Vector Control Services District was formed, explains how the assessments are calculated, and includes assessment tables since the CSA was formed in 1984.

This report is available for public review at the Vector Control Services District, 1131 Harbor Bay Parkway, Suite 166, Alameda, CA 94502, and it is also posted on our website (<http://www.acvcSD.org>).

History

The County Service Area (CSA) 1984-1 for Vector Control was established in June 1984 to serve the public needs by providing a comprehensive vector control program. Prior to 1984, the Environmental Health Department was experiencing fiscal shortfalls, and had to reduce vector control services in Alameda County. In response, the Board of Supervisors (BOS) created the County Service Area after the passage of Measure A, which received over 70% voter's approval for the formation of the CSA. Initially, Dublin, Emeryville and Fremont were not included in the District and opted to seek alternative sources for providing vector program.

In 1987, the City of Oakland recognized that it had a severe rat problem emanating from the sanitary sewers which exceeded the District's staff capabilities to control the problem. Subsequently, Oakland voters approved a supplemental assessment, which was first levied in fiscal year 1988-89, and provided additional funding to control rodents in the sewers.

In 1992, at the request of the Dublin City Council, which voted to join the District and subsequently Dublin was annexed by the BOS.

In 2009, both Emeryville and Fremont were annexed to the District by the BOS after a successful Proposition 218 mail-out balloting process. Currently, the CSA is a countywide District; providing the vector control services to all 14 cities in Alameda County, and the unincorporated county areas.

The City of Berkeley already had an existing vector control program when the CSA was formed in 1984, which is currently funded by a formal contract between the City of Berkeley and the CSA.

Background

The County Service Area (CSA) VC 1984-1 is solely funded through benefit assessment (BA) charged to each property parcel. In 1997, California voters approved Proposition 218, requiring that all parcel owners receive a mailed ballot regarding any proposed change in an assessment prior to imposing an increase. Since then for eleven years, the District (CSA 1984-1) has not been able to increase revenues without conducting a Proposition 218 Ballot Measure.

In 2007, the SCI Consulting Group was awarded the contract by the BOS to conduct a survey among the property owners to gauge their support for a new benefit assessment. The result was an overwhelming support



for a BA of \$4.08 to boost the existing annual assessment rate to \$10 per single-family residence. Assessment ballots were mailed to all property owners within the District boundary areas in May 2007. The ballot measure received 67.7% voter support and the BOS approved the new assessment of \$4.08 in July of that same year.



In May of 1995, the Alameda County Department of Public Health contracted with a private consultant to prepare a Strategic Marketing Plan. The recommendation for the CSA was to work with the Cities of Emeryville and Fremont toward incorporation into the CSA. The City of Emeryville contracted for services with the District in the late 1980's, but discontinued the contract for financial reasons. The City of Fremont attempted to create its own Vector Control program, but was not able to secure the necessary funding to develop an effective program. In 2006, the Alameda County Local Agency Formation Commission (LAFCO) contracted with Burr Consulting to review all of the County Service Areas for possible consolidation. Burr Consulting recommended that the Vector Control District and the Mosquito Abatement Districts conduct balloting to provide countywide services and work toward consolidation. In January of 2008, SCI Consulting surveyed a sample of residents in Emeryville and Fremont, the results from both cities were favorable to a new benefit assessment to have the CSA provide the vector services.

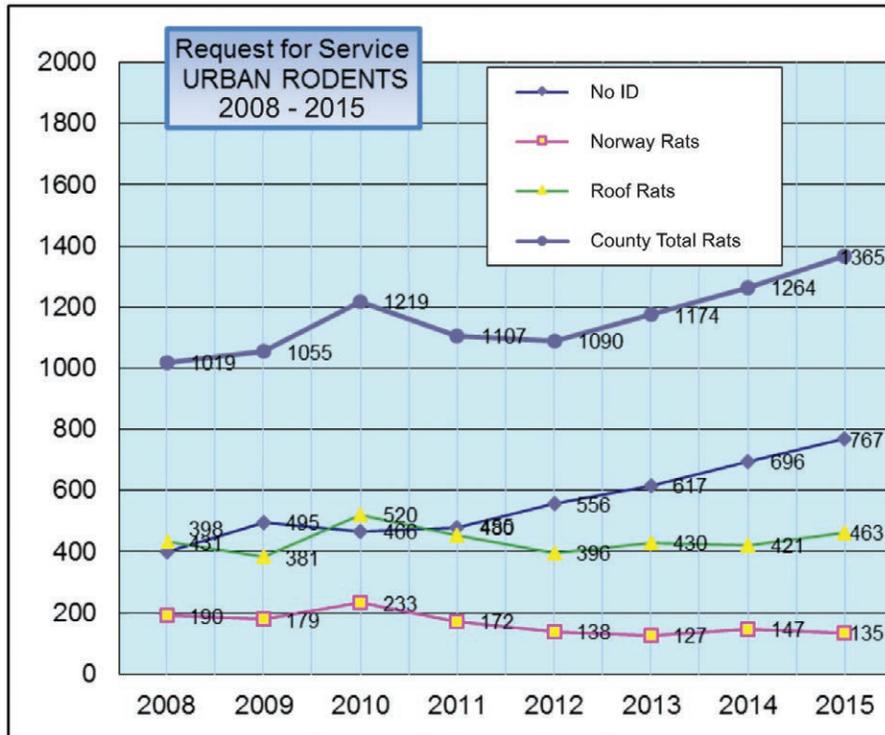
In March, 2008, the BOS authorized the CSA to proceed with an application to the LAFCO to obtain an approval of Annexation process to annex Emeryville and Fremont. The CSA submitted the application which included environmental documents (Initial Study, Negative Declaration) pursuant to the California Environmental Quality ACT (CEQA). In July of 2008, the LAFCO approved the CSA application of annexation and issued a Certified LAFCO Resolution. On September 9, 2008 the LAFCO adopted a Resolution and ordered the Annexation.

In compliance with Proposition 218, the CSA mailed out ballots to all parcel owners in Emeryville and Fremont regarding the proposed New Vector and Disease Control Assessment of \$10 for single-family residence. The results were favorable (Emeryville 70.23% and Fremont 66.36%) to support the new assessment in providing the vector services in both cities. In response, subsequently, the BOS approved newly proposed Vector and Disease Control Assessment of \$10 for single-family residence. As of July 1, 2009, the CSA has extended the vector control services to Emeryville and Fremont and became a county-wide service District.



Vector Control Services in 2015

Urban Rodent Surveillance



The urban rodent surveillance program focuses on monitoring and controlling commensal rats (Norway and roof rats) and mice in residential, commercial and business properties. In 2015, the District received 1,756 requests for service (463 Roof rats, 135 Norway rats) from the public on domestic rats and mice, representing 37% of all services. Our staff performed 9,181 field services related to domestic rodents including smoke and dye tests of sewer lines, field surveys, follow-up evaluations, and enforcement actions.

Staff biologists responding to a rodent service request will lead to multiple field services by conducting a thorough inspection of the exterior and interior premises looking for conditions conducive to rodents, and advise the homeowner on structural modifications to prevent rodent entry into their home. They will hand out brochures to neighbors and will inspect their premises as well if the neighbors approve. Biologists also evaluate and survey the neighborhoods with rat activity in the sewers based on clusters of complaints, and where residents were seeing rats roaming on surface streets. Staff biologists will implement rodent suppression strategies as necessary to prevent public health issues with rodents potentially transmitting diseases.

When evidence indicates rats are surfacing near sewer laterals, staff biologists conduct inspections to locate broken sewer lines, and notify the homeowners or the Public Works Department to ensure repairs are made. In 2015, staff biologists found 26 broken sewer laterals and performed dye tests or smoke tests to verify the breaks.

As part of the supplemental assessment in the City of Oakland to reduce sanitary sewer rodent populations, District staff conducts weekly inspections of designated census tract blocks. Underground sanitary sewer access structures (manholes) were inspected for signs of rodent activities (live rats or their droppings). To control the rodents, rodenticide bait blocks are suspended in sewers to allow feeding. In 2015, a total of 8,065 sewer inspections and 1,765 treatments of Contrac rodenticide bait (896 lbs.) were made in Oakland. In the City of San Leandro, a total of 210 sewers were inspected and 103 were treated with Contac rodenticide bait (52 lbs.).



The Oriental rat flea, *Xenopsylla cheopis* is a major vector, capable of transmitting urban bubonic plague. This flea species is primarily found on Norway rats; no Oriental rat fleas were collected from the rodents in Alameda County in 2015.

Sylvatic Rodent Surveillance

Sylvatic rodents such as deermice, woodrats, squirrels, and meadow voles are commonly found in rural and semi-rural areas of Alameda County. Many of these animals serve as reservoir hosts to zoonotic diseases such as plague, Hantavirus Pulmonary Syndrome (HPS), tularemia, Lyme disease, and Babesiosis. A reservoir host is an animal that can support parasite development, remains infected for an extended time, and serves as a source of vector infection. The reservoir hosts are not affected by the pathogens.



2015	N	# w/ fleas	# of fleas	Flea Species	Flea Index
SYLVATIC RODENTS					
Pinon Mouse <i>Peromyscus truei</i>	28	5	6	<i>Opisodasys keeni</i> <i>Atyphloceras longipalpus</i>	0.20
Deermouse <i>P. maniculatus</i>	3	0	0		0
<i>P. boylii</i>	4	0	0		0
Pocket Mouse <i>Chaetodipus californicus</i>	1	0	0		0
COMMENSAL RODENTS					
Roof Rat <i>Rattus rattus</i>	19	0	0	Mites: <i>Ornithonyssus bacoti</i>	0
Norway Rat <i>Rattus norvegicus</i>	8	0	0	<i>Nosopsylla fasciatus</i> Mites: <i>Laelaps sp.</i> <i>Ornithonyssus. bacoti</i>	0
Tree Squirrel <i>Sciurus niger</i>	57	39	431	<i>Orchopeas sexdentatus</i> (429), <i>Ctenocephalides felis</i> (3)	7.56

Ectoparasites (fleas) collected from commensal and sylvatic rodents in urban and peri-domestic areas. No ticks were found in any of the urban and sylvatic rodents in 2015.

Hantavirus Pulmonary Syndrome (HPS)

Hantavirus was first recognized in 1993; it is a respiratory illness associated with breathing air containing rodent urine and feces contaminated with the *Sin Nombre* virus (SNV) particles. Deer mice are the principal reservoir host. Occasionally, deer mice will enter buildings and potentially expose

the occupants to the virus. Past surveillance conducted at various localities within the county detected 6-18% of the deer mice are infected with SNV.

In collaboration with the California Department of Public Health (CDPH), the District conducts hantavirus surveys in the East Bay Regional Parks to increase public awareness of the disease and to reduce exposure to deer mice inhabited structures. In 2015, District staff surveyed three parks in the East Bay Regional Park District: Lake Chabot (Castro Valley), Garin (Hayward) and Redwood (Oakland). In addition, staff surveyed a City of Oakland Park (North Oakland Sports Center). All of the surveyed sites yielded rodents for serological testing. The number of rodents trapped and tested: 3 deer mice (*Peromyscus maniculatus*), 28 Pinón mice (*P. truei*), and 4 Brush mice (*P. boylii*). None of the 35 rodents tested were positive for hantavirus (*Sin Nombre*). In 2014, 3 of the 28 rodents tested were positive for hantavirus.

Lyme Disease

Lyme disease surveillance was conducted throughout the year at East Bay Regional Parks and one city park (Joaquin Miller Park, Oakland, Anthony Chabot, Mission Peak, Garin, Pleasanton Ridge, Del Valle and Sunol Regional Parks). A total of 823 adult *Ixodes pacificus* ticks were collected from these parks. Of the 631 adult ticks tested, 20 (3.2%) were cultured positive for *Borrelia burgdorferi sensu lato*. 702 *I. pacificus* nymphs were collected. Of the 620 nymphs tested, 72 (11.6%) were cultured positive for *B. burgdorferi sensu lato*.

In 2015 a pilot study was conducted to determine the movement of ticks along trails. 2.6% of marked *I. pacificus* and 3.2% of marked *Dermacentor occidentalis* ticks were recaptured 30 meters from the release site indicating ticks do move considerable distances. Further studies will be conducted in 2016.

Rabies Surveillance

The authority for the Rabies Program is the responsibility of the County Health Officer at the Department of Public Health, which provides laboratory support for the program, and performs human case investigations. The CSA manages the statistical data, and works cooperatively with the 13 local animal control agencies to administrate the rabies surveillance program in Alameda County. Moreover, the District responds to service requests and conducts surveillance on skunks, bats, and other wildlife. Suspected animals involved in biting or exposure incidents are euthanized, their heads removed and submitted to the Alameda County Public Health Laboratory (ACPHL) for rabies testing.

The District also investigates animal bite incidents and prepares an annual report for the California Department of Public Health (CDPH). Bats and skunks are the primary rabies-infected animals in California. Rabies is almost never found in squirrels, rabbits, rats, or mice. The CSA submitted 179 animal heads, including bats, cats, dogs, foxes, squirrels, opossums, raccoons, and skunks to the ACPHL for rabies testing in 2015. Thirteen bats collected from Fremont (4), San Leandro (1), Sunol (3), Livermore (2), and Pleasanton (3) tested positive for the rabies virus. Of the animals submitted for testing, 82 were reported to have human contact with six positive contacts; 32 had no contact; 39 were reported as wildlife and domestic animal contacts; and 20 with unknown contact information.



Ixodes pacificus



Female

Male



Type of Animal	Number Negative	Number Positive	Total Tested
Bat	59	13	72
Cat	46	0	46
Dog	30	0	30
Fox	3	0	3
Rabbit	1	0	1
Raccoon	10	0	10
Skunk	11	0	11
Squirrel	3	0	3
Opossum	3	0	3
Total Animals Tested	166	13	179

Wildlife Management

In 2015, the District responded to 1,697 service requests concerning wildlife, and provided 7,193 hours of field support within or near residential areas. A majority of the service calls involved raccoons, skunks, opossums, and foxes. We advised homeowners to implement exclusion, sanitation, and modification of habitats to eliminate or prevent recurrence of the wildlife problem. Our Vector Control Biologists assist property owners by coordinating with the District's USDA Wildlife Specialist (WS) who deploys integrated pest management (IPM) techniques and offered a wide range of preventive (indirect control) and population reduction (direct control) methods. Here is a breakdown of the common wildlife nuisance species that comprised of most service requests.

Raccoons

In 2015, the District responded to 513 service requests related to raccoon problems. Raccoons often den in backyards, beneath decks, under homes, or in attics; and they feed on backyard fruits, vegetables, pet food left overnight and dig for beetle grubs in lawns. A raccoon "grubbing" in lawns and the subsequent damage, was the leading reason for raccoon related requests for service. Moreover, young raccoons are generally born in April or May, and the mother's preference to nest and care for her young in attics is the second most common service request for trapping and exclusion. In the attic, the raccoons may urinate and defecate in a specific spot that can cause staining of the ceiling below and create an objectionable odor. To prevent damage to lawns, the staff biologist and the WS will suggest applying commercial grub killer products, repellents, and cutting back on watering the lawn. Exclusion is the key to eliminating den sites in structures. Repairing cracks and crevices, installing galvanized hardware mesh on openings can deny raccoon's access to homes, and using raccoon eviction fluid can expel raccoons that have gained access to structures.

Skunks

Skunk problems were the second most common service request after raccoons, totaling 466 calls in 2015. Skunks invade residential areas due to the availability of food, water, and shelter. Skunk problems peak during the animal's mating season around February and March, with litters born about 9 weeks later. They become a nuisance problem when the mother, in defending her litter, will spray when she perceives threats from the homeowners. Additionally, skunks can be a carrier of rabies in California,

hence, creating a potential public health problem. Skunk control methods focus on making the garden, yard, and residences less attractive to skunks; trapping may be used if these methods are not sufficient. Habitat modification includes cutting back overgrown shrubbery and tightly stacking firewood to reduce potential den sites. Exclusion involves denying access through screening and using 1/4-inch mesh hardware cloth. Homeowners can spray the lawn with an approved insecticide to control grubs and other insects, thus reducing the food for skunks and discourage them from digging.

Other Wildlife Nuisance Animals

Our District's USDA Wildlife Specialist received 4 requests for feral pigs; 25 for wild turkeys; 9 for coyotes; 1 for black tail deer; 3 for mountain lions; 27 for grey fox and 5 for bobcats. Ten depredation permits were issued in 2015.

Mosquito Surveillance

The Alameda County Vector Control Services District conducts mosquito surveillance and suppression only in the City of Albany. The Alameda County Mosquito Abatement District has jurisdiction over the rest of the county. In 2015, staff biologists received only 18 mosquito related service requests from Albany residents. Staff biologists closely monitor the known mosquito breeding sites and suppress those mosquito larval populations before they mature into adult mosquitoes. Additional mosquito surveillance includes the trapping of adult blood-seeking female mosquitoes with Encephalitis Virus Surveillance (EVS) traps set every two weeks. The captured mosquitoes were identified, counted and reported to the State of California. A total of 95 trap nights were performed and 342 female mosquitoes were captured. Due to the low mosquito catches only two mosquito pools were submitted to Alameda County Mosquito Abatement for West Nile Virus (WNV) testing, and the results were negative.

Three new mosquito surveillance and disease testing strategies were instituted within the City of Albany in 2015. The first was a WNV dead bird testing program. Residents reported dead birds to the State WNV hotline and the District staff biologist collected the dead birds and delivered back to the District laboratory for genetic testing for WNV. All dead birds reported to the District, from the City of Albany were found negative for WNV. The second surveillance program involved using sentinel chickens at two separate locations within the City of Albany. Blood samples from the sentinel chickens were delivered to the State arbovirus laboratory for testing. All sentinel chickens in the City of Albany tested negative for WNV. The final new mosquito surveillance program was directed at the invasive mosquito, *Aedes aegypti*. This invasive mosquito is capable of transmitting Zika virus, Dengue fever, and Chikungunya virus. The new mosquito surveillance program was aimed at capturing the eggs laid by the female *Aedes aegypti* using an ovipositional trap. No *Aedes aegypti* eggs were found in the City of Albany in 2015.

The 2015, positive WNV activities detected in Alameda County consisted of 19 dead birds and 16 mosquito pools. None of these occurred in Albany.

Venomous Arthropods

Venomous arthropods include insects, mites, ticks, and spiders that can sting, bite, secrete venoms, and cause allergic reactions in humans and domestic pets. The District provides identification of arthropods including stinging insects and arachnids (99). Exclusion and least-toxic control recommendations are given to residents to avoid being bitten or stung by



venomous arthropods. Our District responded to 20 tropical rat mite complaints. This mite is a nest-infesting parasite of the roof rat, but will bite humans causing intense itching and emotional distress.

Staff biologists also respond to yellow jackets nests and honey bee swarms because of the urgency and a serious public health threat. The biologists will correspond with bee hobbyists to remove the bee swarms and destroy wasp nests when they are located in close proximity to people. In addition, the District has a contract with the East Bay Regional Park District (EBRPD), to control ground nesting yellow jackets within the county parks. In 2015, the District responded to 157 venomous wasp and 129 honeybee complaints.



Miscellaneous Arthropods

The District responds to service requests on a variety of nuisance pests such as ants (21), cockroaches (337), flies (82), or fleas (82) that infest homes and commercial facilities. The Turkestan cockroach, introduced into California in 1978, was first recorded in Alameda County in 2013. Bedbugs continue to be an increasing nuisance pest problem in Alameda County. The District responded to 310 bedbug service requests in 2015.

Swimmer's Itch

Swimmer's itch, also called cercarial dermatitis, appears as a skin rash caused by an allergic reaction to certain parasites found in specific birds and mammals. When these microscopic parasites are released from infected snails, they can burrow into the nearby swimmer's skin, causing an allergic reaction and rash.

In 2015, for the fifth year in a row, no cases of swimmer's itch were reported at Robert W. Crown Memorial State Beach in Alameda. This is not a reported disease; the CSA will not be notified by the County Public Health Communicable Disease unless an outbreak of human cases occurred.

Inventoried Animal Holding Facilities

The District maintains an inventory of stables and kennels, and inspects them occasionally by request for services to prevent nuisance problems such as odors, insects, or rodents. Upon request by the Alameda County Animal Control, animal hobbyist facilities are inspected during annual permit renewal. Currently, there is no statutory requirement or authority to inspect pet shops, animal grooming salons or livestock holding facilities; however, when there are nuisance complaints, we will perform the inspections.

Nuisance Abatement

Garbage, rubbish, junk cars and animal manure stockpiles can become public nuisances when left unattended prior to disposal. In addition, these nuisance piles provide harborage and food sources for rodents, flies, and other pests that might result in disease transmission to humans. The District responded to 200 service requests concerning nuisances, primarily furniture (38), garbage (94) and rubbish (53), resulting in 1,025 field services including investigations, progress assessments, correspondence, and compliance inspections. When necessary the District will work with the local code enforcement agencies to seek compliance to mediate the problem.

Public Information and Education Activities

We effectively engage a large audience through our web site, social media such as Facebook, media contacts, group presentations, and event



participations. Our District continues to expand outreach to the public and our ethnically diversified populations. We had several media contacts/press releases/interviews—the majority on rabies, due to the significant rabies-positive bats detected in Alameda County, in 2015.

The District’s website received 1,438,234 hits in 2015—averaging 119,853 hits per month; this is an increase of 31.7% over 2014. Our website provides useful information to visitors, and is a conduit for Requests for Service from the public, as well as email correspondence. The District is currently rebuilding the website for 2016 to facilitate regular and timely updates for the public on critical public health issues including the emergence of the Zika virus.

Sixty-two days of events and presentations were provided to the public at schools and organizations throughout the county; among them were the Oakland Housing Authority Landlord Workshop, Fremont Adult School Career Day, and Ag Day event in Castro Valley, Los Colores Senior Center, Sutter Hotel, Westlake Christian Terrace Apartments, and many other venues.

We also have an on-going educational project aimed at “rental property management professionals” regarding bed bugs. Our goal is to be an educational resource to help the rental property owners, managers, tenants and the public in Alameda County effectively respond to the bed bug infestations in rental housing.

Staff biologists provided a Bed Bug Occupational-Safety Workshop to our Alameda County Behavioral Health Care professionals, whom in their daily duties visiting clients, may encounter bed bugs, which could lead to their staff acquiring bed bugs. Our staff biologists also provided another Bed Bug Education Workshop at the West Valley Mosquito and Vector Control District, which provided three continuing education units for the Southern California Vector Control Staff.

The annual Mussel Quarantine signs were posted along the Alameda County shoreline—to prevent paralytic shellfish poisoning (PSP), as well as “Bay Caught Fish” advisory signage. Our Community Relations Coordinator designed new, multi-language, mussel quarantine signs that were made for permanent posting, since every year we have the mussel quarantine during the same timeframe (May 1st thru October 31st), which should result in long-term cost and labor savings.

Community Events

The District participated in information fairs and public venues including the seventeen-day Alameda County Fair, Fremont Festival of the Arts, Hayward Zucchini Festival, Fremont and Oakland Earth Days, Dublin’s St. Patrick’s Day, Solano Stroll, India Festival in Fremont, Black Business Expo, Northern Alameda County Rental Property Association’s Trade Expo as well as the Oakland Chinatown Street-Fest. The events in which we participate attract almost 1.5 million visitors and give our District community engagement opportunities throughout Alameda County, which is likely the largest vector control direct contact outreach program in the state of California.

City of Berkeley

The City of Berkeley is one of four cities in California with its own environmental health jurisdiction. In 1976, the City adopted several environmental health ordinances that provide a mechanism to protect public health from vectors. The voters of Berkeley approved Measure A in 1984 and became



part of the CSA. Since the Berkeley Division of Environmental Health already had a vector control program that contains enforceable regulations for controlling rodents and other vectors, the CSA authorized a contract each fiscal year to fund the City vector program through the benefit assessment. In the years since 1984, the Berkeley vector program was not able to perform all of the Duties expected of the CSA, and CSA staff continued to provide field services to enhance their program. In 2006 the City added new staff and expanded the services to provide additional vector programs within the City.

In 2015, the City responded to and investigated a total of 629 service requests and complaints in the following categories: rodents (246), vegetation overgrowth (34), sewer inspections and baiting (16), wildlife (42), arthropod (135), nuisance abatement (63), sewage (3) and general survey (85). The City participated in two community events: Solano Stroll, and the Berkeley Bay Festival.

Integrated Pest Management

The District participates in a countywide *Integrated Pest Management* policy set by the Board of Supervisors. The majority of pesticides applications were used to suppress Norway rats in the sewers or to destroy yellow jacket nests. The total pesticide usage is listed below and is reviewed by the Alameda County Agricultural Commissioner, the Department of Pesticide Regulation and the California Department of Public Health.

Pesticide Use Summary 2015

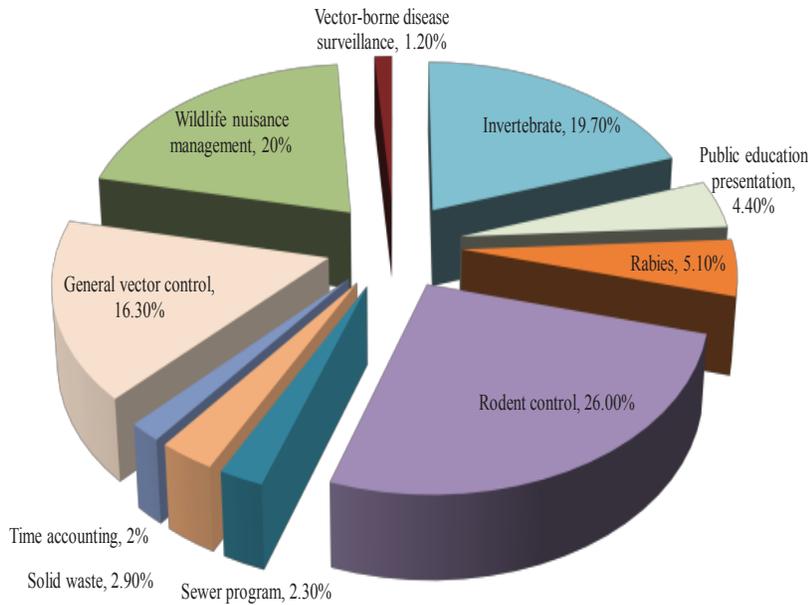
Pesticide	Manufacturer	Formulation	Target Pest	Amount Used	Applications
Conrac Super Blox	Bell Labs	8 oz Block	Domestic Rodents	987 lbs	167 ¹
Conrac Blox	Bell Labs	1 oz Block	Domestic Rodents	21 oz	7
Conrac Pellets	Bell Labs	Pellet	Domestic Rodents	21 oz	3
Delta Dust	Bayer Environmental Science	Insecticidal Dust	Fleas/ Yellowjackets/ Wasps	2 oz	1
Ditrac Tracking Powder	Bell Labs	Rodenticidal Dust	Domestic Rodents	13.38 lbs	40
Drione Dust	Bayer Environmental Science	Insecticidal Dust	Yellowjackets/ Wasps	13.38 lbs	57
Maxforce Bait Station	Bayer Environmental Science	Bait Station	Cockroaches	9.71 oz	5
Maxforce Roach Gel Bait	Bayer Environmental Science	Gel	Cockroaches	11.51 lbs	78
Prescription Treatment Brand P. I.	Whitmire	Aerosol Spray	Yellowjackets/ Wasps	1.25 lbs	2
Victor Poison-free Wasp & Hornet Killer	Woodstream	Aerosol Spray	Yellowjackets/ Wasps	2.44 lbs	8
Wasp Freeze	Whitmire	Aerosol Spray	Yellowjackets/ Wasps	32.31 lbs	28
Wasp-X	Wellmark International	Aerosol Spray	Yellowjackets/ Wasps	15.56 lbs	14

Pesticide Use for Berkeley, 2015

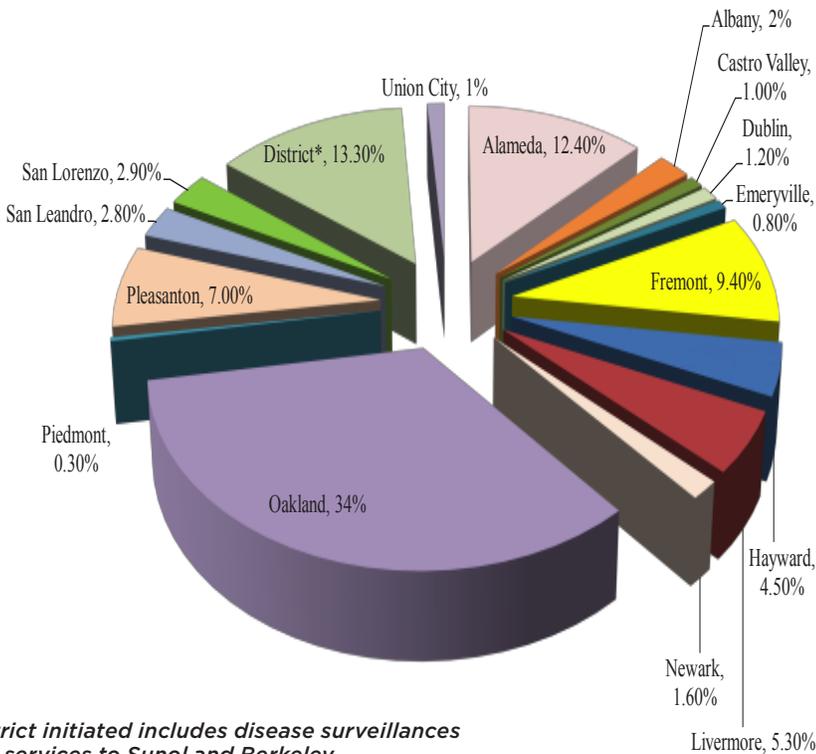
Pesticide	Manufacturer	Formulation	Target Pest	Amount Used	Applications
Talon	Syngenta	8 oz. wax block	Norway rats	128 oz	16 ²
Drione Insecticide	Bayer	Dust	Yellowjackets	6 oz	17

1. Application based on cumulative per census tract

2. Applications based on each individual application



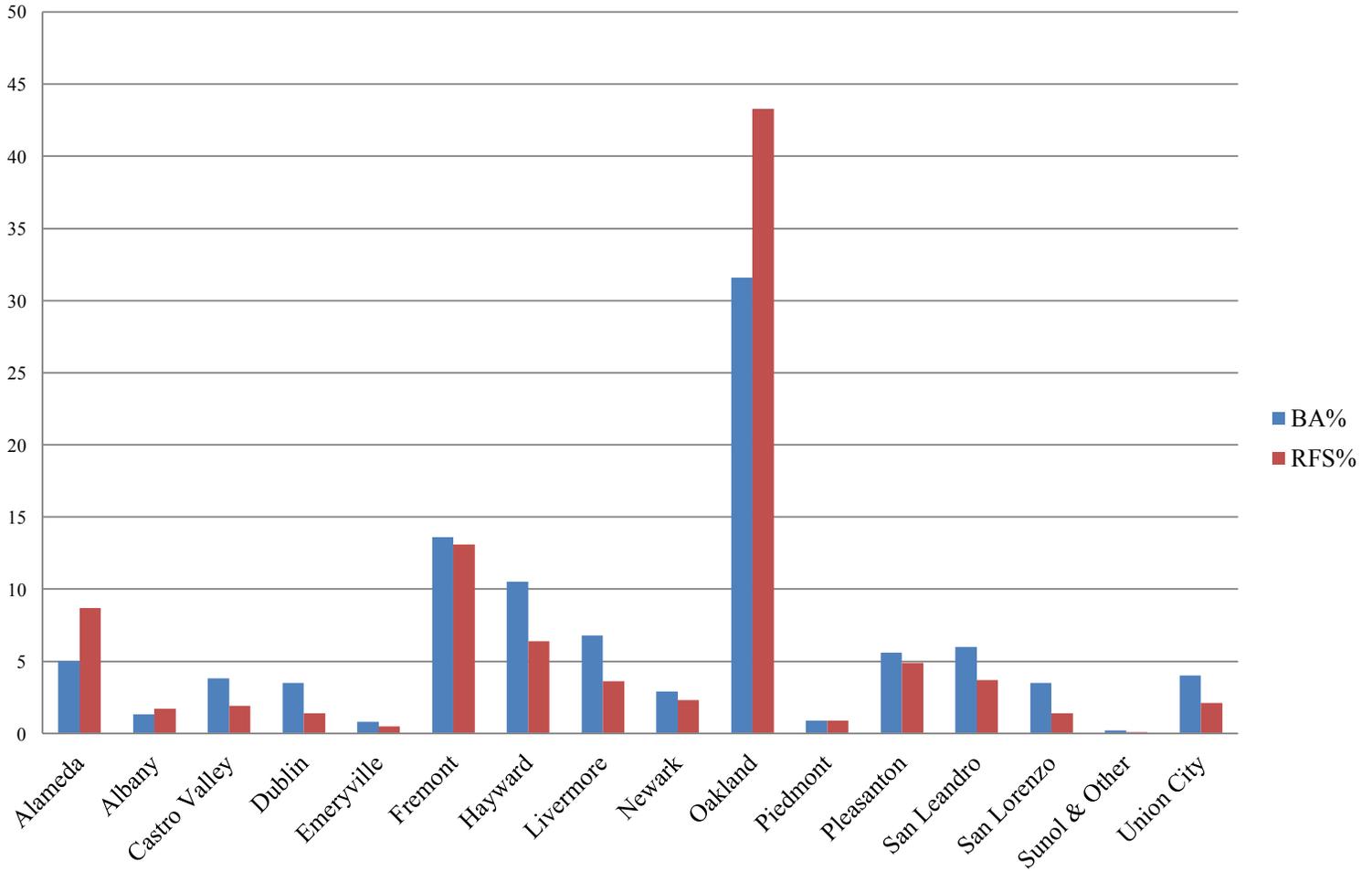
Services by Program, 2015



*District initiated includes disease surveillances and services to Sunol and Berkeley

Total Services Provided to Cities, 2015

Percentage of Services Requests and Benefit Assessment Per City, 2015



CSA Vector Control Benefit Assessment

The Board of Supervisors reviews annually the proposed rate of assessment, holds public hearings, and then establishes the assessment for the fiscal year. Assessments are levied and collected at the same time and in the same manner as the general county property taxes. They are subject to the same fines, penalties, and forfeiture as property taxes.

From 1984 to 2007, the CSA Vector Control Benefit Assessment (Initial Benefit Assessment) was based on land/property use as classified by the Assessor's Office. A basic assessment rate was established as a single benefit unit (BU), which was applied to the schedule for assessments according to land/property use.

In the Post Proposition 218 (Secondary Benefit Assessment) formulas (approved by voters in 1997), the BU rates was established on the number of people who potentially live on or work at the various types of property. The methodology determined by the ratio of population density factors in relation to the usage density for different types of property. In general, larger properties such as parking lots, self-storage, industrial properties

and golf courses will be assessed in a lower BU under the Post Proposition 218 rate. The table below depicts some of the differences between the two rate calculation methods.

Land/Property Use Categories

Property Use Categories	CSA Vector Control Benefit Units/Per Property Type (Initial Benefit Assessment)	CSA Vector Control Benefit Units/per property type (Secondary Benefit Assessment)
Single Family Residence/Condominium	1 BU	1 BU/0.61 BUs
Vacant Land Parcel	1 BU	0.25 BUs
Multiple Residential Small (2-4 units)	2 BUs	0.46 BUs
Commercial, Industrial	2 BUs	0.5 BUs
Large Rural Property (10 acres +)	2 BUs	0.08 BUs (per 10 acres)
Multiple Residential (5 units +)	5 BUs	0.32s BU
Large Commercial (Hotels, Mobile Home Parks)	5 BUs	0.5s BU (per 1/4-acre increments)

Benefit Assessments, FY 2015-2016

Use/Size	CSA Vector Control Initial Benefit Assessment	Oakland (Residence only) + Supplement Assessment (\$1.28)	CSA Vector Control Secondary Benefit Assessment
Single Family Residence/Condominium	\$5.92	\$7.20	\$4.08/2.49
Vacant Land Parcel	5.92	7.20	1.02
Multiple Residential Small (2-4 units)	11.84	14.40	1.88 ¹
Commercial, Industrial	11.84	14.40	2.04 ⁴
Large Rural Property (10 acres +)	11.84	14.40	0.34 ³
Multiple Residential (5 units +)	29.60	36.00	1.30 ²
Large Commercial (Hotels, Mobile Home Parks)	29.60	36.00	2.04 ⁴

1. This rate is per unit. There would be a minimum of 2 units for this category.
2. This rate is per unit. There would be a minimum of 5 units for this category.
3. A property would be charged this minimum. It would be \$.34 for 10 acres.
4. These estimates are based on per 1/4-acre increments.

**Assessment for One Benefit Unit (BU)
(Single-Family Residence - CSA Basic Rate and Oakland)
1984-2015**

Fiscal Year	CSA Basic Rate	Oakland Supplement Rate*	Oakland Total Rate
1984-85	\$3.15		\$3.15
1985-86	2.66		2.66
1986-87	2.66		2.66
1987-88	3.24		3.24
1988-89*	3.30	0.70	4.00
1989-90	3.58	0.66	3.84
1990-91	3.80	0.70	4.50
1991-92	3.96	0.70	4.66
1992-93	3.96	0.70	4.66
1993-94	4.72	1.04	5.76
1994-95	4.82	1.06	5.88
1995-96	5.82	1.26	7.08
1996-97	5.92	1.28	7.20
1997-98	5.92	1.28	7.20
1998-99	5.92	1.28	7.20
1999-2000	5.92	1.28	7.20
2000-01	5.92	1.28	7.20
2001-02	5.92	1.28	7.20
2002-03	5.92	1.28	7.20
2003-04	5.92	1.28	7.20
2004-05	5.92	1.28	7.20
2005-06	5.92	1.28	7.20
2006-07	5.92	1.28	7.20
2007-08**	10.00	1.28	11.28
2008-09	10.00	1.28	11.28
2009-10***	10.00	1.28	11.28
2010-11	10.00	1.28	11.28
2011-12	10.00	1.28	11.28
2012-13	10.00	1.28	11.28
2013-14	10.00	1.28	11.28
2014-15	10.00	1.28	11.28

*Includes Oakland Supplemental (initiated 1988-89)

**Includes Initial and Secondary Benefit Assessments

***Includes Emeryville and Fremont (annexed 2009-10)





1131 Harbor Bay Parkway, Ste. 166
Alameda, CA 94502
(510) 567-6800 • www.acvcsd.org

Alameda County Department of Environmental Health