

Mosquito and Vector Control Services In Riverside County

An October 2007 Study by Riverside LAFCo

Prepared by PMC



VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

TABLE OF CONTENTS

Introduction.....	1
Role and Responsibility of LAFCo.....	1
Services Provided.....	5
Service Provider Types.....	5
Service Provider Overview	7
Coachella Valley Mosquito and Vector Control District.....	8
Northwest Mosquito and Vector Control District	9
Riverside County Department of Environmental Health	10
City of Riverside, Department of Public Works, Street Services Division	11
City of Blythe, Public Works Department.....	12
Service Analysis.....	13
Background Information.....	13
Level of Service.....	13
Financing	20
Government Structure	23
Conclusion	27
Recommendations	27

LIST OF FIGURES

Figure 1: Current Mosquito & Vector Control Service Provider Boundaries.....	3
Figure 2: Recommended Mosquito & Vector Control Service Provider Boundaries	29

LIST OF TABLES

Table 1: Summary of Service Providers	7
Table 2: Summary of Services Provided.....	13
Table 3: Summary of Cities Contracting for Services	14
Table 4: Dedicated Staffing Levels Solely for Vector Control.....	17
Table 5: Major Facilities and Equipment.....	18
Table 6: Public Education Methods, Materials, and Outreach.....	19
Table 7: Alternate Language Materials and Outreach.....	19
Table 8: Sources of Annual Revenues.....	21

INTRODUCTION

ROLE AND RESPONSIBILITY OF LAFCo

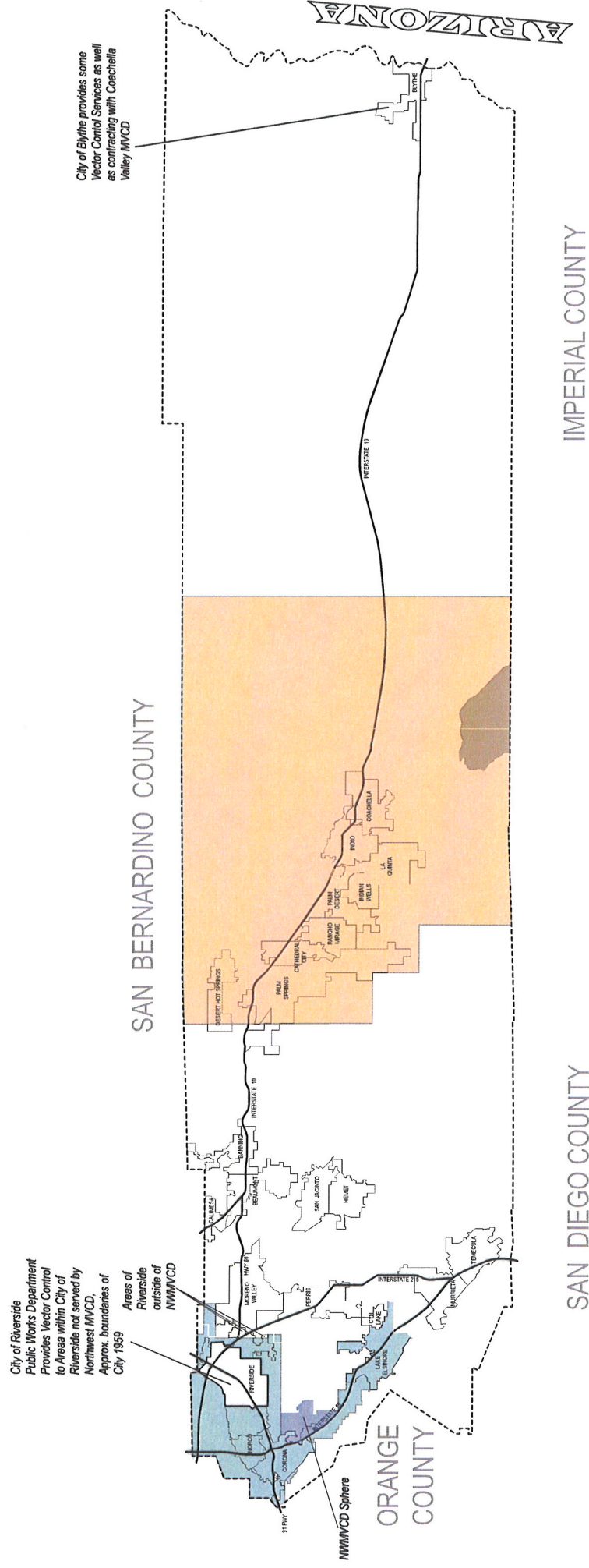
The Riverside Local Agency Formation Commission (LAFCo) is responsible for reviewing, setting boundaries, and updating spheres of influence (SOI) for cities and special districts within Riverside County. The Cortese-Knox-Hertzberg Local Government Reorganization Act (Government Code Section 56000 *et seq*) enables all LAFCos, to approve boundary changes and update the SOI of the various cities and special districts. With this responsibility, LAFCo works with service providers to assess the appropriateness of existing and proposed service boundaries.

The focus of this study is to assess the current government structure and boundaries of agencies providing mosquito and vector control services within the County. There are currently five public agencies within Riverside County that provide mosquito and vector control services. Those agencies are the City of Blythe, City of Riverside, Coachella Valley Mosquito and Vector Control District (CVMVCD), Northwest Mosquito and Vector Control District (NWMVCD), and Riverside County. This study presents analysis and recommendations for the provision of vector control services within the County, based upon surveys of each agency and review of existing documents, information, and resources collected in May 2007.

The findings reached in this study are the basis for recommendations for the modification of service boundaries. The current boundaries of each service provider are shown in **Figure 1**.

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MOSQUITO & VECTOR CONTROL DISTRICTS OF RIVERSIDE COUNTY, CALIFORNIA



SERVICES PROVIDED

The purpose of vector control service providers is to protect the public health through management and eradication of animals that can carry and transmit diseases affecting humans. Services provided include methods to limit or eradicate the vectors of vector born diseases. Vector control is essential for the public health by preventing the spread of diseases. Services provided may include monitoring, testing, abatement, control, and public education.

Monitoring for mosquitoes and other vectors may include the regular trapping and testing of animals that may carry diseases to which humans are susceptible. Typical diseases that are monitored in Riverside County include West Nile Virus, Plague, Encephalitis, Lyme Disease, and Hantavirus. Animals that typically carry these diseases include mosquitoes, birds, ticks, and rodents. The service providers may also control other animals that do not carry diseases, but are either a danger to the public or considered a nuisance, including Africanized honey bees, red imported fire ants, eye gnats, midges, and squirrels.

Testing of animals for diseases can be carried out by the service provider, or be sent to another agency's laboratory for testing. The testing capabilities of each service provider depends on the level of funding, equipment, facilities, and expertise available.

Abatement services are a preventative measure to limit the spread or development of animals that may carry diseases. This typically involves the alteration of the physical environment, use of natural predators, and chemical controls to limit reproduction.

Control services are a reactive measure to eradicate animals after they have been produced or established. This usually involves chemical controls, such as the application of pesticides.

Public education services are intended to inform the public of potential vector issues that may be a danger to their health. Public outreach efforts to increase awareness may involve presentations, informational pamphlets, signage, media broadcasts media reports, and service visits.

Other non-vector control services that may be provided includes the control and abatement of animals that may be a public nuisance or a danger to the public. Dangerous animals that can be managed by vector control technicians currently include the Africanized honey bees due to their aggressive behavior and the red imported fire ants due to their ferocious sting. Midges and eye gnats are very small flies that are considered a pest due to their public nuisance. Midges and flies can be managed by vector control technicians.

SERVICE PROVIDER TYPES

The California Health and Safety Code currently permits few types of government entities to perform mosquito abatement and vector control services. Cities, counties, as well as mosquito abatement and vector control districts, have the authority to provide these services. In the state, special districts provide the majority of vector control services.

Vector control services are usually provided on a regional level to maintain an effective and efficient level of service, as animals and the diseases that are transmitted do not follow political boundaries. Because of this, vector control services are best provided by regional agencies that encompass large distinct regions. Typical vector control districts in California serve large geographical areas, which may span across multiple counties or serve a distinct area. It is less common for smaller providers, such as cities, to provide their own vector control services.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

There are currently three different types of mosquito and vector control service providers within Riverside County, which are special districts, cities, and the county.

Mosquito and vector control special districts have been established specifically to provide vector control services. Special districts usually are formed as a result of an existing need for specific public services in a particular area. Mosquito Abatement and Vector Control Districts are governed by an independent board of directors. Their powers are codified under the Health and Safety Code sections 2200-2398. The two special districts that are currently providing mosquito and vector control services are the Northwest Mosquito and Vector Control District and the Coachella Valley Mosquito and Vector Control District.

Cities have the ability to provide mosquito and vector control services, usually through their public works or environmental health department. Not all cities choose to provide mosquito and vector control services. Cities may contract with another service provider to serve their city. The two cities in Riverside County that are currently providing their own mosquito and vector control services are the Cities of Blythe and Riverside.

Counties are the default agency responsible for providing mosquito and vector control services when there is no other service provider serving an area. In 1998, the County adopted the powers of a Vector Control District. The County currently provides mosquito and vector control services through the Department of Environmental Health.

The various vector control agencies typically exchange service information through memberships in various vector control associations and attendance at various vector control conferences. Many vector control agencies in the state is a part of the Mosquito and Vector Control Association of California (MVCAC). This organization is comprised of over 50 public agencies and provides its members with a number of valuable services, including training services, publication materials, legislative advocacy, and facilitating the exchange of service information between member agencies. The CVMVCD, NWMVCD, and County are currently members of the MVCAC.

SERVICE PROVIDER OVERVIEW

Typical vector control services provided by each service provider are briefly summarized in **Table 1** below.

TABLE 1: SUMMARY OF SERVICE PROVIDERS

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Mosquito	X	X	X	X	X
Fire Ants	X			X	
Africanized Bees	X	X		X	
Rodents	X	X	X	X	
Ticks	X	X	X		
Pests*	X	X	X	X	
Disease Surveillance	X	X	X	X	
Abatement Services	X	X	X	X	X
Control Services	X	X	X	X	X
Public Education / Outreach	X	X	X	X	X
Alternate Language Info	X	X	X	X	
Population Served	Approximately 400,000	Approximately 400,000	Approximately 1,000,000	Approximately 216,000	Approximately 22,625
Area Served	Approximately 2,400 sq. mi.	Approximately 230 sq. mi.	Approximately 5,000 sq. mi.	Approximately 43.5 sq. mi.	Approximately 26.8 sq. mi.
Service Area Description	Eastern portion of county, except the Blythe area	Northwestern portion of the county, portions of City of Riverside	All areas of the county not served by another provider	Portions of the City of Riverside	The entire City of Blythe

* Includes midges and gnats

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Contact Information

Address: 43-420 Trader Place
Indio, CA 92201

Phone: (760) 342-8287

Website: <http://www.cvmvcd.org>

Management Information

Manager: Donald E. Goms, General Manager

Governing Body: Board of Trustees

Staffing: 52, (plus seasonal employees)

Certified Technicians: 20, (plus 11 seasonal employees)

Service Information

Services Provided: Full range of vector control services, Africanized bees, and red fire ants

Area Served: Eastern portion of the county, except for the Blythe area, (2,400 sq. mi.)

Population Served: Approximately 400,000

Fiscal Information

Budget: \$8,400,000

Sources of Funding: Ad-valorem property taxes, property assessments, redevelopment funds

The Coachella Valley Mosquito and Vector Control District, based out of the City of Indio, currently provides a wide variety of vector control services to cover approximately 2,400 square miles in the eastern portion of the county, except for the Blythe area. Several cities are currently within and are being served by the CVMVCD, including Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage.

NORTHWEST MOSQUITO AND VECTOR CONTROL DISTRICT**Contact Information**

Address: 1966 Compton Avenue
Corona, CA 92881

Phone: (951) 340-9792

Website: <http://www.northwestmosquitovector.org>

Management Information

Manager: Major S. Dhillon, Ph.D.

Governing Body: Board of Directors, representing cities and the county

Staffing: 16, (plus seasonal employees)

Certified Technicians: 7, (plus 7 seasonal employees)

Service Information

Services Provided: Full range of vector control services

Area Served: Northwestern portion of the county (230 square miles)

Population Served: Approximately 400,000

Fiscal Information

Budget: \$2,698,166

Sources of Funding: Ad-valorem property taxes, property assessments

The Northwest Mosquito and Vector Control District, based out of Corona, currently provides a wide variety of vector control services to cover approximately 230 square miles in the northwest portion of the county. There are approximately 400,000 people within the District's boundaries. Several cities are currently within and are served the NWMVCD, including Corona, Norco, Lake Elsinor, and portions of the City of Riverside. The NWMVCD also serves the unincorporated areas of Mira Loma, El Cerrito, Jurupa, Glen Avon, Highgrove, Rubidoux, Pedley, and Home Gardens. The District currently provides vector control services to the City of Calimesa on a contract basis.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

RIVERSIDE COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH

Contact Information

Address: 800 S. Sanderson Ave
Hemet, CA 92545

Phone: (951) 766-2824

Website:

http://www.rivcoeh.org/opencms/rivcoeh/ProgServices/Food_Program/Vector.html

Management Information

Manager: Gary Root, Environmental Health Director

Governing Body: Board of Supervisors

Staffing: 10 in vector control program

Certified Technician: 8 in vector control program, (plus 1 seasonal employee, an additional 98 registered environmental health specialists within the department may be able to provide services under direct supervision of a Certified Technician)

Service Information

Services Provided: full range of vector control services

Area Served: responsible for all areas of the county without a service provider

Population Served: estimated at 1,000,000

Fiscal Information

Budget: \$818,412

Sources of Funding: franchise fees, general fund, city service agreements, permit fees

The County's mosquito and vector control services, based out of the City of Hemet, is provided by the County's Department of Environmental Health. The Department of Environmental Health has a vector control program specifically to provide mosquito and vector control services.

Besides the certified technicians dedicated to vector control services, the County has 98 registered environmental health specialists (REHS) within the department that may be called upon to provide vector control services, when necessary. These REHS currently provide other related services, such as food facility inspections, but can be called upon to provide vector control services only under the direct supervision of a certified vector control technician.

The County currently provides mosquito and vector control services to the central portion of county between the two districts, and the eastern part of the county near the City of Blythe.

The County has contracted with several cities and water districts to provide vector control services within their boundaries. The agencies currently served by the County are Banning, Beaumont, Canyon Lake, Hemet, Moreno Valley, Murrieta, Perris, San Jacinto, Temecula, the Metropolitan Water District, and the Eastern Municipal Water District. The level of mosquito and vector control services in each of the areas varies, based on the agency's budgeted amount for mosquito and vector control services. The County provides all cities with proactive services, such as monitoring, abatement, and testing, regardless of contracted amounts.

CITY OF RIVERSIDE, DEPARTMENT OF PUBLIC WORKS, STREET SERVICES DIVISION**Contact Information**

Address: 3900 Main Street
Riverside, CA 92522

Phone: (951) 826-5311

Website: <http://www.riversideca.gov>

Management Information

Manager: Craig Justice, Public Works Manager

Governing Body: City Council

Staffing: 4

Certified Technicians: 4

Service Information

Services Provided: Most vector control services, red fire ants

Area Served: Approximately 43.5 sq mi, (only serves a portion of the City, ~ 75%)

Population Served: Approximately 216,000, (only serves a portion of the City, ~ 75%)

Fiscal Information

Budget: \$250,000

Sources of Funding: General funds

The City of Riverside's vector control services are currently being provided by the City's Public Works Department through the Street Services Division. The City's vector control service boundaries are not contiguous with the City. Previously, the NWMVCD had annexed unincorporated county lands surrounding the City. As the City grew and expanded outward, NWMVCD remained the service provider for those lands, resulting in a non-contiguous service boundary.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

CITY OF BLYTHE, PUBLIC WORKS DEPARTMENT

Contact Information

Address: 235 North Broadway
Blythe, CA 92225

Phone: (760) 922-6611

Website: <http://www.cityofblythe.ca.gov/index.asp?nid=108>

Management Information

Manager: Jim Rodkey, Public Works Director

Governing Body: City Council

Staffing: 1 dedicated mosquito technician

Certified Technician: 1 dedicated, 3 other available if needed

Service Information

Services Provided: Mosquito control

Area Served: City of Blythe (approximately 26.8 square miles)

Population Served: 22,625 (2007 Department of Finance estimate)

Major Facilities: None

Fiscal Information

Budget: \$78,411

Sources of Funding: City's General Fund

The City of Blythe is currently providing mosquito and vector control services through the City's Public Works Department. The current vector control service boundaries are coterminous with the City's boundaries.

SERVICE ANALYSIS

BACKGROUND INFORMATION

The areas covered by each provider vary greatly, leading to unique service demands and various levels of service that are difficult to compare across each of the service providers. In addition, each area has unique vector control needs that may differ greatly from other areas within the county. Each of the areas has different topography, climate, levels of development, and accessibility. Major geographical areas within the county include the western developed portion, the central mountainous portion, and the eastern desert portion.

An approximation of each service provider's area can be described as:

- NWMVCD: northwest portion of the county, serving mostly developed urban areas.
- CVMVCD: central mountainous portion and part of the eastern desert portion, with irrigated agricultural and recreational desert lands, some urban cities and resort communities.
- Riverside County: all areas of the county not served by any other service provider, ranging from the urbanized western areas of the county to the eastern desert area and agricultural lands. This area also includes high mountain areas which separate the coastal influenced western county from the desert eastern county.
- City of Riverside: developed urban city.
- City of Blythe: developed urban core city and large areas in active agricultural production and along the Colorado River.

LEVEL OF SERVICE

Vector control services provided by each agency vary depending on the vector control needs of each community. **Table 2** summarizes the range of vector control services each agency currently provides.

TABLE 2: SUMMARY OF SERVICES PROVIDED

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Mosquitoes	X	X	X	X	X
Fire Ants	X		*	X	
Africanized Bees	X	X			
Rodents	X	X	X	X	
Ticks	X	X	X		
Pests	X	X	X	X	

* Responsibility of the Riverside County Agricultural Commissioner

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

Several cities do not provide their own vector control services and contract with another service provider for services. All cities currently are receiving limited proactive services, such as monitoring and testing, regardless of the contracted amount. The cities typically pay per complaint received, a reactive approach. **Table 2** summarizes the cities receiving contracted services and the agency currently providing services.

TABLE 3: SUMMARY OF CITIES CONTRACTING FOR SERVICES

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Banning			X		
Beaumont			X		
Calimesa		X			
Canyon Lake			X		
Hemet			X		
Moreno Valley			X		
Murrieta			X		
Perris			X		
San Jacinto			X		
Temecula			X		

Areas of Major Concern

Analyzing the number of West Nile Virus infection cases in humans does not correlate to the effectiveness of service providers. Number of cases of infected humans is difficult to positively correlate the effective provision of services due to a variety of factors unique to each area, such as differing weather, climate/region, bird habitat, travel of people, and number of previously infected (previously infected will likely become immune). In addition, there were a total of 4 people infected (1 death) within the entire county in 2006. The low number of infected identified is not statistically significant to make any determination on effectiveness of service providers.

Approaches to Vector Control

There are two methods to approach vector control issues, a proactive and a reactive approach. A proactive approach to vector control issues involves monitoring, testing, and abatement. The proactive approach also allows agencies to quickly identify potential vector control issues before infected animals spread and reproduce. This involves a constant provision of vector control services through regular monitoring and abatement. The reactive approach involves a response to vector control issues once a problem vector has been identified usually through complaints. The reactive approach provides vector control services only as needed.

A proactive approach is widely regarded as a more effective and efficient, although costly, approach than a reactive approach in providing vector control services. As such, the service provider analysis has been focused on the level of proactive service provided by each agency.

Proactive Approaches

A proactive approach involving regular monitoring and testing of species that may transmit vectors is important in preventing major vector control problems from occurring. Early detection can allow the agencies to quickly and properly respond to vector problems before they become a major problem. The CVMVCD, NVMVCD, County, and the City of Riverside regularly monitor and test for diseases and vectors.

The CVMVCD, NVMVCD, and the County are providing the most frequent, regular monitoring, and testing for vectors. This high frequency of monitoring can be attributed to the higher level of resources available to both special districts and increased efficiencies, due to their large service areas. Typical monitoring and testing procedures involve baiting and trapping of mosquitoes, testing of sentinel chickens for infection, flagging for ticks, and trapping of rodents.

Once regular monitoring and testing has identified a potential vector problem, the technicians utilize various abatement techniques. Typical abatement procedures involve the application of chemical controls, use of natural predators, and modification of the physical environment. Chemical control includes the application of larvicide to kill mosquito larvae, insect growth regulators, and baits. Natural predators include the use of mosquito fish, which feed on larval mosquitoes, and other bacteria that may eradicate vectors. Modification of the physical environment includes any physical means to remove habitat, such as the draining of stagnant pools of water to eliminate mosquito breeding habitat, removal of bee hives, and clearing vegetation to reduce the likelihood of contact with ticks.

The County provides differing levels of abatement services, depending on the area served. The County also inspects 17 poultry ranches for adequate vector control. Several cities have contracted with the County for vector control services. The County offers proactive vector control services to all such cities. The level of funding provided by those contracted cities varies each year. In the past, several cities have opted not to provide sufficient funding for a proactive approach to vector control services, opting instead to fund reactive services. This reactive approach most likely resulted in increased mosquito and vector control problems. The County now provides proactive services to all contracted cities regardless of funding from the cities. In addition, the eastern area of the county may receive less proactive services, due to the distance and travel time required to reach and provide service. This reduces the number of hours staff has available to provide services. The County has arraigned for overnight accommodation to compensate for the reduced hours, incurring additional costs.

The CVMVCD, NVMVCD, City of Riverside and County utilize aerial surveillance measures to identify problem sites. Each of the four providers contracts with a helicopter company to take aerial photographs of its service areas. Those photographs are used to identify stagnant pools of water that can be potential mosquito breeding habitats. Large areas of stagnant water are capable of breeding a large number of mosquitoes. Property owners are notified of the problem and are requested to comply by remedying the situation, or face various enforcement procedures. This is important in reducing the number of large breeding sites.

The CVMVCD, NVMVCD, and the County are the most proactive vector control service providers within the county. This allows most of the areas covered to receive lower levels of vector control complaints. However, both districts are more capable of providing services than the County and cities because they have significantly more funding available, which allows both districts to acquire more resources, equipment, improved facilities, chemicals, and staff for providing services. In addition, both district's large number of staff and dedicated service area allows the technicians to specialize in each vector area to provide more effective services.

Reactive Approaches

Problem response is a reactive approach to vector control service. Vector control technicians may utilize various control methods such as application of chemicals and traps. Large scale vector control methods such as fogging and aerial spraying can reduce the vector control problems.

All agencies currently provide problem response services, as each agency typically responds to requests for services when complaints arise. Most agencies typically respond to requests within one day.

The responsiveness of each agency varies based on the size of each agency's coverage area. The County has the largest coverage area. The County's vector control program is based out of Hemet, near the central portion of the county. The travel time required to reach the eastern portion of the county requires more than half of the normal work hours. This excessive travel time limits the amount of time available for staff to provide services. Vector control complaints within the eastern area are received by the City of Blythe and then submitted weekly to the County. The County then schedules vector control visits based upon the weekly reports and sends personnel and equipment, which incurs costs for overnight stays and extensive mileage.

In some contracted cities served by the County, complaints may be routed through a city department before being referred to the County for services. The city department, typically public works or code enforcement, will make the determination to refer the complaint. This can delay a response to complaints. Currently, the cities of Beaumont, Canyon Lake, Hemet, Moreno Valley, Perris, San Jacinto, and Temecula require that complaints be routed through their city first. Only the cities of Banning and Murrieta allow complaints to be directly received by the County.

During periods of high vector control activity, service providers may require additional assistance. The County, CVMVCD, and NWMVCD regularly hire additional seasonal vector control technicians to provide adequate services in response to increased demands. The County and the two cities have additional staff that is certified to apply pesticides. When needed, those certified employees are capable of providing needed assistance.

When general ground level approach to mosquito abatement and controls are ineffective, the two special districts and the County typically contract with a private provider for aerial spraying of pesticides.

All agencies are capable of providing a reactive approach to vector control issues. A major deficiency in the reactive approach involves the vector control problem response in the County's eastern territory, as described earlier. All other areas served are receiving adequate vector control services.

Personnel and Training

Every employee who handles, applies, or supervises the use of any pesticide for public health purposes is required to be certified by the California Department of Health Services (CDHS) as a vector control technician in at least one of the three categories commensurate with the assigned duties: mosquito control, terrestrial invertebrate vector control, and vertebrate vector control. Vector control certification requires passing the CDHS' certification examination and completion of continuing education requirements.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

All of the agencies have certified vector control technicians capable of providing vector control services.

The two special districts have other support personnel that enhance and improve the level of services provided. Such personnel included dedicated public outreach personnel to inform the general public, and laboratory personnel to conduct testing and research.

Table 4 below summarizes the various staff dedicated solely to mosquito and vector control services.

TABLE 4: DEDICATED STAFFING LEVELS SOLELY FOR VECTOR CONTROL

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
General Manager	1	1			
Public Outreach	2	1	up to 6 in Department		
Certified Vector Control Technicians	20	7	8	4	1
Temporary Vector Control Technicians	11	7	1		
Laboratory	5	3	same technicians		

Equipment and Facilities

This section assesses the availability and adequacy of equipment and facilities of each service provider.

Both cities have the essential equipment to provide sufficient mosquito and vector control services. Due to both of the city's small service areas and vector control needs, it appears that their current equipment is sufficient.

The two special districts and the County all have a full range of vector control equipment and facilities available. The CVMVCD recently completed the construction of their new bio-control facility.

The location of major facilities are also an important factor in an efficient provision of services. A service provider that is based near the center of their service area is more likely to provide a faster and more efficient response to vector control problems. Major roadways and ease of accessibility to areas can significantly improve services by reducing the travel time required, allowing for an increase in vector control efforts.

The County's main vector control operations are based out of Hemet, far from the County's eastern service area. The distance from the County's facilities to the eastern service area is greater than 100 miles, resulting in a travel time of over two hours each way. This leads to a less efficient provision of services, as no services are provided during travel.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

The NWMVCD's main vector control operations are based out of Corona, in close proximity to unincorporated areas currently serviced by the County. The close proximity and roadway access available allows the District to respond much more quickly than the County.

No significant differences in equipment and facilities between the two special districts and the County were identified. Existing equipment and facilities are able to serve existing demands. Additional investments in equipment and facilities upgrades may experience in a decreasing rate of benefit received per equipment.

Table 5 below summarizes the equipment and facilities of each service provider.

TABLE 5: MAJOR FACILITIES AND EQUIPMENT

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Operations Facility	X	X	X	X	X
Laboratory	X	X	X		
Containment Facility	X	X	X		
Mosquito Fish Facility	X	X	X		
Backpack Applicators	X	X	X	X	X
Fogging Vehicle	X	X	X	X	
Spraying Vehicle	X	X	X	X	X
Mosquito Fish Vehicle	X	X	X		
Off Road Vehicles	X	X	X		X
Amphibious Vehicles	X	X	X		
Aerial Units	+	+	+	+	
Other Specialized Vehicles	X	X	X		

+ Contracted as needed

Public Education and Outreach

Public Education is an important component in preventing the spread of vectors. Educating the public and increasing public awareness may decrease the public health risks as people become more aware of effective ways to reduce the transmission of vectors. An agency that is effective in educating the public may employ many forms of active public outreach campaigns. **Table 6** compares the various public education methods used by the various agencies.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

TABLE 6: PUBLIC EDUCATION METHODS, MATERIALS, AND OUTREACH

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Brochures	X	X	X	X	
Information Sheets	X	X	X	X	
Public Presentations – At Events	X	X	X	X	X
Public Presentations – On Request	X	X	X		
Public Service Announcements	X	X	X		
Informative Website	X	X	X		

The CVMVCD, NWMVCD, and the County are the most effective in public outreach efforts to inform the public about vectors. The three providers are able to devote adequate staff time to inform the public and enlist their help in preventing and limiting vector control issues. The CVMVCD and the NWMVCD each have a dedicated public outreach specialist. The cities of Blythe and Riverside offer limited information to residents, and significantly less than the other three service providers. Both cities do not have sufficient staff and time available to respond to requests for public presentations during the height of mosquito breeding seasons.

Several of the publications are available for agencies to order from the California Department of Health Services (CDHS). The State has produced many public outreach materials for various agencies to use to increase awareness of the West Nile Virus.

Information in Alternate Languages

Providing vector control information in alternate languages is an important part to an effective public outreach process. According to the 2000 US Census, 32.9% of the County's population speaks a language other than English at home. The second predominant language in Riverside County is Spanish. **Table 7** compares the alternate language information available from each service provider.

TABLE 7: ALTERNATE LANGUAGE MATERIALS AND OUTREACH

	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Translated Brochures	X	X	X		
Translated Information Sheets	X	X	X		

The two special districts and the County have a wide variety of information available in alternate languages. Alternate language materials available include Spanish, Tagalog, Chinese, Korean, and other languages. The agencies appear to be active in continuing translation of information.

The CDHS also has publications in alternate languages available for vector control agencies to order.

FINANCING

This section analyzes the financial structure and viability of the service providers. Included in this analysis is the consideration of revenue sources, amount of revenue, stability of revenues, and expenditure sources.

It is important to note that funding allocated by the two cities and the County is directly for vector control staff and resources and does not include indirect funding sources. The cities and County receive indirect funding through the use of shared administrative staff, management staff, sharing of facilities, support personnel, and equipment as a whole department within the city or County. As an example, the total funding for special districts includes funding for human resources personnel, while funding for the city and county's vector control program is solely for vector control personnel. The comparisons between the five agencies cannot account for the benefits and funding received by the cities and County specifically for the vector control programs.

Background Information

There are seven different primary sources of funding for mosquito and vector control services currently being utilized in the county. The three typical sources of funding are the agency's general fund, ad-valorem property taxes, and parcel assessments. The other four types of funding sources (franchise fees, grants, redevelopment pass-through, and contracted services) are not considered typical funding sources for services. The five major sources of revenues are listed below.

- General Fund: unrestricted funds used for funding services, as allocated in the operating budget.

General Funds apply to cities and counties, as the amount of funding allocated for mosquito and vector control services are determined by the city council or county board of supervisors during their annual operating budgets. The level of funding available for mosquito and vector control services varies from year to year, depending on the many competing city and county priorities for funding.

- Ad-valorem Property Tax: a percentage of the property tax, based upon the improvement or building and the land or site value.

Ad-valorem property tax is a one percent general levy of the assessed market value of a property. This one percent is distributed among many agencies in the county. For cities and the county, this tax is usually deposited into their general funds, which can be used for any service. For special districts, this tax is also deposited into the district's general funds to be used for the district's sole purpose. The level of funding available for mosquito and vector control services can be considered consistent, as the taxes usually remain at the same level from year to year. Funding may increase as new developments occur, raising the property values, and increasing tax revenues as a result.

- **Parcel Assessments:** these special assessments are non-ad valorem amounts generally levied on a per parcel basis.

Parcel assessments that the various service providers can levy are subject to a Proposition 218 vote, which requires a 2/3 majority voter approval to levy assessments. These assessments are dedicated to fund special benefits upon specific properties. The level of funding available for mosquito and vector control services is consistent, as the assessments usually remain the same from year to year.

- **Franchise Fees:** fees levied on services for the privilege of conducting business within a jurisdiction.

Through an agreement, the agency typically receives a percentage of a commercial service provider's gross revenues. The level of funding available for mosquito and vector control services can be considered as inconsistent, as funding varies from year to year, depending on the gross revenues of private companies.

- **Grants:** funds awarded to an agency, usually based on the needs for a specific purpose.

Agencies typically apply for grant funding to supplement funding for their operations. Grant funding for mosquito and vector control services can be considered highly inconsistent, depending on a wide variety of factors. If grant funding is available, the agency awarding the grants determines the need for funding and how the grants should be allocated.

- **Redevelopment Pass-Through:** tax revenues reserved for redevelopment purposes

The CVMVCD receives revenues based on the contractual agreement with the various redevelopment agencies to return a portion of the tax revenues to the District that have been reserved for redevelopment purposes.

Sources of Revenues

TABLE 8: SOURCES OF ANNUAL REVENUES

Source	Coachella Valley MVCD	Northwest MVCD	Riverside County	City of Riverside	City of Blythe
Ad-valorem Property Taxes	\$3,006,000	\$1,769,963			
Property Assessments	\$2,532,610	\$360,123			
Redevelopment Pass-Through	\$2,281,298				
General Fund			\$345,530	\$250,000^	\$78,411
Franchise Fees			\$418,882		
Permit Fees			\$14,000		
Contracted Services			\$120,000		
Total*	\$8,314,663	\$2,698,166	\$898,412	\$250,000	\$78,411
Average Assessments	\$16.48	\$7.62	\$0	\$0	\$0

* other minor sources of financing are included in the total for each agency

Funding for the County, City of Blythe, and the City of Riverside's mosquito and vector control services comes from the general funds allocated by their respective Board of Supervisors or City

Council. Both the County of Riverside and the City of Blythe have specifically allocated funding for their vector control services. The City of Riverside's level of funding for vector control services is included within the City's Street Services Division budget.

Both special districts appear to be financially stable, with sufficient funding for services provided. Both special districts have the highest level of funding per area covered and per resident. Their funding sources are considered very stable and consistent. No additional financing opportunities for NWMVCD and CVMVCD have been identified.

Approximately two years ago, the CVMVCD proposed increasing property assessments. Voters approved the proposed increase on property assessments to provide additional funding to fund the CVMVCD's Red Imported Fire Ant program and to enhance their vector control operations. Subsequently, the CVMVCD was able to expand and improve the vector control services offered.

The County needs additional financing sources to provide an adequate level of service. The County has the lowest level of funding per area covered and level of funding per resident served. This is attributable to the large coverage of mostly rural areas and the large population in the contracted cities. Approximately half of the County's funding can be considered unstable and inconsistent, as the County's budget for vector control service can be easily changed by the County Board of Supervisors, economic factors, and various cities that have contracted to the County for services. The county considers funding from the refuse service franchise fees to be a stable source of funding, which is not expected to decline. The County appears to be able make efficient use of the limited funding available in the western portion of the county.

County staff has indicated that they are interested in pursuing property assessments within their service area. This would lead to a more stable source of funding and increased financing available for adequate vector control services. A levy for property assessments is subject to a Proposition 218 vote, which requires a 2/3 majority voter approval. It is currently unknown if the County Board of Supervisors will reduce general funds allocated for vector control services if property assessments are approved.

Grant funding for the purchase of equipment, chemicals, and to fund vector control positions was not considered since the funding is highly sporadic and may only be available when emergencies occur.

Expenditures

The expenditures of each agency were generally consistent, with employee salaries as the largest expenditure for each service provider, followed by services and supplies, and equipment and buildings. The City of Riverside's expenditures were not analyzed, due to the City not separating the allocation of funds for vector control services.

The CVMVCD's fiscal year 2005-2006 facilities expenditures were increased dramatically due to the construction of a new bio-control facility. Otherwise, the type of expenditure was generally consistent with other similar service providers.

GOVERNMENT STRUCTURE

This section compares existing service provider's goals with existing operations and analyzes the existing government structure for efficiency and effectiveness.

Background information

There are currently four different types of government structures providing mosquito and vector control services within Riverside County. The various types are listed below.

- **Mosquito Abatement and Vector Control Districts:** These special districts were formed under California Health and Safety Code sections 2200 et seq. to specifically provide for the extermination of mosquitoes, flies, other insects, rats, and other vector control services. The CVMVCD and the NWMVCD were both formed under this enabling legislation.
- **General Law Cities:** General law cities operate within the parameters and guidelines of California municipal law. These cities are formed under California Government Code section 34000 et seq., which enables general law cities to provide a wide variety of services including mosquito and vector control services. The City of Blythe is a general law city.
- **Charter Cities:** Charter cities can adopt a charter requesting unique local conditions and needs by a majority vote of city residents. Charter cities have more flexibility in governance since charter cities are not restricted by certain laws and services outlined in the general state municipal law. Charter cities can choose to provide a wide variety of services including mosquito and vector control service. The City of Riverside is a charter city.
- **Counties:** Each county is subject to mandatory duties under state law to provide services to residents if there are no other service providers serving the area. Riverside County is the default mosquito and vector control service provider if the other providers are not serving an area. Riverside County is a general law county.

Current Government Structure and Alternate Government Structure Options

Each of the five mosquito and vector control service providers, under their current legal form, is able to function as a legal provider under its current government structure. The existing structure of the service providers is sufficient to allow them to continue service provision in the foreseeable future and existing service levels. No legal or administrative limitations for future service provision have been identified.

While services can be expected to continue at existing service levels, the existing differences in service levels among the service providers identifies major discrepancies in the protection of Riverside County residents from vectors. Financial and administrative resources are present in much greater levels in some service providers, and there is strong evidence to support the likelihood that a reorganization of boundaries could result in a more efficient provision of services. Reorganizing the provision of mosquito and vector control services under a different government structure or with different boundaries should be considered if it would result in a significant improvement in service or efficiency.

Current Government Structures

The sole purpose of the CVMVCD and the NWMVCD is for vector control. There are very limited competing interests that may detract from vector control service provision. Since these special districts provide only one service, the vector control districts gain additional efficiencies and increased expertise by specializing in one type of service. This focus allows not only for greater efficiencies, but also a dedicated financing stream toward mosquito and vector control.

VECTOR CONTROL SERVICES IN RIVERSIDE COUNTY

The two cities and the County provide a wide variety of services and have many competing interests that may detract from the provision of vector control services. Vector control programs are a part of other divisions and departments, which also provide oversight and management. The two cities, due to their size and service area, are less efficient and have less specialized expertise than compared to their larger counterparts.

While each provider can engage in service provision, the difference in focus, finance and budgetary processes, and expertise indicates that the special districts can inherently provide a higher level of service than the cities or County.

Current Boundaries

The CVMVCD's current boundaries were established in 1928 and have gradually expanded through the annexing of neighboring lands into their district. The boundaries appear to be generally logical for efficient service provision.

The NWMVCD's current boundaries were established in 1959 and include the western portion of Riverside County. The boundaries included the then current boundaries of the City of Corona and excluded the existing boundaries of the city of Riverside. Later annexations expanded the districts boundaries to continue to include the entire City of Corona as it grew, all of the City of Corona's Sphere of Influence in the Temescal Valley, and all of the City of Lake Elsinore. As the City of Riverside expanded and annexed lands into their city, the NWMVCD remained the vector control service provider. As a result, the NWMVCD currently serves portions of the City of Riverside that used to be unincorporated county lands. In 1994, the City of Lake Elsinore requested annexation into the District, which resulted in the District serving an island boundary within the District's Sphere of Influence.

The City of Riverside's current vector control boundaries are within the city limits. Portions of the City are within the boundaries of the NWMVCD. The NWMVCD had annexed lands around the City of Riverside prior to the City of Riverside expanding city boundaries. As a result of the City expanding city boundaries, the NWMVCD remained the mosquito and vector control service provider. The City also serves a non-contiguous area between State Highway 60 and Interstate 215, located just outside of the City of Moreno Valley.

The City of Blythe's current vector control boundaries are contiguous with the city boundaries.

The County's current vector control boundaries are all unincorporated county lands not service by any other vector control provider. The CVMVCD divides the county, resulting in two non-contiguous areas of land that require vector control services. The County provides vector control services to may other cities by contract.

The current boundaries of the various service providers are a result of many years of annexations, which have led to illogical service boundaries and non-contiguous "island" service areas.

Alternate Boundary Options

Logical and contiguous agency boundaries can result in a more efficient and effective provision of services. Ideal boundaries are contiguous with existing jurisdictions, avoid dividing an existing identifiable community or parcels, avoid the creation of islands or strips, and avoid an irregular pattern of boundaries. Current service provider boundaries can be modified to result in a more efficient and effective provision of services.

Boundaries that follow existing cities, natural features, and constructed features can be easily identified. Natural features within the county include lakes, rivers, mountains, and deserts. Constructed features include highways, major roadways, railways, parks, and farms. Vector control service boundaries need to be adjusted as city boundaries change, to maintain consistency and avoid confusion. Natural and constructed features are generally more easily identifiable. An efficient boundary eliminates confusion regarding the responsible agency and is consistent with similar demands within the area served.

The CVMVCD's current boundaries are generally logical and contiguous, resulting in an efficient and effective provision of vector control service. Minor areas of inefficient and illogical boundaries involve the Cities of Palm Springs and Desert Hot Springs, which currently has city boundaries that extend just west of the District's current boundaries. In addition, the District's current boundaries divide the County's service area into two separate areas, which results in an inefficient service boundary for the County. Extending the District's current boundaries to include the entire Cities of Palm Springs and Desert Hot Springs, as well as extending the District's current boundaries eastward to include the entire unincorporated county island lands will result in a more logical, contiguous, and efficient service area.

The NWMVCD's current boundaries are currently illogical and non-contiguous, resulting in an inefficient provision of vector control service for the County, the City of Riverside, and the District. It is difficult for property owners and agencies to determine the responsible service provider within the City of Riverside, as the boundaries do not follow boundaries or features, resulting in confusion as to the responsible service provider. The City of Lake Elsinore is the District's island service area, as it is not contiguous with current boundaries, resulting in inefficient services to and around that island area. The District's boundaries create a strip of land just southwest of the City of Corona, resulting in an inefficient boundary for the County. Annexing the entire City of Riverside and all lands up to and including the City of Lake Elsinore will result in more efficient, logical, and contiguous service boundaries.

The County's current boundaries are currently illogical and non-contiguous, resulting in an inefficient provision of vector control services. It can be difficult for property owners and agencies to determine the responsible service provider for the northwestern portion of the county, due to the current boundaries. The eastern portion of the county is not contiguous to the main portion of the county, resulting in an inefficient provision of services. Annexation of the northwestern areas into the NWMVCD and annexation of the eastern area into the CVMVCD from the County will result in a more efficient provision of vector control services, logical boundaries, and elimination of islands.

The City of Riverside's current boundaries are currently illogical and non-contiguous, resulting in an inefficient provision of vector control services. It can be difficult for property owners and agencies to determine the responsible service provider for the areas within the City of Riverside, due to the illogical and inconsistent boundaries. Reorganization of the portions of the City of Riverside currently served by the City into the NWMVCD will result in a more efficient provision of vector control services and logical boundaries. This would result in one vector control service

provider responsible for the City. Expanding the City's service area to cover the entire city may not be the most efficient option, as larger agencies covering a large geographical area is the most effective at providing services.

The City of Blythe's current boundaries are currently logical and contiguous with the City's boundaries. Reorganization of the City's boundaries into a larger service provider may result in a more efficient provision of vector control services.

Alternatives to Boundary Changes

Formation of a third mosquito abatement and vector control special district is not expected to result in an improvement of vector control services within Riverside County. The third special district would be limited to similar financial resources available to the County. The County is currently interested in pursuing property assessments to increase funding. The third special district would pursue the same assessments. The current provider, the County, is able to provide sufficient vector control services.

Other options to modifying boundaries may include contracting for vector control services from another more efficient service provider. This can involve agreements for services, direct transfer of property taxes, and allocation of general fund monies.

CONCLUSION

The five vector control service providers, under their current legal form, are able to function under their current government structure. Reorganizing the provision of mosquito and vector control services through a change in boundary lines can significantly improve the provision of vector control services.

Vector control services are most effective when services are provided consistently on a large area-wide basis. Vector control services within the county are not consistently provided on an area-wide basis, as there are multiple providers and varying levels of services in contracted areas. Large cities do not have the technical and financing capabilities as a large service provider. The City of Riverside will not be best served by the detachment of the entire City of Riverside to be served entirely by the City. Smaller service areas and cities should be service by larger service providers. The largest service providers within the county are currently the County, the CVMVCD, and the NWMVCD.

Large non-contiguous service boundaries contribute to an inefficient provision of service. The County currently has a large non-contiguous service area in the eastern portion of the county.

The cost, time, and administration to transition the provision of services by altering the current boundaries can result in significant efficiencies and improved services. The existing structure of the various service providers is insufficient to allow an efficient service provision in the foreseeable future.

A formation of a third special district may not be the most efficient means of providing vector control services. The formation of a third special district may lead to additional inefficiencies resulting from the establishment of another service provider, with overlapping overhead, administrative costs, and duplication of equipment, services, and facilities. This may also lead to increased public confusion on the appropriate agency to contact.

RECOMMENDATIONS

The following recommendations are based on the information provided for this study, in regards to improving the overall efficiency and level of vector control services within the county. The recommendations are ordered in the level of highest importance to the lowest.

Recommendation 1

"Area C", the eastern part of the county should be served by the Coachella Valley Mosquito and Vector Control District. The entire cities of Blythe, Desert Hot Springs, Palm Springs, and areas of the County within "Area C" should be annexed into CVMVCD.

"Area C" includes the entire cities of Cathedral City, Coachella, Indio, La Quinta, Palm Desert, and Rancho Mirage.

Recommendation 2

The County should remain the current service provider for "Area B".

Recommendation 3

"Area A", should be served by the Northwest Mosquito and Vector Control District. The entire cities of Canyon Lake, Moreno Valley, Murrieta, Perris, Riverside, Temecula, and areas of the County within "Area A" should be annexed into NWMVCD.

"Area A" includes the entire cities of Corona, Lake Elsinore, and Norco.

Recommendation 4

Related boundary changes should occur concurrently with any change in organizations to avoid an illogical pattern of boundaries. LAFCo should require this as a condition of approval in all future change of organization requests.

Recommendation 5

"Area B", should be within the Sphere of Influence of the Northwest Mosquito and Vector Control District.

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