

FINAL

MUNICIPAL SERVICE REVIEW AND SPHERE OF INFLUENCE PLAN

FOR THE

DURHAM MOSQUITO ABATEMENT DISTRICT



Prepared by:
Butte Local Agency Formation Commission
ADOPTED DECEMBER 7, 2017

DISTRICT DATA SHEET

DURHAM MOSQUITO ABATEMENT DISTRICT

Contact: Aaron Amator, District Manager
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GOVERNING BOARD

Durham Mosquito Abatement District Board of Trustees

Normal Board Meeting Date: Second Wednesday of each month at 7:30 p.m.

Board Meeting Location: Durham Memorial Hall, 9319 Midway, Durham

FORMATION INFORMATION

The Durham Mosquito Abatement District was formed in 1918.

PURPOSE

1. Enabling Legislation: H&S§2000 et. seq.
2. Authorized Services:
 - Mosquito Abatement
3. Provided Services:
 - Mosquito Abatement
 - Mosquitofish Distribution
 - Public Education

AREA SERVED

1. Supervisorial District: 4 & 5
2. No. of Parcels: 1,973
3. District Size: 60 square miles
4. Estimated Population: 4,200
5. Location: Unincorporated community of Durham and the surrounding area.
6. Sphere of Influence: None. DMAD has a "Zero" Sphere of Influence as assigned by the Commission in 2005.

FINANCIAL INFORMATION

Fiscal Year 2015-16

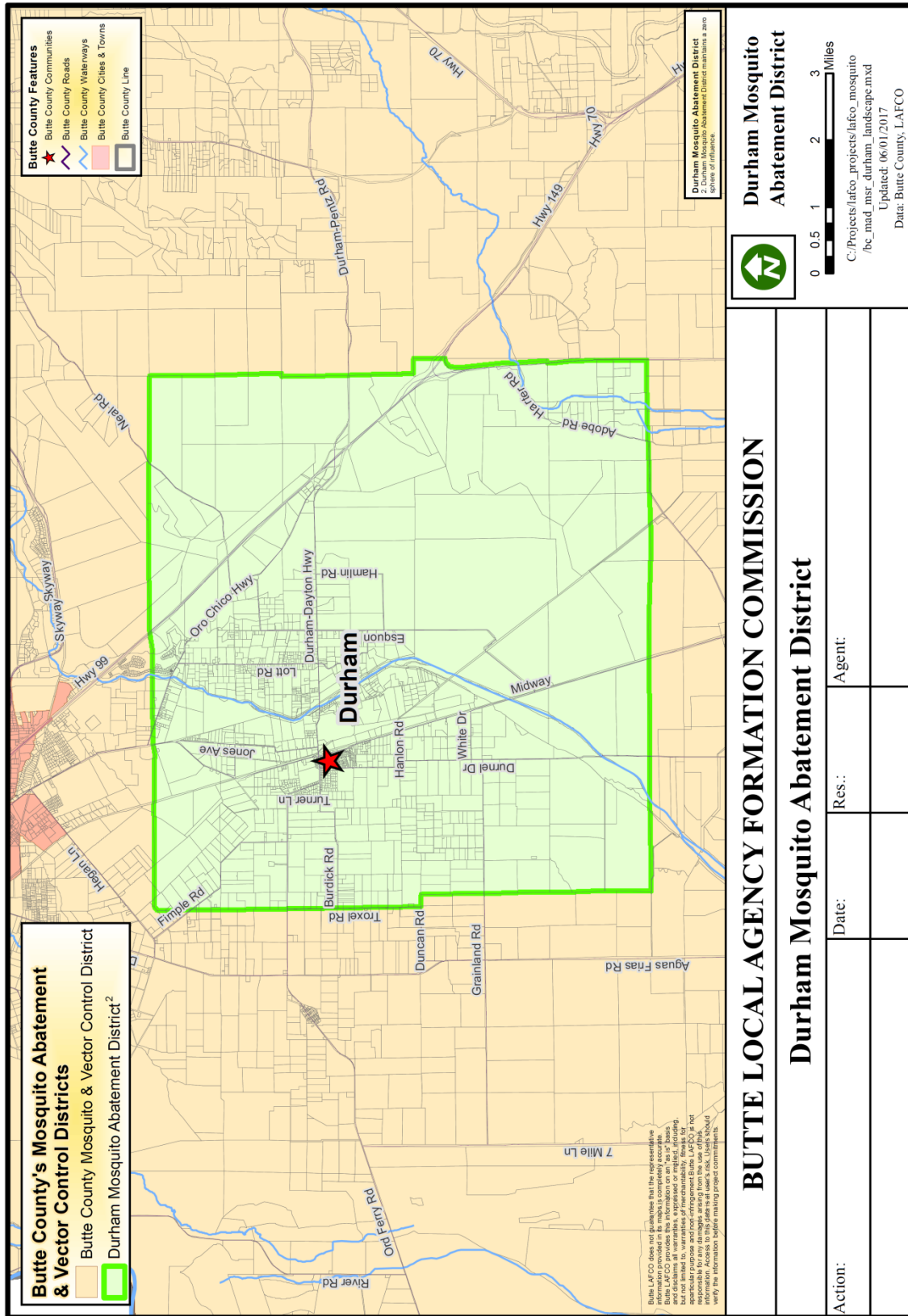
Revenues: \$141,579

Expenditures: \$127,177

Unassigned Fund Balance as of 6-30-16: \$121,275

Revenue Sources:

- Property taxes
- Annual per parcel assessments
- Interest



DISTRICT SUMMARY

The Durham Mosquito Abatement District (DMAD) was established in 1918 to serve the unincorporated community of Durham and the surrounding area. The District was established to combat malaria in the area; between 1915 and 1918, Durham lost 13% of its population due to malaria and the mortality rate was 100% for children under the age of eight at that time. The District's service area encompasses approximately 38,372 acres (60 square miles) and consists of approximately 1,973 parcels. The District has an estimated population of 4,200.

Pursuant to Article 3 (Sections 2020 - 2030) of the Health and Safety Code, the Durham Mosquito Abatement District has a five-member Board of Trustees who reside within the District boundaries and shall meet at least once every three months. Trustees are appointed by the Board of Supervisors to serve for a term of office of two to four years at the discretion of the appointing authority (California Health & Safety Code §2024).

California Health and Safety Code §2022(a) states that each person appointed by a board of supervisors to be a member of a board of trustees shall be a voter in that county and a resident of that portion of the county that is within the district. Section 2022(b) states that each person appointed by a city council to be a member of a board of trustees shall be a voter in that city and a resident of that portion of the city that is within the district. California Health & Safety Code §2022(d) states that it is the intent of the Legislature that persons appointed to boards of trustees have experience, training, and education in fields that will assist in the governance of the districts. Finally, §2022(e) states that all trustees shall exercise their independent judgment on behalf of the interests of the residents, property owners, and the public as a whole in furthering the purposes and intent of this chapter. The trustees shall represent the interests of the public as a whole and not solely the interests of the board of supervisors or the city council that appointed them. A mosquito abatement district trustee serves for a fixed term of office, and not merely at the pleasure or discretion of the appointing authority.¹

The current DMAD Board of Trustees are:

Position	Trustee Name	Term Ends
Trustee/President	Dr. John Azevedo	2019
Trustee/Secretary	Lance Smith	2019
Trustee	Sandra Atteberry	2017
Trustee	Dave Jessen	2019
Trustee	William Dempsey	2017

The Durham Mosquito Abatement District Board of Trustees holds its meetings on the second Wednesday of each month at 7:30 p.m. and are subject to the Brown Act. The Board meetings are held at the Durham Memorial Hall located at 9319 Midway, Durham.

¹State of California, Office of the Attorney General, Opinion No. 09-502.

The services provided by the District were last reviewed in the Mosquito Abatement Services Municipal Service Review adopted by Butte LAFCo in 2004. The MSR contained numerous determinations regarding OMAD's operations, most notably *"...reorganizing the three districts into one county-wide district would provide numerous advantages and with little to no disadvantages. There may be a slight limit of 'personalized' service in the Durham and Oroville areas, but that disadvantage is greatly outweighed by the advantages of a county-wide district with a large number of employees, regularly scheduled office hours, education and training programs, and aerial capability."*

As a result of the determinations contained in the 2004 MSR, the District was given a "Zero" Sphere of Influence (SOI) boundary by the Commission in 2005. At the same time, the Commission expanded the SOI of the Butte County Mosquito and Vector Control District (BCMVCDD) to encompass the Durham Mosquito Abatement District's and the Oroville Mosquito Abatement District's jurisdictional boundaries. Pursuant to Commission policies, a zero sphere of influence can be applied when a "districts functions are either non-existent, inadequate, no longer needed, or **should be reallocated to some other agency of government. Adoption of a "zero" sphere indicates the agency should ultimately be reorganized or dissolved.**" The Commission may initiate dissolution of an agency when it deems such appropriate. It is for this reason that the BCMVCDD SOI boundary overlaps the DMAD and the OMAD as the potential exists for the BCMVCDD to serve these island areas in the event an agency reorganization is pursued.

DMAD SERVICES

The Durham Mosquito Abatement District is an independent special district (not part of any county or city) that monitors and controls mosquitoes. The District protects the usefulness, desirability and livability of property and the inhabitants of property within its jurisdictional area through the abatement of mosquitoes. Based on the Notice of Intent and Pesticide Application Plan submitted to the State Water Resources Control Board, the District's primary services utilize the Best Management Practices for Mosquito Control in California (2010), which includes:

- Larvicide applications (control products applied directly to breeding sources).
- Adulticide applications (control products applied using ULV foggers. Ultra low volume (ULV) spraying is the process of putting very small amounts of liquid (typically 4 ounces per acre or less) into the air as a fine mist of droplets. These droplets can float on air currents for up to 1 hour and quickly kill mosquitoes that come into contact with them. ULV adulticides are applied when mosquitoes are most active – typically sunset and early evening).
- The District provides mosquitofish free of charge. The mosquitofish can be picked up at the District office and are also distributed at several locations.
- Surveillance: The District uses light traps to track mosquito populations during the mosquito season (generally May through October). It should be noted that the District only deploys two light traps, which are placed on the edge of the rice fields within the District. The District does not sort the trapped mosquitoes by species nor does the District test the trapped mosquitoes for viruses. The District

does not collect and submit dead bird specimens to the State for testing of West Nile virus, although the District has done so in the past.

- District Manager provides public information talks to local groups and schools to keep the public informed.
- The District provides localized and personal mosquito abatement services for special events, plus continuous control for schools and parks.
- The District provides year round service.

These practices are not however, fully described in a District adopted, and publicly available, Integrated Vector Management Plan (IVMP). Nor is there a District policy to prepare or maintain such an IVMP or alternative written comprehensive vector management plan or strategy.

MUNICIPAL SERVICE REVIEW FACTORS FOR THE DURHAM MOSQUITO ABATEMENT DISTRICT

Pursuant to California Government Code §56430, in order to update a Sphere of Influence (SOI) for a city or special district, the associated MSR must include written determinations that address various factors regarding the ability of the subject agency to provide services. The following provides an analysis of the seven categories or components required by §56430 for the Municipal Service Review for the Durham Mosquito Abatement District:

MSR FACTOR NO. 1: GROWTH AND POPULATION PROJECTIONS FOR THE AFFECTED AREA.

DMAD's jurisdictional boundaries consist of the unincorporated community of Durham and the surrounding area. It is estimated that the Durham Mosquito Abatement District has a population of approximately 4,200 people. Land uses within the District include single-family residential uses, commercial uses, industrial uses, and public uses. Outside of the immediate Durham area, the predominant land use is agricultural, consisting of rice fields, orchards, row crops, irrigated pastures, and seasonal livestock grazing. A portion of the Butte Creek Estates Subdivision on Estates Drive is located within the District and consists of approximately 60 residential units and a golf course. Also found within the District is a 70-acre industrial subdivision located at the intersection of SR 99 and Durham Dayton Highway.

Approximately 1,195 acres within the District consist of urban uses on smaller parcels, most of which are located within the community of Durham. Agriculture is the largest land use within the District, consisting of approximately 34,500 acres. Orchard crops (12,200 acres) are the largest agricultural use, followed by rice (9,000 acres), and grazing (6,650 acres).

There is very little potential for new development within the boundaries of the District. A large portion of the community of Durham is zoned for medium and medium-high density residential uses. However, the lack of a public sanitary sewer system in the Durham area precludes the creation of small parcels or the construction of additional dwellings on existing developed parcels. The area of the District outside of the community of Durham is mostly zoned for agricultural uses on parcels with a minimum

parcel size of 20 to 40 acres. One potential development within the District is located on a 40-acre parcel located on the east side of Durham, which is proposed to be developed with 40 1-acre single-family residential parcels.

The following table provides population data for the unincorporated area of Butte County, and for Butte County as a whole, for the years 2010 to 2016:²

	4/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	2010-2016 Growth Rate	Compound Annual Growth Rate 2010-2016
Unincorporated	83,758	83,966	83,270	82,622	82,563	82,371	80,262	-4.2%	-0.7%
County Total	220,000	220,828	221,064	222,250	223,120	224,121	224,601	2.1%	.35%

The above table shows that the population of the unincorporated area of Butte County has decreased by approximately 4.2 percent since 2010. Most, if not all, of this population decrease can be attributed to the annexations of a large number of developed parcels to the cities within the county, primarily to the City of Chico.

The growth rate of Butte County as a whole for 2010 to 2016 was 2.1 percent, which is a compound annual growth rate of approximately 0.35 percent. The population growth rate during this period was lower than previous years due to the slowdown in the economy and in the housing market that began in 2008.

In March 2017, the State of California Department of Finance released updated population growth projections for all of the counties within the state³. The population projection for Butte County shows that by 2060 the county may have a population of 292,892. The 2060 projected population is approximately 30.5 percent above the county's current population, which represents an approximate compound annual growth rate of 1.03 percent.

CALIFORNIA DEPARTMENT OF FINANCE POPULATION PROJECTIONS FOR BUTTE COUNTY 2020-2060

Estimates		Projections								
2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
220,157	224,363	230,709	238,546	247,339	256,042	263,642	270,612	277,512	285,290	292,892

The population of the Durham Mosquito Abatement District is expected to grow at a rate of approximately 1 percent a year, with most of that growth occurring within the incorporated community of Durham. The following table shows estimated population projections for the Durham Mosquito Abatement District.

POPULATION PROJECTIONS FOR DURHAM MOSQUITO ABATEMENT DISTRICT - 2017-2030

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
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² State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties, and the State, 2011-2016, with 2010 Census Benchmark*. Sacramento, California, May 2016.

³ State of California, Department of Finance, *P-2: County Population Projections (2010-2060)*. Sacramento, California, March 8, 2017.

4,200	4,242	4,284	4,327	4,371	4,414	4,458	4,503	4,548	4,593	4,639	4,686	4,733	4,780
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Population growth within the Durham area could be significantly greater than 1 percent annually if a sanitary sewer system is constructed to serve the area. However, there are no known plans for a sanitary sewer system to be constructed in the Durham area.

As population increases, and growth occurs within the District, service demands will increase. Urban areas provide breeding habitats for mosquitoes (stagnant water), and treatment becomes more difficult and costly, as treatment needs occur more on individual private properties. Expansion of services is facilitated by increases in revenues due to increases in property tax income and the collection of assessment fees from new development.

MSR DETERMINATION 1-1: POPULATION	
	<i>The District has a current population of approximately 4,200 people.</i>

MSR DETERMINATION 1-2: POPULATION GROWTH	
	<i>The population of the Durham Mosquito Abatement District as a whole is expected to grow at a rate of approximately 1 percent annually. Future population growth within the District is expected to occur primarily within the unincorporated community of Durham.</i>

MSR DETERMINATION 1-3: POPULATION GROWTH AND NEW SERVICE DEMANDS	
	<i>As population increases, and growth occurs within the DMAD, service demands will increase. Expansion of services by DMAD is facilitated by increases in revenues due to increases in property tax revenue and individual parcel assessment fees from new development.</i>

MSR FACTOR NO. 2: THE LOCATION AND CHARACTERISTICS OF ANY DISADVANTAGED UNINCORPORATED COMMUNITIES WITHIN OR CONTIGUOUS TO THE SPHERE OF INFLUENCE.

Disadvantaged unincorporated communities (DUCs) are defined by statute as inhabited territory (meaning 12 or more registered voters), or as determined by commission policy, that constitutes all or a portion of a community with an annual median household income (MHI) that is less than 80 percent of the statewide annual MHI (Water Code Section 79505.5). The statewide MHI data is obtained from the US Census American Community Survey (ACS) 5-Year Data: 2010 - 2014. California's MHI for this period was \$61,489, and 80 percent of that is \$49,191.

Median household income data is available at the U.S. Census block group mapping level. Based upon the MHI data for the U.S. Census block groups within the boundaries of the District, there are no areas within the District that are identified as being disadvantaged unincorporated communities.

MSR DETERMINATION 3-1: DISADVANTAGED UNINCORPORATED COMMUNITIES	
	<i>No areas within the Durham Mosquito Abatement District are identified as being a disadvantaged unincorporated community (DUC).</i>

MSR FACTOR No. 3: PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES, ADEQUACY OF PUBLIC SERVICES, AND INFRASTRUCTURE NEEDS OR DEFICIENCIES INCLUDING NEEDS OR DEFICIENCIES RELATED TO SEWERS, MUNICIPAL AND INDUSTRIAL WATER, AND STRUCTURAL FIRE PROTECTION IN ANY DISADVANTAGED, UNINCORPORATED COMMUNITIES WITHIN OR CONTIGUOUS TO THE SPHERE OF INFLUENCE.

FACILITIES

The District's office/maintenance shop is located at 9202 Midway, Durham, on a 0.17-acre parcel. Until recently, the District leased the parcel from the County of Butte for \$1 per year, but the County recently transferred ownership of the parcel to the District. In 1977, the District improved the parcel with a 30' x 60' (1,800 sq. ft.) steel building that provides space for an office, vehicle/equipment storage, and repair equipment. Insecticides and other sensitive materials are stored in a large, locked, shipping container located outdoors adjacent to the building. The District's building does not contain adequate space for the District's Board of Trustees to meet in, but the building was never intended for that use.



DURHAM MOSQUITO ABATEMENT BUILDING

The District has no plans to make any significant improvements to their building. The District is currently receiving quotes to resurface the District parking lot, which is still usable but deteriorating.

The District's office is *generally* open Monday through Friday, 7 a.m. to 4 p.m. However, the office may be closed at times during these hours because the District Manager and the District's part-time administrative assistant/bookkeeper/secretary may be out of the office or in the field providing services. During the mosquito season (generally May through September), the District office is generally open from 7 a.m. to 2 p.m., and then reopens a half hour before sunset for three hours to conduct evening fogging operations. Residents of the District can leave a voice mail if no one is in the office to answer the phone. The District Manager returns calls as soon as possible. The District Manager has a mobile phone, provided by the District, to receive and make calls while away from the District office.

DISTRICT EQUIPMENT

The District has various types of equipment that is utilized to perform mosquito abatement services. Equipment includes office equipment, three pickup trucks, four ultra low volume truck-mounted foggers (one of which is new), and various tools such as hand-held foggers, backpack sprayers, and hand-held sprayers. The District also has several large fish tanks to hold mosquitofish.

The District's ultra low volume foggers are utilized for three to five years and then replaced. The foggers are cycled asynchronously so that the District always has at least two foggers that are no greater than two years old. Maintenance of the foggers is performed by District staff. The foggers, which are mounted in the beds of the District's trucks, are gas-powered and are operated remotely via cable by the drivers.



DMAD ULTRA LOW VOLUME FOGGER

The District's trucks are all Chevrolet 1500 models. Two of the trucks have regular cabs and were made in 2005, while the third truck has an extended cab and was manufactured in 2007. According to the District, all three trucks have very low miles on them.

The District replaces their trucks as necessary and has budgeted for the purchase of a new truck within the next two years. The district performs all minor maintenance services on trucks. Vehicles requiring major repairs are taken to a



DMAD TRUCK WITH FOGGING UNIT

certified vehicle repair business. Until several years ago the District would perform oil changes on the trucks, but now has oil changes performed by a private business, finding that it was less expensive and time consuming to do it this way.

There are approximately 9,900 acres of rice fields and wetlands within the District, but the District does not have the necessary operating revenue, equipment, or personnel to provide targeted, effective mosquito abatement services to these areas. The equipment that would be needed to provide mosquito abatement service to the rice fields can include quad runners, boats, amphibious vehicles, and, most importantly, aircraft, which would allow for very efficient and effective application of control agents.

ADEQUACY OF PUBLIC SERVICES

As previously noted, DMAD provides the following services:

- Larvacide applications (control products applied directly to breeding sources to kill mosquito larvae).
- Adulticide applications (control products applied using ultra low volume foggers to kill adult mosquitoes).
- The District provides mosquitofish free of charge. The mosquitofish can be picked up at the District office and are distributed at several locations.
- Surveillance: The District uses two light traps to track mosquito populations during the mosquito season (generally May through October). The two light traps are placed on the edge of the rice fields within the District. The District does not sort the trapped mosquitoes by species nor tests the trapped mosquitoes for viruses.

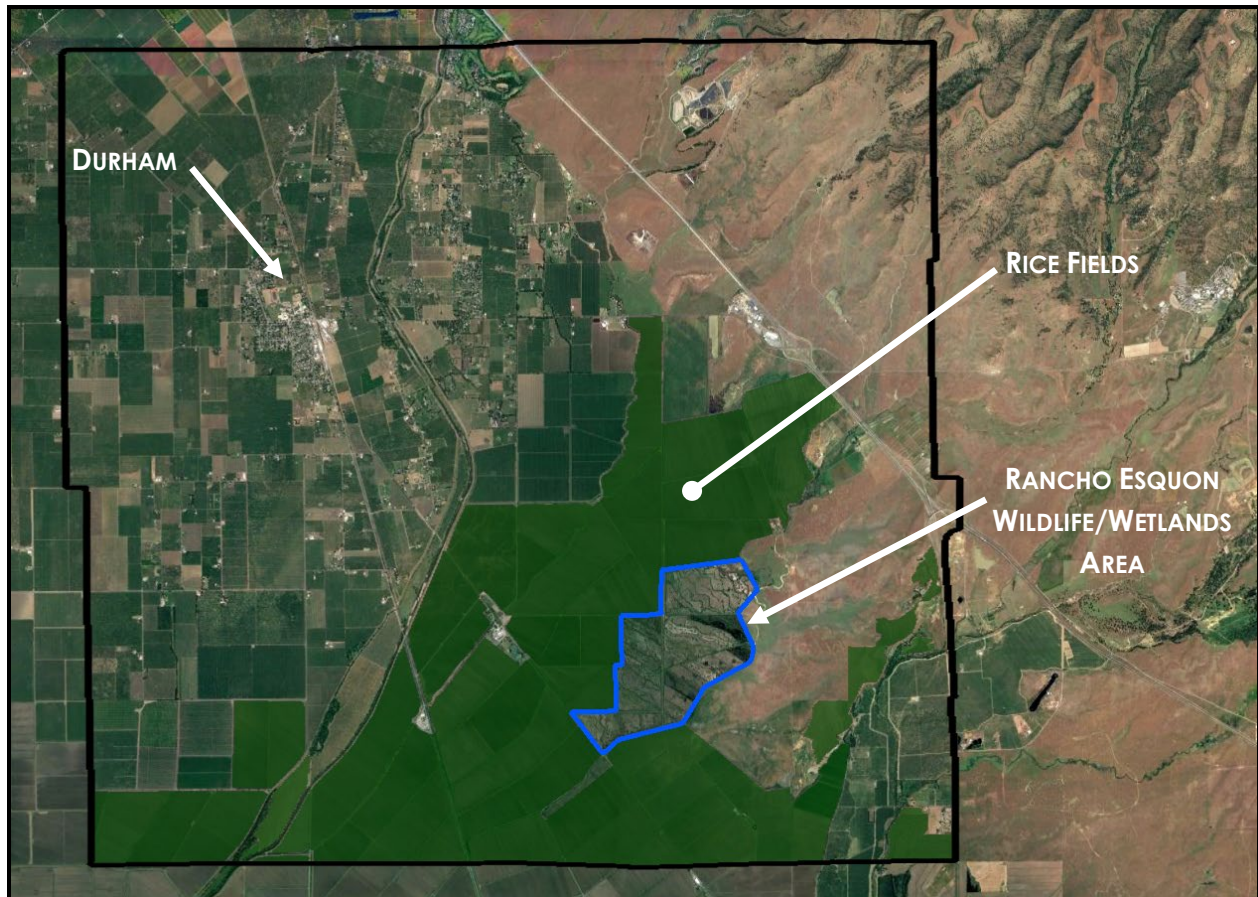
The District does not collect or submit dead bird specimens to the State for testing of West Nile virus, although the District has done so in the past.

- The District Manager provides public information talks to local groups and schools to keep the public informed.
- The District provides localized and personal mosquito abatement services for special events, plus continuous control for schools and parks.
- The District provides year round service.

DMAD's District Manager has indicated that one of the benefits of a smaller local district to District residents is the personalized service provided on an as needed basis.

Given the District's very limited funding, its primary mosquito abatement strategy is aimed at eradicating adult mosquitoes in residential and business areas within the District where humans may congregate or live because the District has determined that it is impractical to eradicate mosquitoes from the whole of the District boundaries.⁴ This impracticality arises from the fact that mosquitoes can breed in one area and can travel up to 20 miles in their life span. This is the case with the majority of mosquitoes in the Durham area in that they are bred predominantly in areas where substantial irrigation water is applied and stands on the land surface (such as rice fields and wetlands). The mosquitoes originating from the rice fields and wetlands in the south and southeast portions of the District migrate outwards to other parts of the District where humans congregate and to areas outside of the District. The following map shows the location of the rice fields and the Rancho Esquon wildlife/wetlands area located within the District.

⁴ Engineer's Report Regarding Durham Mosquito Abatement District for Potential Proposition 218 Benefit Assessment, 2003.



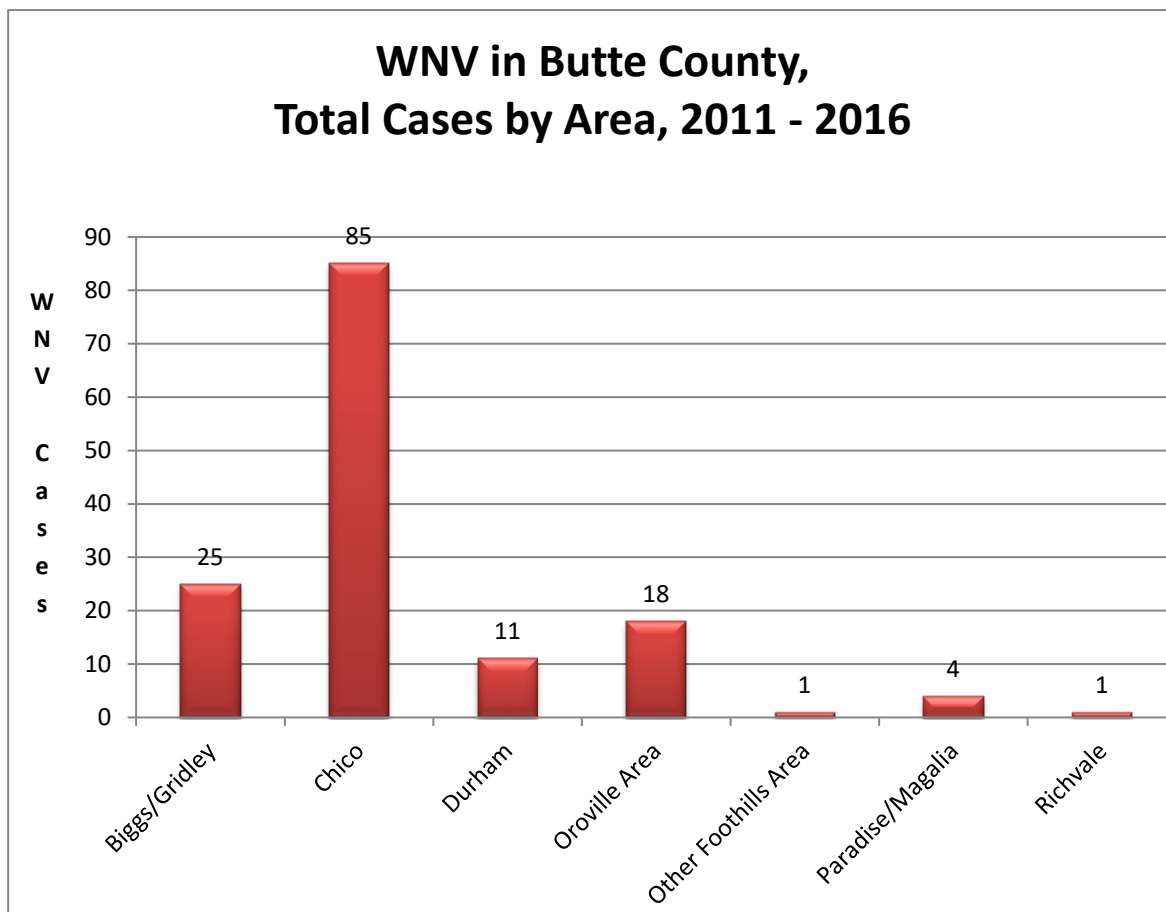
RICE FIELDS AND WETLANDS LOCATED WITHIN DMAD JURISDICTIONAL BOUNDARIES

The strategy of the District is to use its chemicals, fogging and labor force to try to create barriers to the migration of adult mosquitoes from these flooded agricultural and wetland areas to the residential portions of the District. The strategy is not to eradicate the breeding of mosquitoes in all areas adjacent to residences, but instead to set up regional barriers to interrupt the migration pattern from the large-scale agricultural and wetland operations to the southeast to the residential and business areas to the north and west.

The second prong of the District's effort and expenditure of limited resources is to focus upon particular residential areas in which landowners are noting substantial mosquito populations/activity. A particular home may not receive fogging or chemical activity in a given year, but that may be a result of the benefit of the expenditure in creating a migration barrier from other areas. The District tries to spray each street in the more heavily populated portions of the District three times a week between March and August, weather permitting.

The District's primary strategy of preventing large populations of adult mosquitoes from reaching the more populated areas of the District, and not treating the numerous rice fields and the wetlands in the District, is logical given the District's limited operating budget. However, this approach to mosquito control is analogous to aggressively

treating the symptoms of a disease rather than addressing the root cause. In other words, it is accepted that the district cannot treat vast areas of mosquito breeding grounds or larvae, so they focus on reducing adult mosquitoes where they are most problematic - where people live. This focus on adult eradication appears to be in conflict with the strategies reported in the Pesticide Application Plan submitted to the State Water Resources Control Board, which states "Adult mosquito control is a last resort option..." This strategy appears to be adequately addressing mosquito populations in the more populated areas of the District given that there have been no identified outbreaks of mosquito-borne diseases within the District and the residents of the District, based on a lack of complaints, appear to be satisfied with the level of services the District currently provides. Although there does not appear to be significant public health issues related to mosquito-borne diseases in the District, the Butte County Public Health Department reports that 11 cases (by residence) of West Nile virus has been identified within the Durham area over the past six years (it should be noted that the infection may not have occurred at the place of residence or occurred within DMAD's jurisdictional boundaries). The below chart, provided by the Public Health Department, represents West Nile virus cases (by residence) over the past six years for communities and cities within Butte County.⁵



⁵ Butte County Public Health Department, Community Health and Sciences Office, letter, dated May 31, 2017.

The District's primary strategy of preventing large populations of adult mosquitoes from reaching the more populated areas of the District could result in significant nuisance and public health issues if mosquito populations from the rice fields and wetlands exceed the District's ability to prevent large numbers of adult mosquitoes from migrating to the populated areas of the District or to areas outside of the District's boundaries.

There are approximately 9,000 acres of rice fields within the District. Rice culture, as well as other irrigated agricultural situations, can provide a suitable environment for mosquito breeding. In cases where these agricultural lands interface with urbanized or public areas, mosquitoes can be a public nuisance, and certain mosquito species can create health problems for humans and livestock.⁶

Mosquito control in rice fields is often carried out primarily by mosquito abatement or vector control personnel who are authorized to visit rice fields and treat for mosquito infestations. Mosquito abatement or vector control districts combine a variety of methods to manage mosquitoes in rice fields including insecticide application and stocking fields with the mosquito-eating fish, *Gambusia affinis*. Some mosquito control agencies use the bacteria *Bacillus thuringiensis israelensis* (Bti) and *B. sphaericus* (Bs), which are effective in killing mosquito larvae, yet have low toxicity to other organisms. Agencies also use ultra-low volume pesticide fogs to control flying adult mosquitoes in rice-growing areas (usually pyrethroids or malathion). These fogs do not kill the fish, insects, and some of the other invertebrates in the water.

The Durham Mosquito Abatement District does not have the necessary equipment, staff, or revenue to provide mosquito abatement services to the rice fields. Not providing ongoing mosquito abatement services to the rice fields could result in extremely large mosquito populations that migrate to other areas of the District, such as the highly populated community of Durham, and to areas outside of DMAD's boundaries. The rice fields within DMAD's boundaries represent a very significant potential public health issue that is not currently being abated by the District.

SERVICE REQUESTS

A major factor influencing service demand is the presence of vectors (in particular mosquitoes) and vector-borne disease agents within the District and neighboring areas. The District actively responds to service requests within its boundaries. Any property owner, business, or resident in the District may contact the District to request mosquito abatement service and District staff will respond promptly to the particular property to evaluate the property and situation and to perform appropriate control services. The District responds to all service requests in a timely manner, regardless of location, within its boundaries.

Although the primary goal of the District is to prevent adult mosquitoes from reaching the more populated areas of the District, it should be noted that the District does have

⁶ *UC IPM Pest Management Guidelines: Rice*. UC ANR Publication 3465 (<http://ipm.ucanr.edu/PMG/r682000411.html#REFERENCE>). The University of California Statewide IPM Program (UC IPM)

a preventative program that controls larval mosquitoes before they emerge. With this program, the residents of the District will see fewer biting adult mosquitoes and fewer cases of vector borne diseases. Consequently, service requests alone are not a good indicator of the level of demand for the District's services. The preventative work that DMAD performs helps keep the number of service calls related to mosquito biting activity low and prevents cases of disease.

MSR DETERMINATION 3-1: ADEQUACY OF PUBLIC SERVICES	
	<i>DMAD's primary mosquito abatement strategy is to prevent large numbers of mosquitoes from reaching the more populated areas of the District, mostly by fogging operations to kill adult mosquitoes at the interface with agricultural uses and in the populated areas of the District.</i>

MSR DETERMINATION 3-2: ADEQUACY OF PUBLIC SERVICES	
	<p><i>While DMAD aggressively pursues adult mosquito eradication through consistent fogging, it does not have a comprehensive vector control strategy that is based on an adopted Integrated Vector Management Plan (IVMP). The District should immediately develop, adopt, and make publicly available an IVMP that clearly details its vector control strategy that includes a reasonable and effective plan to address currently unmet needs in the vast agricultural areas where mosquito breeding grounds surround populated areas of the District. The integrated vector management plan should, at a minimum, include the following elements:</i></p> <ol style="list-style-type: none"> <i>1. Outreach and education;</i> <i>2. Mosquito surveillance;</i> <i>3. Treatment thresholds;</i> <i>4. Biological and microbial control;</i> <i>5. Physical and cultural control; and</i> <i>6. Chemical control.</i> <p><i>The DMAD District Manager has recently indicated that the District will adopt and implement an integrated pest management program. It is vitally important to public accountability that the District maintain adequate records/documentation that demonstrates how each of the IVMP factors have been implemented and evaluated for effectiveness.</i></p>

MSR DETERMINATION 3-3: ADEQUACY OF PUBLIC SERVICES	
	<i>DMAD has sufficient facilities and resources to provide basic, but not comprehensive, mosquito abatement services only to the more populated areas of the District, such as the unincorporated community of Durham and the Butte Creek Estates Subdivision.</i>

MSR DETERMINATION 3-4: ADEQUACY OF PUBLIC SERVICES - INFRASTRUCTURE NEEDS OR DEFICIENCIES	
	<p><i>DMAD does not have the equipment, staff, or funding to provide mosquito abatement services to the numerous rice fields and the wetlands found in the south and southeast portions of the District.</i></p> <p><i>The District should consider whether it can realistically increase services to these agricultural and open space areas to reduce breeding grounds or whether these areas should be detached from DMAD and annexed into the BCMVCD, which has the resources, primarily aerial application resources, to better address significant mosquito populations in these areas.</i></p>

MSR DETERMINATION 3-5: ADEQUACY OF PUBLIC SERVICES - INFRASTRUCTURE NEEDS OR DEFICIENCIES	
	<p><i>The District has no unmet infrastructure needs or deficiencies concerning the provision of basic, but not comprehensive mosquito abatement services to the more populated areas of the District. However, the District does not have adequate operating revenues, equipment, or staff to provide mosquito abatement services to the numerous rice fields and the wetlands found within the boundaries of the District. The lack of mosquito abatement operations on the rice fields represents a significant public health issue that needs to be abated.</i></p>

MSR DETERMINATION 3-6: ADEQUACY OF PUBLIC SERVICES - EQUIPMENT	
	<p><i>District equipment appears to be adequately maintained and is replaced as necessary to ensure uninterrupted mosquito abatement operations.</i></p>

MSR FACTOR NO. 4: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES.

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

Each year the District's District Manager prepares and submits an operating budget to the Board of Trustees for the upcoming fiscal year. The Board of Trustees reviews and approves of the budget prior to the beginning of each fiscal year.

As required by California Health and Safety Code §2027(c), the District's funds are deposited with and maintained by the Butte County Treasurer and Tax Collectors Department. The funds that the District deposits with the County Treasurer are placed in the County's Investment Trust Fund, which accounts for the assets of legally separate

entities that deposit cash with the County Treasurer in an investment pool, which commingles resources in the investment portfolio for the benefit of all participants. The District receives dividends from the Investment Trust Fund. Because the County Treasurer and Tax Collectors Department maintains the District's funds, the District's annual budget is included as a part of the County's overall annual budget.

Revenues

The District receives revenue from two main sources:

- **Ad-valorem Property Taxes**

In Fiscal Year 2015-16, approximately 63 percent (\$89,006) of DMAD's revenues were received from the District's share of the ad valorem property tax. Ad-valorem⁷ 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 revenue from property taxes can be considered relatively consistent, as the taxes usually remain at the same level from year to year. However, property tax revenue can decrease due to decreasing property values, which is what occurred beginning in 2008 because of the downturn in the economy and housing market. Due to the downturn in the economy, properties were reassessed to a lower value, which reduced property tax revenue flowing to cities and special districts. Revenue from property taxes has been increasing over the last few years as properties are reassessed to a higher value, but remain below pre-2008 levels. New development on a property raises the property value of that parcel, with a corresponding increase in property tax revenues.

The Butte County Tax Collector's Office bills and collects the District's share of property taxes and assessments. The Butte County Treasurer's Office remits current and delinquent property tax collections to the District throughout the year.

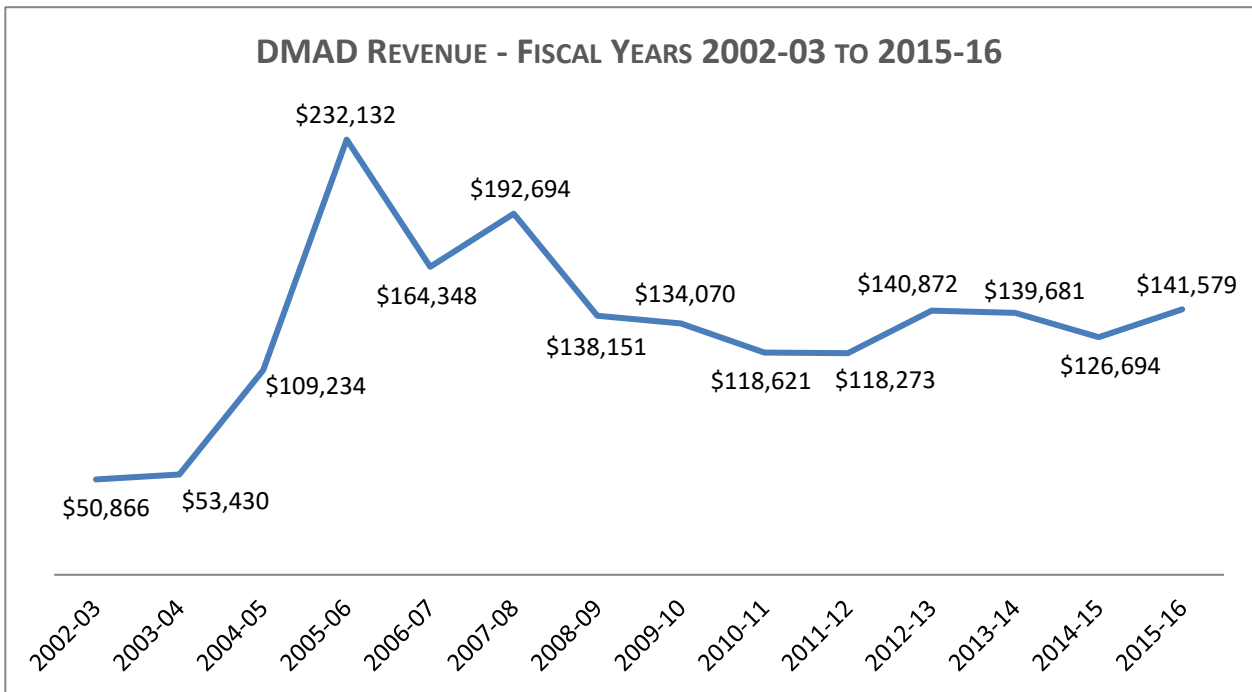
- **Assessment Fees**

In Fiscal Year 2015-16, approximately 34 percent (\$48,011) of DMAD's revenues were received from special benefit parcel assessments. The maximum assessment fee is \$25 per parcel for parcels up to 100 acres in size and the maximum assessment for parcels greater than 100 acre in size is \$25 per parcel plus \$.50 per acre. The actual amount of the collected annual assessment varies upon the size of the District's available fund balance and anticipated expenditures. The assessment was approved on June 17, 2004, by the registered voters within the District and passed by 69.2 percent.

Revenues for the District have remained relatively steady over the last five years, with some minor fluctuations. Revenue for the District in Fiscal Year 2015-16 was \$141,579, and revenue for the current fiscal year (2016-17) is estimated to be \$135,150. District

⁷ Latin for "according to value"

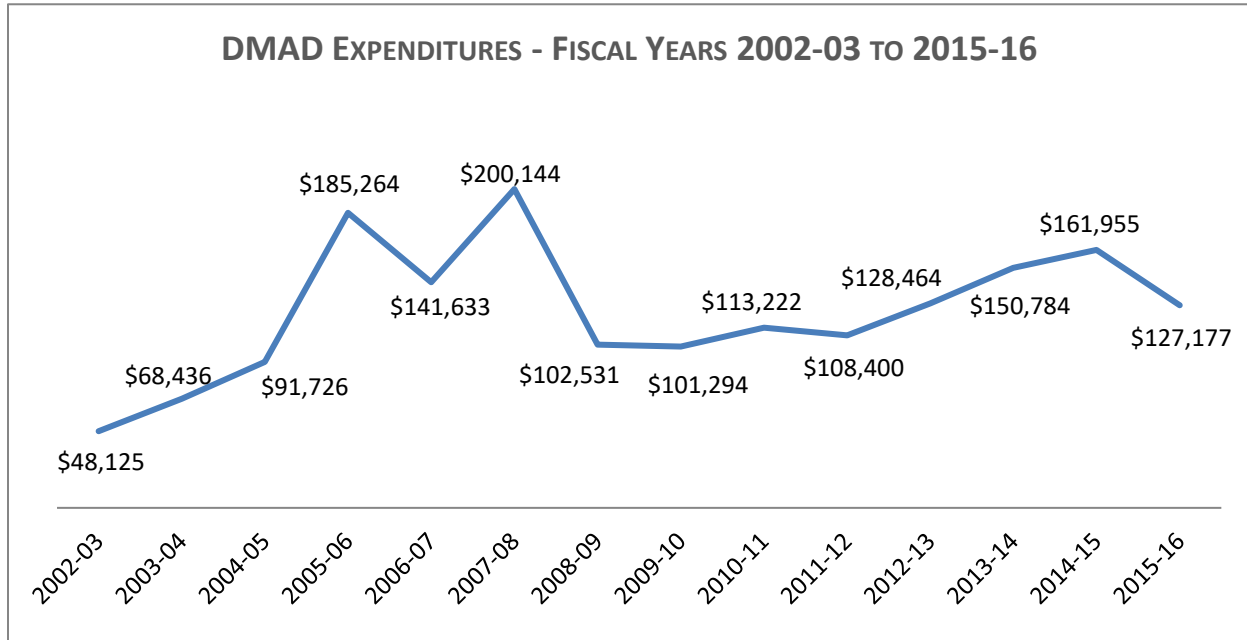
revenues rose dramatically after the District's special benefit assessment was approved in 2004. Prior to the approval of the assessment, annual District revenues were usually less than \$55,000. The following chart shows the District's revenues for Fiscal Years 2003-04 to 2015-16.



EXPENDITURES

Total operating and capital expenditures for the District for Fiscal Year 2015-16 was \$127,177. Expenditures for BCMVCD generally consist of salaries and employee benefits, services and supplies (costs for pesticides, fuel, insurance, maintenance) and fixed (capital) assets expenditure (purchase of new vehicles or equipment). In Fiscal Year 2015-16, salaries and employee benefits (\$83,292) accounted for 65.5% of the District's expenditures and services and supplies (\$43,885) accounted for 34.5% of the District's expenditures. In Fiscal Year 2015-16, there were no expenditures for fixed assets.

District expenditures vary from year to year, reflecting the amount of revenue received and any high-cost purchases, such as a vehicle or fogging equipment. Since Fiscal Year 2002-03, in which expenditures were \$48,125, District expenditures gradually increased, reaching a high of \$200,144 in Fiscal Year 2008-09. As shown on the following graph, District revenues rose dramatically after the District's special benefit assessment was approved in 2004.



DMAD ANNUAL BUDGETS

A special district's budget is a financial plan that details the district's projected revenues and expenditures for a defined period of time, usually one fiscal year (July 1 to June 30.) Special districts typically have operating budgets, which is a plan of current (annual) spending and the means to pay for it (taxes, fees, etc.). As previously noted the District prepares a budget for each fiscal year that shows anticipated revenue and anticipated expenditures (appropriations).

The District's budgets for Fiscal Years 2012-13 to 2016-17 are shown in the below table. The budgets for FY 2012-13 to 2015-16 show the actual revenue and expenditure figures, while the FY 2016-17 budget shows the budget as adopted by the District Board of Trustees and only reflects anticipated revenues and appropriations (anticipated expenditures).

DURHAM MOSQUITO ABATEMENT DISTRICT					
Detail by Revenue Category and Expenditure Object	2012-13 Actuals	2013-14 Actuals	2014-15 Actuals	2015-16 Actuals	2016-17 Adopted By District Board
REVENUES*					
Current Secured Property Tax	90,348	76,059	78,607	83,696	81,000
Current Supplemental Property Tax	283	486	752	779	450
Current Unsecured Property Tax	4,558	4,067	4,042	4,378	4,500
Prior Unsecured Property Tax	113	161	94	153	100
Interest	2,097	1,596	1,650	1,441	1,600
Fair Market Value Adj - Unrealized Gain (Loss)	(3,029)	1,226	115	1,115	-
Homeowners Property Tax Relief	1,535	1,260	1,253	1,239	1,500
Charges For Current Services	39,476	39,551	39,530	48,011	44,000
Miscellaneous Revenue	-	-	-	-	2,000
Reimbursement of Prior Year Expense	2,462	16,501	765	767	-
TOTAL REVENUES	\$137,843	\$140,907	\$126,808	\$141,579	\$135,150
EXPENDITURES/APPROPRIATIONS*					
Salaries and Employee Benefits	82,786	102,127	94,908	83,292	100,000
Services and Supplies	45,678	48,656	67,047	43,885	60,000
Fixed Assets	-	-	-	-	20,000
Appropriation for Contingencies	-	-	-	-	-
TOTAL EXPENDITURES / APPROPRIATIONS	\$128,464	\$150,783	\$161,955	\$127,177	\$180,000
NET COSTS / USE OF FUND BALANCE	\$9,379	(\$9,877)	(\$35,147)	\$14,402	(\$44,850)

The budgets for Fiscal Years 2013-14 and 2014-15 show that expenditures exceeded revenues for each of these fiscal years. According to the District, in Fiscal Year 2013-14, District expenditures exceeded revenues due to the unanticipated purchase of an \$11,000 fogging unit. Expenditures exceeding revenues in Fiscal Year 2014-15 was due to unanticipated expenses associated with the preparation of several years of financial audits (Fiscal Years 2009-10 through 2013-14) and consulting fees for accounting services.

The adopted budget for Fiscal Year 2016-17 shows that expenditures are projected to exceed revenue by \$44,850. According to the District, the full amounts of the appropriations shown in the adopted budget are not expected to be fully utilized, which will probably not result in a budget deficit. The District stated that appropriations are usually budgeted higher than what are actually expected to be expended, stating that it is very difficult to obtain additional funds from the County if it is not included in the District's adopted budget.

FUND BALANCES

DMAD maintains a fund balance, and as of June 30, 2016, the District had \$121,275 in available (unappropriated) fund balance. The following table shows the District's available fund balance from Fiscal Years 2008-09 through 2015-16.

DURHAM MOSQUITO ABATEMENT DISTRICT UNAPPROPRIATED FUND BALANCES	
Fiscal Year 2015-16	\$121,275
Fiscal Year 2014-15	\$56,872
Fiscal Year 2013-14	\$92,019
Fiscal Year 2012-13	\$131,896
Fiscal Year 2011-12	\$142,517
Fiscal Year 2010-11	\$159,571
Fiscal Year 2009-10	\$179,571
Fiscal Year 2008-09	\$146,144

For public agencies, unappropriated fund balances are not just money in a bank; they are fundamental resources for ensuring reliable core services and community security.⁸ Public agencies designate money toward savings in order to balance their budget, respond to emergencies, keep rates affordable, maintain current infrastructure and plan for future public works projects. The following are the benefits of a public agency maintaining an adequate level of unappropriated fund balance:

- **Balancing Budgets** – Over the course of the fiscal year, fund balances help balance the ebb and flow of revenues verse expenditures.
- **Emergency Preparation** – In the event of a disaster, communities can't afford not to have savings readily available to quickly repair critical local infrastructure and bring core services back online.
- **Affordable Rates** – With appropriate savings, special districts are able to use resources wisely and smooth out the highs and the lows of volatile economic conditions, rather than spend their entire surplus and then seek new revenue or jeopardize services.
- **Infrastructure Maintenance** – Reserves mean the pipes are fixed, roofs are patched, and worn equipment is replaced without going back to the taxpayers or ratepayers to pay for routine upkeep.
- **Planning for the Future** – A long-term, thoughtful approach to public infrastructure requires the foresight to plan for, and discipline to save for, future needs.

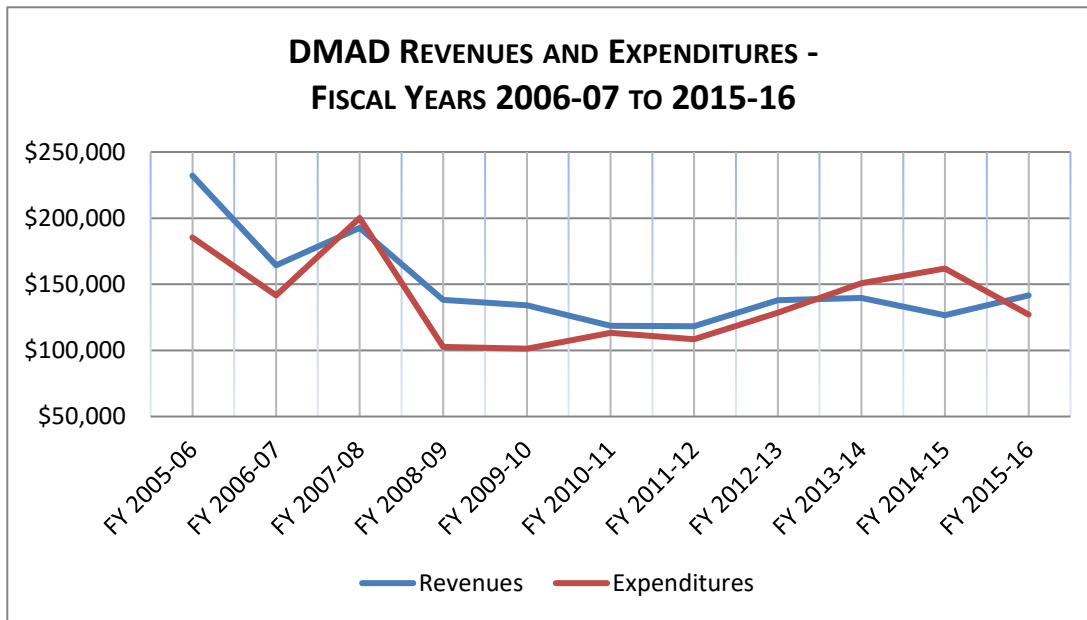
The District's unappropriated fund balance has varied slightly over the years in response to unanticipated expenses and reduced revenues. According to the District Manager, the District tries to maintain a fund balance that is large enough to fund District operations for a one-year period.

BUDGET DEFICITS

As shown in the following table and graph, DMAD experienced budget deficits (where expenditures exceeded revenues) in three of the last ten fiscal years. The following table and chart show the revenue and expenditures for these fiscal years and the revenue/expenditure variances.

⁸*Special District Reserve Guidelines - A Guide to Developing a Prudent Reserve*. Second edition. California Special Districts Association. 2013.

Fiscal Year	Revenues	Expenditures	Variance Favorable (Unfavorable)
2005-06	\$232,132	\$185,264	\$46,868
2006-07	\$164,348	\$141,633	\$22,715
2007-08	\$192,694	\$200,144	(\$7,450)
2008-09	\$138,151	\$102,531	\$35,620
2009-10	\$134,070	\$101,294	\$32,776
2010-11	\$118,621	\$113,222	\$5,399
2011-12	\$118,273	\$108,400	\$9,873
2012-13	\$137,843	\$128,464	\$9,379
2013-14	\$140,907	\$150,783	(\$11,103)
2014-15	\$126,808	\$161,955	(\$35,147)
2015-16	\$141,579	\$127,177	\$14,402



Budgets are meant to balance revenues and expenditures, so that a public agency is able to provide needed services with the resources available. However, the reality is that budgets will rarely work out precisely as planned, leading to operating deficits (when expenditures exceed revenues) or operating surpluses (when revenues exceed expenditures.) As long as these deficits or surpluses are minor or intermittent, they do not constitute a material problem for a local government and should not be cause for concern. It is when there is a persistent pattern of larger surpluses or deficits that there should be concern about the budgeting practices of the agency.⁹

⁹ Citizens' Guild to Local Budgets, Office of the New York State Comptroller-Division of Local Government and School Accountability. 2010.

An agency experiencing a budget deficit can use fund balance or other reserves, if available, to balance their budget. However, using the fund balance is a one-time course of action that cannot fix a structural imbalance. A district experiencing continuous budget deficits may be having financial difficulties that need to be identified and corrected. If budget deficits cannot be corrected, a district may have to reduce service levels if new sources of funding cannot be obtained.

The District's budget deficit of \$11,103 in Fiscal Year 2013-14 was due to the unanticipated purchase of a sprayer unit, while the budget deficit of \$35,261 in Fiscal Year 2014-15 was due to unanticipated expenditures for the preparation of several years of financial audits and for consulting fees for accounting services. These budget deficits do not appear to be an indication that the District is having any systemic financial difficulties.

NET PENSION LIABILITY (CALPERS)

The DMAD District Manager is the only District employee with a CalPERS pension plan. CalPERS retirement benefits are funded through contributions paid by contracting employers, member contributions, and earnings from CalPERS investments. Employer contribution requirements are determined by periodic actuarial valuations under state law. Actuarial valuations are based on the benefit formulas the agency provides and the employee groups covered. The benefit formula for OMAD is 2.0% at age 60.

As of the fiscal year ended June 30, 2015, the District had \$20,396 in net pension liabilities for its proportionate shares of the net pension liability of the District's pension plan. The net pension liability is defined as the unfunded liability for the pension benefits promised to current employees, retirees, and their beneficiaries. As of June 30, 2015, the District's pension plan had an accrued liability of \$104,149, which is the value of benefit earned for past service.

For Fiscal Year 2016-17 the District's normal cost (NC) rate for the District Manager's pension plan is 7.612% of the District's Manager annual salary.¹⁰ For FY 2016-17, the District's estimated employer normal cost is \$4,043. For the current fiscal year, the District's estimated unfunded accrued liability (UAL) annual payment is \$1,765.¹¹ The total annual cost to the District for the District Manager's pension plan for FY 2016-17 is estimated to be \$5,808 (\$4,043 employer normal cost plus \$1,765 unfunded accrued liability cost). The following table shows the District's current, past fiscal year, and the next fiscal year's unfunded accrued liability annual payment and the normal cost rate.

Employer Plan	NC Rate FY 2017-18	UAL 2017-18	NC Rate FY 2016-17	UAL 2016-17	NC Rate FY 2015-16	UAL FY 2015-16
Miscellaneous	7.653%	\$2,002	7.612%	\$1,765	7.163%	\$1,600

¹⁰ Normal Cost (NC) Rate represents the annual cost of service accrual for the upcoming fiscal year for active CalPERS employees. Normal cost is shown as a percentage of payroll and is paid as part of the payroll reporting process.

¹¹ Annual payment on the Unfunded Accrued Liability (UAL) is the amortized dollar amount needed to fund past service credit earned (or accrued) for members who are currently receiving benefits, active members, and for members entitled to deferred benefits, as of the valuation date. The UAL is billed monthly.

The following table shows projected CalPERS employer contributions for DMAD up to Fiscal Year 2022-23.

Fiscal Year	Required Contribution	Projected Future Employer Contributions				
	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Normal Cost %	7.653%	7.7%	7.7%	7.7%	7.7%	7.7%
UAL \$	\$2,002	\$2,349	\$2,715	\$2,969	\$3,237	\$3,443

The District's CalPERS cost will gradually increase and by Fiscal Year 2022-23 the District's annual CalPERS costs will be almost \$1,500 greater than the District's current cost. It should be noted that at its December 21, 2016 meeting, the CalPERS Board of Administration approved lowering the CalPERS discount rate assumption, which is the long-term rate of return, from 7.50 percent to 7.00 percent over the next three years. Lowering the discount rate means plans will see increases in both the normal costs (the cost of pension benefits accruing in one year for active members) and the accrued liabilities. These increases will result in higher required employer contributions, although the increased amount is not known at this time.

ANNUAL FINANCIAL AUDIT/FINANCIAL REPORTS

California Health and Safety Code §§2079(a) and (b) require that board of trustees of a mosquito abatement district to provide for regular audits of the district's accounts and records pursuant to Section 26909 of the Government Code, and that the board of trustees shall provide for the annual financial reports to be filed with the State Controller. State Law requires that every public agency retain the services of a certified public accountant to prepare that agency's annual financial audit. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in an agency's financial statements. Financial statements include all transactions for which a public agency is financially accountable. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

DMAD did not have financial audits/financial reports prepared for five consecutive fiscal years - Fiscal Years 2009-10 through 2013-14 – in a timely manner. Once the District was aware the fiscal reports were tardy, the District had a comprehensive financial audit/financial report prepared for those fiscal years in July 2015. The financial audit/financial report for Fiscal Year 2014-15 was also tardy, and a comprehensive financial audit/report for Fiscal Years 2014-15 and 2015-16 was completed in April 2017.

The District's financial statements include all transactions for which the District is financially accountable. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

The District's Annual Financial Report for Fiscal Years 2009-10 through 2013-14 found one material deficiency and three significant deficiencies in the District's internal control of financial reporting. A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than material weakness, yet important enough to merit attention by those charged with governance. As identified in the District's comprehensive financial report for Fiscal Years 2009-10 through 2013-14, the weaknesses found in the District's internal control of their finances were:

❖ **Significant Deficiency 2014-01**
Internal Control- Cash Disbursements

Condition

Board minutes, check registers, and invoices or other supporting documentation for cash disbursements could not be located for July 2009.

Criteria

Signed and approved copies of board minutes and check registers along with supporting documentation for all cash disbursements should be properly maintained.

Effect

We were unable to test approval and validity of cash disbursements for July 2009 and were unable to review Board of Director actions taken in July 2009.

Recommendation

We recommend that the District implement procedures to insure that all supporting documentation is maintained for disbursements and that all actions of the Board of Directors are properly documented.

Management's Response

Management will adopt procedures during the fiscal year ending June 30, 2016, to implement the recommendation.

Current Status¹²

Fully implemented

**❖ Significant Deficiency 2014-02
Internal Control- Payroll (Timecards)****Condition**

Timecards are not being signed by employee and supervisor. Several timecards could not be located.

Criteria

Internal control procedures should provide reasonable assurance that wages paid are approved prior to processing the corresponding payroll transactions. Timecards should be maintained for all hourly employees and the timecards should be signed by the employee and supervisor.

Effect

Without strengthening internal controls over payroll disbursements, wages may be improperly paid to District employees.

Recommendation

In order to strengthen internal controls over payroll, we recommend that employees be required to sign timecards and submit to their supervisor for approval.

Management's Response

Management will adopt procedures during the fiscal year ending June 30, 2016, to implement the recommendation.

Current Status

See current year finding at 2016-001

**❖ Significant Deficiency 2014-03
Internal Control- Payroll (Personnel Files)****Condition**

Personnel files do not include documentation of approved pay rates and benefits.

Criteria

Personnel files should contain documentation of approved pay rates upon employee hire date and any subsequently approved pay adjustments. Personnel files should also include documentation of approved benefit plan changes.

Effect

Without strengthening internal controls over payroll, wages and benefits may be improperly paid to District employees.

¹² The "Current Status" statement was obtained from the Durham Mosquito Abatement District's Financial Statements and Supplementary Information with Independent Auditors' Reports, Years Ended June 30, 2015 and 2016.

Recommendation

In order to strengthen internal controls over payroll, we recommend that personnel files be updated to include documentation of current pay rates and benefits for all employees. Approval of subsequent pay adjustments and benefit plan changes should be maintained in personnel files.

Management's Response

Management will adopt procedures during the fiscal year ending June 30, 2016, to implement the recommendation.

Current Status

See current year finding at 2016-002

**❖ Material Weakness 2014-04
Internal Control- Payroll (Reporting)****Condition**

The District's policies and procedures do not provide for adequate management oversight and review of the District's payroll reporting process. Payroll taxes for the 2012 and 2013 calendar years were not remitted to the IRS until November of 2014. Form W-2 Wage and Tax Statements for the 2010 to 2013 calendar years were not filed until January of 2015.

Criteria

The District's policies and procedures should provide for the timely withholding and filing of all payroll taxes and related payroll tax forms and the timely filing of W-2 forms. These procedures should include management oversight and review.

Effect

Failure to remit required amounts to the government in a timely manner resulted in the District incurring penalties in the amount of \$8,673.

Recommendation

We recommend that policies and procedures be implemented to provide for management oversight and review of the District's payroll reporting process thereby reducing the risk of fraud or error in this area.

Management's Response

Management will adopt procedures during the fiscal year ending June 30, 2016, to implement the recommendation.

Current Status

Fully implemented

The District's comprehensive Annual Financial Report for Fiscal Years 2014-15 and 2015-16 found two significant deficiencies in the District's internal control of financial reporting, both of which were previously identified in the District's comprehensive financial report for Fiscal Years 2009-10 through 2013-14. The weaknesses found in the District's internal control of their finances for Fiscal Years 2014-15 and 2015-16 were:

❖ **Significant Deficiency**
2016-001: Internal Control – Payroll (Timecards)

Condition

Timecards are not consistently being signed by supervisor. Several timecards could not be located for testing. We found four instances in the fiscal year ending June 30, 2015, where the supervisor did not sign the timecard or timecards could not be located. We found one instance in the fiscal year ending June 30, 2016, where the supervisor did not sign the timecard.

Criteria

Internal control procedures should provide reasonable assurance that wages paid are approved prior to processing the corresponding payroll transactions. Timecards should be maintained for all hourly employees and the timecards should be signed by the employee and supervisor.

Effect

Without strengthening internal controls over payroll disbursements, wages may be improperly paid to District employees.

Recommendation

In order to strengthen internal controls over payroll, we recommend that employees be required to sign timecards and submit to their supervisor for approval.

Management's Response

Management will adopt procedures during the fiscal year ending June 30, 2017, to implement the recommendation.

❖ **Significant Deficiency**
2016-002: Internal Control – Payroll (Personnel Files)

Condition

Personnel files do not include documentation of approved pay rates and benefits.

Criteria

Personnel files should contain documentation of approved pay rates upon employee hire date and any subsequently approved pay adjustments. Personnel files should also include documentation of approved benefit plan changes.

Effect

Without strengthening internal controls over payroll, wages and benefits may be improperly paid to District employees.

Recommendation

In order to strengthen internal controls over payroll, we recommend that personnel files be updated to include documentation of current pay rates and benefits for all employees. Approval of subsequent pay adjustments and benefit plan changes should be maintained in personnel files.

Management's Response

Management will adopt procedures during the fiscal year ending June 30, 2017, to implement the recommendation.

The District's failure to have the financial audits performed in a timely manner was in non-compliance with State Law (California Health and Safety Code §2079(a) and (b)) and with generally accepted accounting principles. The lack of timely completion of the District's financial audits/reports could have resulted in the loss of District funds through fraud or through accounting errors. The comprehensive financial reports identified several deficiencies that could have resulted in the loss of large sums of the District money over time. Had these deficiencies been identified sooner any possible losses would have been minimized. The District should place extreme importance on ensuring that all future financial audits are prepared for each fiscal year in a timely manner consistent with State Law.

The Financial Report for Fiscal Years 2014-15 and 2015-16 addressed the current status (condition) of the four deficiencies noted in the comprehensive Financial Report for Fiscal Years 2009-10 through 2013-14. Significant Deficiency 2014-01 (Cash Disbursements) and Material Deficiency 2014-04 (Payroll-Reporting) were determined to have been implemented. However, Significant Deficiency 2014-02 (Payroll Timecards) and Significant Deficiency 2014-03 (Payroll-Personnel Files) had not been implemented. To ensure that the District complies with all applicable laws and with generally accepted accounting principles, the District should immediately implement all recommendations contained within the District's future financial reports.

It should be noted that the District's financial reports do not appear to comply with Governmental Accounting Standards Board (GASB) Statement 67 (*Financial Reporting for Pension Plans*) and Statement 68 (*Accounting and Financial Reporting for Pensions*), which requires that financial statements report specific financial information about an agency's pension plan. The District should ensure that all future financial reports/statements comply with the requirements of GASB Statements 67 and 68.

Future Challenges and Issues Related to Finances

As with other mosquito and vector control districts in California, DMAD faces numerous challenges and issues related to finance. One challenge is the amount of revenue the District receives. Revenues for the District primarily are received from property taxes and parcel assessments. The parcel assessment is a steady and reliable source of revenue, while the property tax revenues can be significantly reduced due to lower property values, as was experienced during the economic downturn that started in 2008. The quantity and quality of services the District provides are dictated by the revenue the District receives.

Another factor is the increased cost of complying with new regulations regarding mosquito abatement operations. As these costs increase, the District will have less operating revenue to provide services, which, unless new sources of revenue are found, may result in the District reducing service levels.

Another issue that may affect District finances is climate change, which appears to have resulted in the migration of warmer climate mosquitoes northwards from the equator and which are now established in California. As new mosquitoes and the new diseases they carry enters the United States, California, and Butte County, the District will face ongoing challenges on how to best protect the public's health, which may require a significantly larger number of District personnel, equipment, and pesticides, all at substantial additional cost to the District.

The District is also facing the effects of less effective public health pesticides due to mosquito and vector populations increasing tolerance and/or resistance, which has been dramatically increasing over the past five to ten years. New pesticides will be needed, all at a substantial cost to the District.

MSR DETERMINATION 4-1: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES - REVENUE	
	<i>The primary sources of revenue for the District are property taxes and parcel assessments. Revenue from the parcels assessment is a steady source of revenue while property tax revenue can be significantly reduced due to decreased property values.</i>

MSR DETERMINATION 4-2: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES - REVENUE	
	<i>District revenues only provide sufficient funding for the District to provide basic, but not comprehensive mosquito abatement services to the more populated areas of the District. To provide comprehensive services to the whole of the District, including the large areas of rice fields, the District would need significantly greater revenues.</i>

MSR DETERMINATION 4-3: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES - EXPENDITURES	
	<i>Normal expenditures for the District include salaries, insecticides, pension and health insurance contributions, gas and oil, and the occasional purchases of new vehicles and equipment. The District's expenditures do not appear to be excessive and are necessary to provide services to the more populated areas of the District.</i>

MSR DETERMINATION 4-4: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES – FUND BALANCE	
	<i>As of the end of Fiscal Year 2015-16, the District's General Fund had an unappropriated fund balance of \$121,275, which is available for District operations. The District should endeavor to increase the unappropriated fund balance every fiscal year to ensure that there is adequate funding available for any unforeseen circumstances.</i>

MSR DETERMINATION 4-5: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES – FINANCIAL AUDIT

The Durham Mosquito Abatement District failed to have financial audits/financial reports prepared for Fiscal Years 2009-10 through 2013-14 in a timely manner. The District did have a comprehensive financial audit/financial report prepared for those fiscal years in July 2015. The lack of these financial audits could have resulted in the loss of District funds through either fraud or accounting errors.

The District's failure to have the financial audits performed was in non-compliance with State law and with generally accepted accounting principles. The District should ensure that all future financial audits are prepared for each fiscal year in a timely manner consistent with State law and with general accepted accounting principles.

MSR DETERMINATION 4-6: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES – FINANCIAL AUDIT

The District's comprehensive financial audit/financial report for Fiscal Years 2009-10 through 2013-14 identified one material deficiency and three significant deficiencies in the District's internal control of financial reporting. Additionally, the District's comprehensive financial audit/financial report for Fiscal Years 2014-15 and 2015-16 identified two significant deficiencies.

The identification of these deficiencies in the District's internal control of financial reporting may indicate an indifference to the District's financial accounting practices. The District should ensure that all future financial audits are prepared for each fiscal year in a timely manner consistent with State law and with general accounting and financial practices.

MSR DETERMINATION 4-7: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES – FINANCIAL AUDIT

The District did not implement the recommendations of two Significant Deficiencies as identified in the comprehensive Financial Report for Fiscal Years 2009-10 through 2013-14. To ensure that the District complies with all applicable laws and with generally accepted accounting principles, the District should immediately implement all recommendations contained within the District's financial reports.

MSR DETERMINATION 4-8: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES – FINANCIAL AUDIT

The District should ensure that all future financial reports/statements comply with the requirements of GASB Statements 67 and 68.

MSR DETERMINATION 4-9: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES – FUTURE FINANCIAL CHALLENGES	
	<p><i>The District faces numerous challenges to continue to provide effective and comprehensive mosquito abatement and vector control services to the residents of the District in light of new regulations, new mosquito species, and new mosquito-borne diseases. Due to these issues, there will be a greater need for the services the District provides in the coming years, which will require additional District staffing, equipment, and insecticides, all at substantial additional cost to the District. The District, along with all other mosquito abatement and vector control districts, will need to obtain additional funding to meet these challenges and continue to provide effective and efficient services.</i></p>

MSR FACTOR NO. 5: STATUS OF, AND OPPORTUNITIES FOR, SHARED FACILITIES.

There are three mosquito abatement districts within Butte County – the Butte County Mosquito and Vector Control District (BCMVCDD), the Durham Mosquito Abatement District (DMAD), and the Oroville Mosquito Abatement District (OMAD), each of which has its own governing board, staff, equipment, materials, and facilities. DMAD and OMAD are completely surrounded by the boundaries of the BCMVCDD. Given that there are three mosquito abatement districts within Butte County, there could be many opportunities for these districts to share facilities, equipment, personnel, and costs.

All three districts, on a short-term basis, may be able to offer their services (staff, equipment, and expertise) to help control mosquitoes outside of Butte County in the event of a public health emergency, such as if an outbreak of West Nile disease cases occurred. As an example, the BCMVCDD may be able to provide aerial spraying services to an area outside of Butte County if another district or county needed urgent assistance to control mosquitoes.

Sharing facilities, equipment, and personnel between the three districts could result in significant cost savings. However, very little in the way of shared facilities occurs between the three districts. The BCMVCDD has shared costs with DMAD and OMAD to purchase bulk pesticides, repellents, mosquitofish food, and research. These shared bulk purchases results in lower material and shipping costs and in higher staff efficiencies. BCMVCDD offers and attends joint training sessions with the other two districts, and performs spray equipment characterization and calibration for the two other districts.

BCMVCDD owns and operates three airplanes for aerial spraying. The use of aerial spraying is a valuable resource for the District and provides an opportunity for shared resources with DMAD, since this district contains approximately 9,000 acres of rice fields and contains the Rancho Esquon wildlife area, which consists of 900+ acres of managed wetland habitat that provide significant mosquito breeding habitat. The Durham Mosquito Abatement District does not have any aircraft, and, on the occasion that aerial spraying is necessary, could contract with BCMVCDD for such services.

BCMVCD has offered this service to DMAD at a reduced cost. It should be noted that BCMVD, without charge to DMAD, already performs aerial spraying of the 900-acre Rancho Esquon wetlands area in order to reduce mosquito populations that could and do migrate into the BCMVCD's service area.

The three mosquito abatement districts within Butte County should endeavor to increase shared resources between the districts. Doing so would result in better operational efficiencies and in lower costs for the districts.

MSR DETERMINATION 5-1: STATUS OF, AND OPPORTUNITIES FOR, SHARED FACILITIES	
	<i>There are many opportunities for the sharing of resources (facilities, equipment, training, and staff) between the three mosquito abatement districts within Butte County, but very little sharing of resources occurs. All three districts should engage in immediate and meaningful discussions to increase shared resources between the districts. The failure of the districts to effectively engage in such discussions and achieve meaningful results may cause the Commission or another local agency to initiate a formal consolidation of the three districts.</i>

MSR FACTOR NO. 6: ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS, INCLUDING GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES.

DMAD BOARD OF TRUSTEES

The Durham Mosquito Abatement District is governed by a 5-member Board of Trustees. The Board of Trustees are appointed pursuant to California Health and Safety Code, Sections 2022 to 2025, with a term of office of two or four years at the discretion of the appointing authority, which is the Butte County Board of Supervisors.

The Board of Trustees is responsible for setting policy and general administrative procedures for the District, establishes and regulates fees, and selection of the District Manager, who serves at the will of the Board. The policies and procedures set by the Board of Trustees are administered by the District Manager.

Regular meetings of the Durham Mosquito Abatement District Board of Trustees are held on the 2nd Wednesday of each month, starting at 7:30 PM. The District office/shop is not conducive to holding meetings, so the District Board of Trustees meetings are held at the Durham Memorial Hall located at 9319 Midway, Durham.

The public notices for the Board of Trustees meeting are posted by the second Monday of every month on the door of the District building. The District should consider also posting the meeting notice at the Durham Memorial Hall, although this is not required if the notice is posted at the District office (California Government Code §56158). The District should also create a website where meeting notices/agendas can be posted.

Durham Mosquito Abatement District board members receive \$50 per meeting for their service. Income taxes are withheld from this payment.

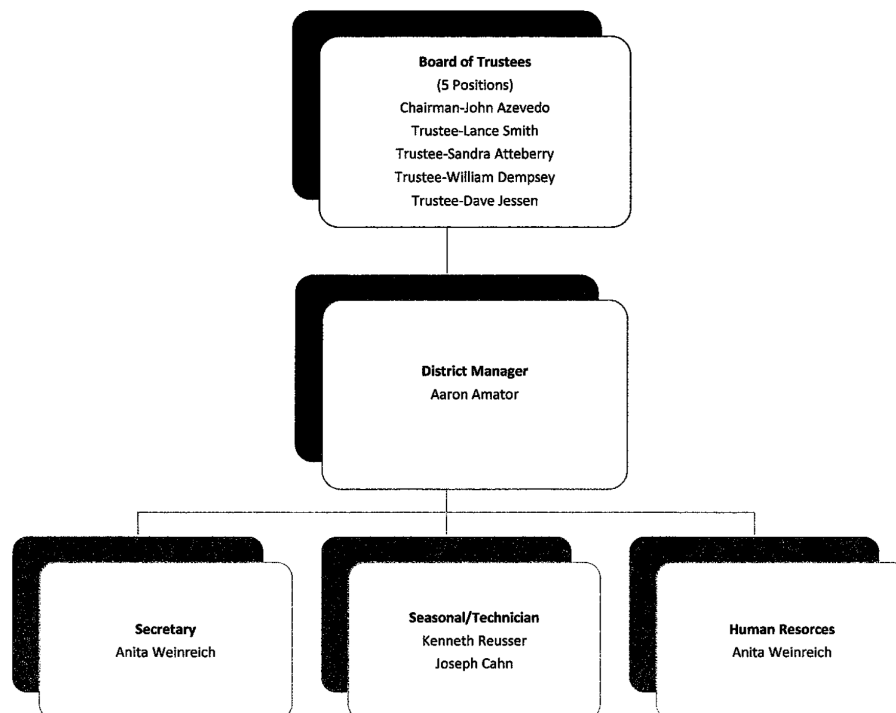
DMAD STAFFING

While public sector management standards vary depending on the size and scope of the organization, there are minimum standards. Well-managed organizations evaluate employees annually, track employee and agency productivity, periodically review agency performance, prepare a budget before the beginning of the fiscal year, conduct periodic financial audits to safeguard the public trust, maintain relatively current financial records, conduct advanced planning for future service needs, and plan and budget for capital needs.

DMAD is managed by the District Manager, who is appointed by the DMAD Board of Trustees and serves at the will of the Board. The current District Manager has been with the District for over 18 years.

The District has one full-time employee – the District Manager, one part-time administrative assistant/bookkeeper/secretary, and two seasonal employees during the mosquito season (usually May through October).

Durham Mosquito Abatement District Organization



The District Manager is licensed by the California Department of Public Health to provide mosquito abatement services. The two seasonal employees are not certified or licensed and perform mosquito abatement duties under the license of the District

Manager. The District Manager's license requires continuing educational training and recertification every two years.

The management structure of DMAD is very simple and reasonable for the type of operations undertaken by the District. No alternative structures or reorganizations of staff would result in more efficient daily operations, and the existing structure is considered appropriate. It should be noted however, that if the District Manager has an extended absence for any reason such as an illness or extended vacation, the District would be effectively without leadership and services would be drastically impacted. The District Board should address this concern and adopt a contingency plan for an extended absence that may involve contractual services provided by the BCMVCD.

Only one employee of the District – the District Manager – is eligible to participate in the District's Miscellaneous Employee Pension Plan, cost-sharing multiple employer defined benefit pension plans administered by the California Public Employees' Retirement system (CalPERS).

DISTRICT TRANSPARENCY

Governmental transparency promotes accountability and provides information for citizens about what their government is doing. A public agency's transparency is necessary to provide the residents of the agency a thorough knowledge of the services the agency provides, how it operates, how and by who the agency is governed, and the financial status of the agency. Information on an agency should be easily accessible.

The District's transparency is very limited, which makes it difficult for the residents of the District to obtain information on the District. As required by State law, the District does provide notice of upcoming Board of Trustee meetings by posting a notice at the District office. DMAD also provides one notice, published in a newspaper before the start of the mosquito season, that the District will be conducting fogging operations within the District at undetermined times. Board of Trustee meeting minutes, and other information, can be obtained through the District Manager. All of these measures do require residents to make an effort to either attend District Board meetings or visit the District office.

To provide for greater transparency, many special districts within California have websites that allow for easy access to district services, information and documents. Approximately 50 percent of the special districts within California have a website and the primary reasons that districts do not have a website include money, personnel, legal requirements, and no penalties for not having a website.

DMAD does not have a website, but having one would provide an avenue for the residents of the District to easily obtain important information about the District, significantly increasing the District's transparency. The District should create and maintain a website that provides, at a minimum, the following information:

- District contact information, including the names of the District Manager and Board of Trustees.
- Board of Trustee meeting notices.
- Board of Trustee agendas and staff reports/memorandums
- Adopted annual budget
- Financial audits/reports
- Map of the District
- A notice for each individual fogging operation
- District by laws
- List of enterprise systems (SB 272)
- Financial Transaction Reports
- Compensation Reports
- ADA compliance

Due to cost and time considerations, the District may object to creating and maintaining a website. However, the benefits of having a website far outweigh the cost or the time it takes to maintain a website. There are numerous website designers that can create and host custom websites at a nominal monthly cost. One such website designer - Streamline™ Web – creates and hosts websites that are designed specifically for local government at a very affordable cost in the range of \$1,500.¹³ The District Manager has recently indicated that the District is in the process of creating a website.

LAFCo staff visited DMAD's office and observed that at least one truck did not have the District's emblem or name on the truck doors. All District vehicles should be clearly identified as belonging to the District so that the public can readily identify District vehicles and staff.

OPERATIONAL EFFICIENCIES

The District utilizes a variety of cost avoidance and facilities sharing measures in its operations. The District is a member of the Vector Control Joint Powers Agency (VCJPA). The VCJPA is a public entity formed by a joint powers agreement in accordance with the California Government Code. The purpose of this JPA is to provide insurance coverage to the District's real and personal property and liability coverage.

The District is a member of the Mosquito and Vector Control Association of California. This organization is comprised of 62 public agencies and provides its members with a number of valuable services, including cost avoidance opportunities relating to training services and publication materials. Other notable services offered by this organization include serving as a legislative advocate for statewide vector control and abatement issues and facilitating the exchange of service information between member agencies.

¹³ <http://www.getstreamline.com/web/>

FUTURE CHALLENGES AND ISSUES TO OPERATIONAL EFFICIENCIES

As with other mosquito and vector control districts in California, DMAD faces numerous challenges and issues related to providing effective and efficient mosquito abatement service. As was discussed in more detail in MSR Factor No. 4 (Financial Ability of Agencies to Provide Services), these challenges and issues include:

- Reduction in revenues, which will result in reduced levels of service.
- The additionally cost of complying with new regulations regarding mosquito abatement operations.
- Climate change, which appears to have resulted in the migration of warmer climate mosquitoes northwards, bringing in new diseases.
- Less effective public health pesticides due to mosquito and vector populations increasing tolerance and/or resistance. New pesticides will be needed, all at a substantial cost to the District.

GOVERNMENTAL STRUCTURE - REORGANIZATION

There are three mosquito abatement districts within Butte County; one very large, well-funded district (BCMVCDD) that surrounds the other two much smaller districts (OMAD and DMAD). This MSR/SOI plan is an opportunity to carefully evaluate and compare each district and consider any governance restructuring scenarios that may result in improved efficiencies and public health outcomes. Scenarios include,

1. The smaller districts (OMAD, DMAD) remain intact but contract all services through the BCMVCDD, thus acting as a funding mechanism;
2. The three districts could be consolidated into one county-wide mosquito abatement district; or
3. Another approach that would result in just one county-wide abatement district would be the dissolution of the two smaller districts – DMAD and OMAD - and the annexation of those district's territory to the BCMVCDD. It should be noted that BCMVCDD's existing sphere of influence already encompasses the boundaries of DMAD and OMAD.

Potential positive impacts of a consolidation of the three districts may include a uniform county-wide mosquito abatement and vector control program, reduced administrative and operating costs, improved reserves, and greater public visibility, which could create an improved image of program accountability. A consolidation of the three districts would result in improved overall mosquito abatement and vector control services to the residents of the two smaller districts (DMAD and OMAD), who would have access to greater resources and more programs.

A consolidation may also have negative impacts such as increased operational complexities, particularly in light of the difference in services and philosophy between each agency. The opportunity to consolidate the district may be affected by limited funding, inability to expand into new areas based on existing funding levels, and/or political issues, especially regarding the loss of local control. Additionally, a consolidation of the three districts would require majority approval by the registered voters of all three districts, but such approval is not assured. Such governance reorganizations are not always readily accepted among affected constituents who

may feel current services are adequate and who have a type of brand loyalty to their current local agency and board of directors and perhaps more importantly, local agency personnel. Additionally, the costs to prepare a consolidation study and to hold an election could be cost prohibitive and funding would need to be secured before going forward with the consolidation process. The BCMVCD Manager has indicated that BCMVCD could provide mosquito and vector control services to these areas, and which could be accomplished without the need for the current employees, assets, and facilities of both the OMAD and DMAD. With the resources, assets, and staff that BCMVCD has to offer, the BCMVCD District Manager strongly believes that the protection of the public's health would increase within these two districts dramatically.

The 2004 Municipal Service Review adopted by the Commission determined that *"...reorganizing the three districts into one county-wide district would provide numerous advantages and with little to no disadvantages. There may be a slight limit of 'personalized' service in the Durham and Oroville areas, but that disadvantage is greatly outweighed by the advantages of a county-wide district with a large number of employees, regularly scheduled office hours, education and training programs, and aerial capability."*

Subsequent to adoption of the 2004 MSR, the Commission adopted Resolution No. 17 2004/05 that gave the Durham Mosquito Abatement District and the Oroville Mosquito Abatement District a "Zero" Sphere of Influence. Pursuant to Butte LAFCo Policy 3.1.11, the Zero SOI designation indicates that one or more of the public service functions of the agency are either non-existent, inadequate, no longer needed, or should be reallocated to some other agency of government. Adoption of a "zero" sphere indicates the agency should ultimately be reorganized or dissolved and that the Commission may initiate dissolution of an agency when it deems such appropriate. Resolution 17 2004/05 gave the Butte County Mosquito and Vector Control District an expanded sphere of influence, which took in the SOI of Durham Mosquito Abatement District and the Oroville Mosquito Abatement District. BCMVCD's SOI now encompasses all of Butte County and the Hamilton City area of Glenn County.

Numerous Butte County Grand Jury reports, including the most recent Grand Jury report, have included a review of one or more of the three mosquito abatement districts in the county. The following was extracted from the various Grand Jury reports regarding consolidation of the mosquito abatement districts in Butte County.

- **1971 Grand Jury Report** - *"...it is believed to be in the best interest of the entire County to eventually have all mosquito abatement controlled from one central plant, the Butte County Mosquito Abatement District."*
- **1972 Grand Jury Report** - *"The Grand Jury recommends consolidation of mosquito abatement districts into one Butte County Mosquito Abatement District."*
- **1973-74 Grand Jury Report** - *"Previous grand juries have recommended consolidation of the three Mosquito Abatement Districts within Butte County."*

Research in the past years as to cost, efficiency, and tax rates show that consolidation is favorable and this Grand Jury concurs."

- **1979-80 Grand Jury Report** - "Observation. Until such time as the Oroville and Durham Mosquito Abatement Districts, either through their respective Boards of Directors or the people within their service areas actively seek inclusion in the larger Butte County Mosquito Abatement District, no further consideration should be given the matter. The question of merger is basically a local government decision."
- **1980-81 Grand Jury Report** - "Finding: Prior Grand Juries have recommended a merger of the Oroville Mosquito Abatement District with the Butte County Mosquito Abatement District. Recommendation: The committee found the Oroville Mosquito Abatement District very professionally managed with a professional dedicated employee. Cost containment was evident in all areas therefore no need or practical benefit can be seen for a merger at this time."
- **2007-08 Grand Jury Report** - "This Grand Jury has chosen not to make a recommendation on whether the three districts should consolidate, but to try and make the voters aware of all options. In the event of future ballot measures for additional special parcel tax assessments, voters should be aware of the consolidation alternative."
- **2009-10 Grand Jury Report** - "OMAD should continue to function as an independent mosquito abatement district and should not be consolidated with another mosquito abatement district."
- **2016-17 Grand Jury Report** - "Recommendation R1. The Grand Jury recommends that pending the results of the 2017 MSR, LAFCo initiate the process of consolidating OMAD and DMAD under BCMVCD."

The 2016-17 Grand Jury report also stated:

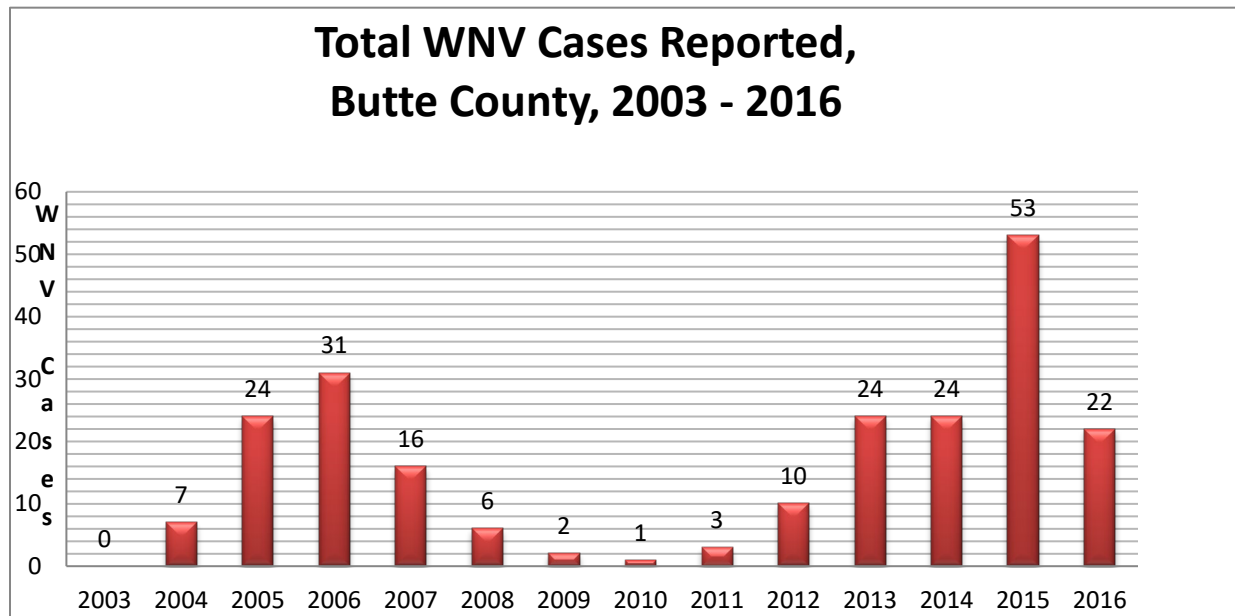
"Having three districts performing the same function in the same county brings redundancies. Each district has a board, is required to be compliant with all applicable labor and pesticide regulations, requires an annual audit, regular board meetings, budgets and bookkeepers. This encumbers each of the districts with a minimum level of costs, and the budgets of OMAD and DMAD are such that after covering the costs of these operational requirements, there is little funding left for actual control. Effectiveness would be greatly improved by consolidating the three districts under one set of policies and one management team.

In the past, when Grand Juries have recommended consolidation, or LAFCo released their MSR in 2004 recommending the districts be consolidated, no consolidation action was taken. The Grand Jury believes this is because there was no leadership to put the recommended changes into effect. The groups that benefit most from a consolidation are the residents within the OMAD and DMAD districts, however, they may not be aware of the potential improvements and thus not motivated to petition for policy change. Under California state

LAFCo policies, a petition for consolidation may be initiated by LAFCo itself. The Grand Jury recommends Butte LAFCo take this course of action pending the results of the 2017 MSR."

A reorganization of the three mosquito abatement districts into one county-wide district should be closely examined by LAFCo to determine if a reorganization would actually result in improved, more efficient, and more cost-effective comprehensive mosquito abatement and vector control services to the Durham and Oroville areas, and would result in improved public health benefits to the residents of the county as a whole. Mosquito abatement services in the Durham and Oroville areas consist primarily of the control of adult mosquitoes through fogging operations. The services provided by the Butte County Mosquito and Vector Control District are significantly more comprehensive, more effective at all aspects and stages of vector control, and more efficient than the services provided by the Durham and Oroville Mosquito Abatement Districts.

The public health benefits of having only one county-wide mosquito abatement district cannot be understated as supported by comments received from the Butte County Public Health Department (DPH), Community Health and Sciences Office, in their comment letter of May 31, 2017 (Attachment A to this MSR). The DPH is very concerned about the ongoing presence of West Nile Virus cases in the County and in their letter, DPH notes that Butte County consistently ranks among the state's counties with the highest West Nile virus case rates (number of cases by population). As shown on the following chart, the number of West Nile virus cases has fluctuated significantly over the years, but Butte County has seen a larger number of cases in the last four years. As of June 26, 2017, Butte County has had no reported human cases of West Nile virus.¹⁴



¹⁴ California West Nile Virus Website - <http://westnile.ca.gov/>

The DPH believes that a close working relationship with local vector control agencies is critical to their efforts to detect, monitor and prevent WNV disease, further stating that *"Having one agency to work with would likely improve efficiencies and provide a more consistent approach"* to addressing the WNV concerns.

While reorganization options are being analyzed, the DMAD Board of Trustees could contract with the Butte County Mosquito and Vector Control District to provide mosquito abatement services within DMAD's jurisdictional boundaries. In this scenario, DMAD would transfer most of the revenues it receives to BCMVCD, which in turn would use those funds to provide mosquito abatement and vector control services to the DMAD service area. BCMVCD may be reluctant to agree to this plan and this scenario may result in the elimination of DMAD's District Manager position since there may be no duties for this person to perform. In this scenario, DMAD would continue to exist and the DMAD Board of Trustees would occasionally meet to handle administrative affairs, such as approving the District's annual budget.

MSR DETERMINATION 6-1: GOVERNMENTAL STRUCTURE	
	<i>DMAD is governed by a five-member Board of Trustees appointed by the Butte County Board of Supervisors. DMAD holds meetings that are open and accessible to the public. DMAD maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.</i>

MSR DETERMINATION 6-2: GOVERNMENTAL STRUCTURE	
	<i>The District has a single full-time employee – the District Manager - who is responsible to manage all District functions. If the District Manager has an extended absence for any reason such as an illness or vacation, the District would be effectively without leadership, and services would be drastically impacted. The District Board should address this concern and adopt a contingency plan for an extended absence that may involve contractual services provided by the BCMVCD.</i>

MSR DETERMINATION 6-3: TRANSPARENCY - WEBSITE	
	<i>The Durham Mosquito Abatement District does not have a website, but is also not required to have one by law. Regardless, a website would allow the District to post District contact information, public meeting notices, Board of Trustee meeting minutes, financial documents (budgets, audits), and fogging notices and maps, greatly increasing the District's transparency. The District should create and maintain a comprehensive website.</i>

MSR DETERMINATION 6-4: TRANSPARENCY – MEETING NOTICES

In addition to posting the Board of Trustee meeting notices at the District's office/shop, the District should consider posting meeting notices at the Durham Memorial Hall, where the District's Board of Trustees meets.

MSR DETERMINATION 6-5: TRANSPARENCY – FOGGING NOTICES

The Durham Mosquito Abatement District does not provide notification to the public of each insecticide fogging operation and instead, as allowed by State law, publishes a notice of fogging operations prior to the beginning of the mosquito season. For the benefit of the residents within the District, the District should consider providing email, text and website notification of each fogging application.

MSR DETERMINATION 6-6: TRANSPARENCY – IDENTIFICATION OF DISTRICT VEHICLES

The Durham Mosquito Abatement District should ensure that all District-owned/operated vehicles are clearly identified as belonging to the District so that the public can readily identify District vehicles and staff.

MSR DETERMINATION 6-7: OPERATIONAL EFFICIENCIES

The Durham Mosquito Abatement District operates with a full-time staff of one – the District Manager – a part time bookkeeper/clerk, and two seasonal employees. The overall management structure of DMAD is sufficient to perform basic mosquito abatement services to the more populated areas of the District.

MSR DETERMINATION 6-8: FUTURE CHALLENGES TO OPERATIONAL EFFICIENCIES

The District faces numerous challenges to continue to provide effective mosquito abatement services to the residents of the District. Loss of revenue, new regulations, climate change, and resistance to existing pesticides are some of the more significant challenges the District faces, which will have a significant effect on the level of services the District currently provides. Due to these issues, there will be a greater need for the services the District provides in the coming years, which may require additional District staffing, equipment, and insecticides, all at substantial additional cost to the District. In all likelihood, the District will need to obtain additional sources of revenue in order to continue to provide effective mosquito abatement services to the residents of the District.

MSR DETERMINATION 6-9: REORGANIZATION

The 2004 Municipal Service Review for Mosquito Abatement Districts in Butte County, numerous Butte County Grand Jury reports, including the most recent Grand Jury report (Fiscal Year 2016-17) released on May 19, 2017, and the May 30, 2017, letter from the Butte County Public Health Department all suggest or acknowledge the value reorganizing the three mosquito abatement districts into one county-wide district would provide numerous advantages and with little to no disadvantages.

MSR DETERMINATION 6-10: REORGANIZATION

Commission Resolution No. 17 2004/05 gave the Durham Mosquito Abatement District and the Oroville Mosquito Abatement District "Zero" Sphere of Influences. At the same time, the Commission expanded the Sphere of Influence for the Butte County Mosquito and Vector Control District to encompass the boundaries of the Durham and Oroville Mosquito Abatement Districts. The Zero SOI designation indicates that one or more of the public service functions of the agency are either non-existent, inadequate, no longer needed, or should be reallocated to some other agency of government. Adoption of a "zero" sphere indicates the agency should ultimately be reorganized or dissolved and that the Commission may initiate dissolution of an agency when it deems such appropriate.

MSR DETERMINATION 6-11: REORGANIZATION

Potential positive impacts of a reorganization of the three mosquito abatement districts may include a uniform county-wide mosquito abatement and vector control program, reduced administrative and operating costs, improved reserves, greater public visibility, and improved public health benefits.

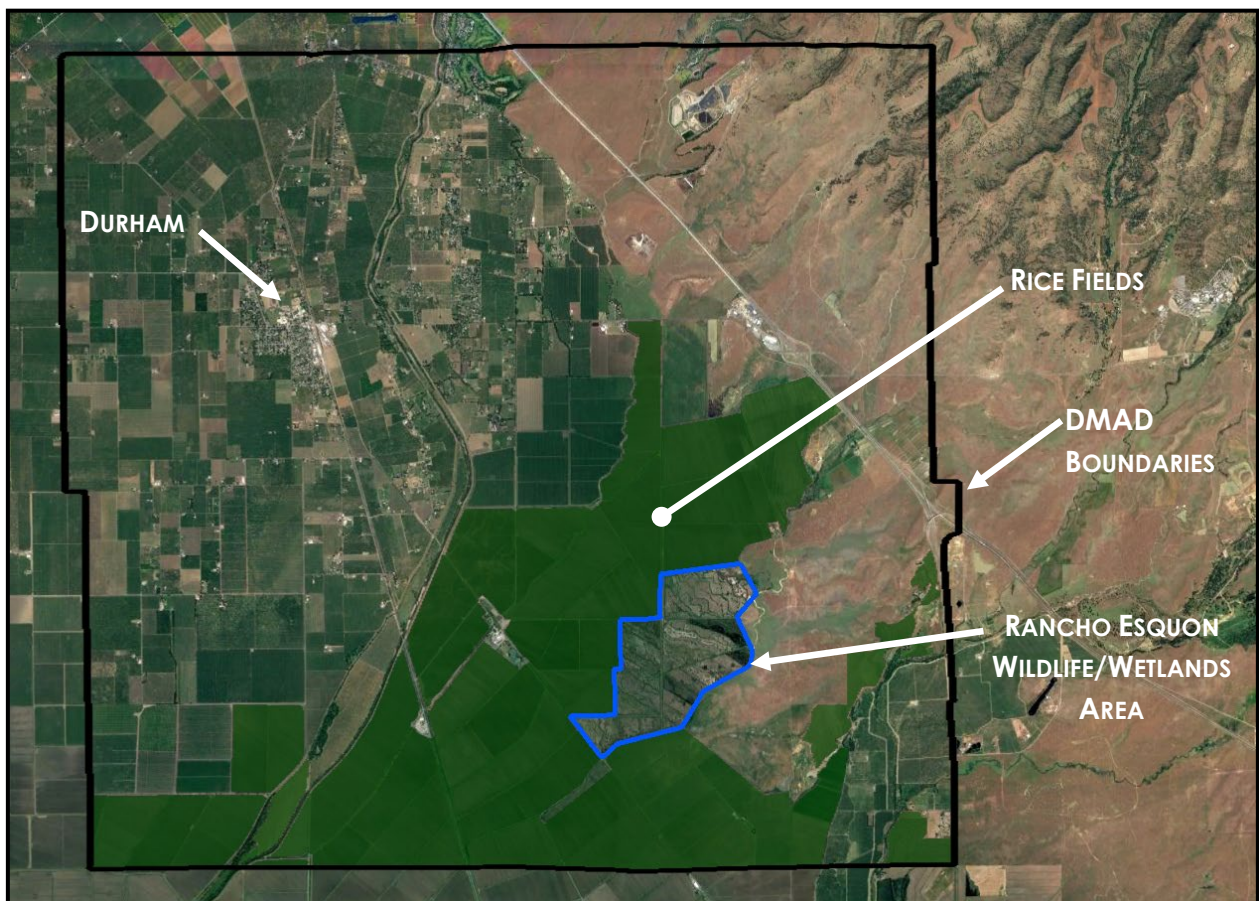
MSR FACTOR NO. 7: ANY OTHER MATTER RELATED TO EFFECTIVE OR EFFICIENT SERVICE DELIVERY, AS REQUIRED BY COMMISSION POLICY.

POTENTIAL BOUNDARY CHANGES

The Rancho Esquon wildlife area, which consists of 900+ acres of managed wetland habitat, is within the jurisdictional boundaries of the Durham Mosquito Abatement District. The map on the next page shows the location of the wildlife area. According to the District Manager of the Butte County Mosquito and Vector Control District (BCMVC), the Rancho Esquon wildlife area has extraordinary high populations of mosquitoes that migrate to areas within the service area of BCMVC. BCMVC mosquito surveillance data showed that the mosquito populations originating from the wildlife area would migrate north into the south Chico area, affecting the residents of BCMVC. Also in this area are numerous rice fields, which are significant breeding

habitat for mosquitoes. DMAD does not have the necessary revenue, equipment, and staff needed to provide effective mosquito abatement services to the wildlife area and to the numerous nearby rice fields.

The Butte County Mosquito and Vector Control District provides mosquito abatement services to the wetlands area, believing that it is in the best interest of the people residing within BCMVCD to reduce the numbers of mosquitoes originating from the wildlife area. BCMVCD has a cooperative memorandum of understanding with the owner of the Rancho Esquon Ranch, where the wildlife area is located. Rancho Esquon reimburses BCMVCD for the larviciding control costs and no BCMVCD tax dollars are expended within the DMAD service area. The Durham Mosquito Abatement District does not provide any funding to BCMVCD for providing mosquito abatement services to the Rancho Esquon wetlands area. It should be noted that BCMVCD does not provide mosquito abatement services to any of the rice fields located near the wetlands area. The following map shows the location of the Rancho Esquon wildlife area and the rice fields within DMAD's boundaries.



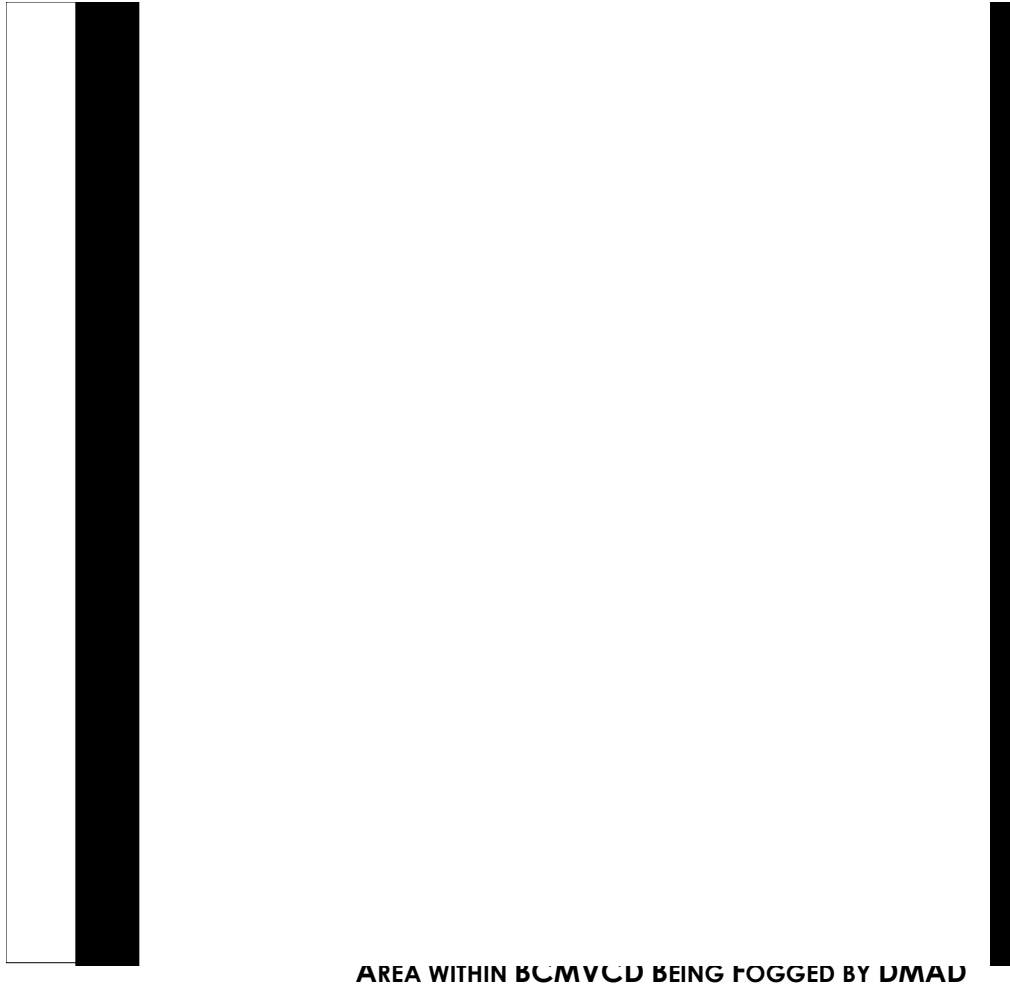
RANCHO ESQUON WETLANDS WITHIN DMAD BEING TREATED BY BCMVCD

Similarity, the DMAD provides mosquito abatement services within a small portion of BCMVCD's service area in the Butte Creek Estates Subdivision on Estates Drive, south of

Chico. The Butte Creek Estates Subdivision is bisected by the two districts, with roughly the south half of the subdivision, which consists of approximately 60 residential parcels, within DMAD and the north half of the subdivision, which consists of approximately 90 residential parcels, within BCMVCD.

This situation began with DMAD fogging the BCMVCD portion of the subdivision without notifying BCMVCD. DMAD started fogging all of Estates Drive because residents were complaining when the DMAD fogging operation would stop half way down this roadway. This situation could have resulted in excessive and fogging operations (some pesticide labels do not allow treatment more than once in a 24-hour, 48-hour, 72-hour, etc. period) or spraying properties that had requested "No Sprays" through BCMVCD.

To ensure compliance with pesticide label requirements and with the National Pollutant Discharge Elimination System (NPDES) regulations, BCMVCD managers informally agreed to not prevent DMAD from fogging the Estates Drive area without charge to BCMVCD. BCMVCD still continues to provide residents with other mosquito and vector control services, such as larval inspections, larvicides applications storm drain treatment, mosquitofish delivery and planting, virus surveillance, adult mosquito surveillance, and residual treatments. The BCMVCD would like DMAD to stop all fogging operations within BCMVCD's portion of the Butte Creek Estates Subdivision.



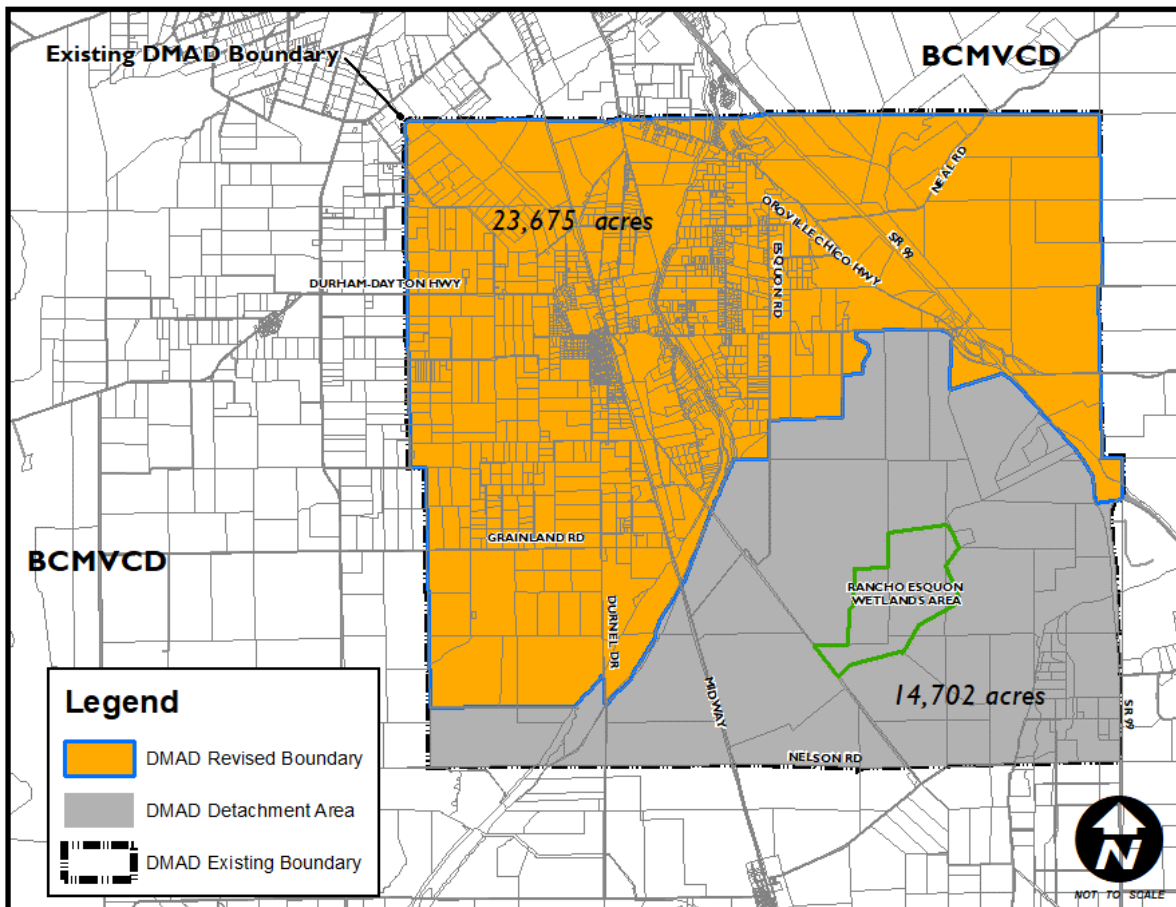
The BCMVCD and DMAD should consider changes to their jurisdictional boundaries so that all of the Butte Creek Estates is served by a single agency. It should be noted that DMAD has a “Zero” Sphere of Influence and that BCMVCD’s Sphere of Influence encompasses the jurisdictional boundaries of DMAD. Annexation of the subject area to DMAD may require that DMAD be given a traditional “Growth” sphere of influence boundary or that the Commission make specific findings with regards to the Zero SOI boundary to allow the subject area to be annexed to DMAD. This scenario would solve a localized boundary concern, but is not consistent with the overall analysis that suggests BCMVCD provides comprehensive services that are superior to the smaller districts. The BCMVCD Board of Trustees does not agree with detaching their portion of the Butte Creek Estates Subdivision and annexing that area to DMAD. Annexing the DMAD portion of the Butte Creek Estates Subdivision to BCMVCD is feasible and would provide the residents of that area with comprehensive mosquito abatement services. However, annexing the DMAD portion of Butte Creek Estates Subdivision to BCMVCD would result in DMAD losing approximately \$8,720 in tax revenue.

Discussions have taken place between BCMVCD, DMAD, and LAFCo regarding the detachment of the rice fields from DMAD and the subsequent annexation of that area

to BCMVCD. Both districts are in general agreement with detaching the rice fields from DMAD and annexing that area to BCMVCD. The BCMVCD Board of Trustees recently gave approval to the district manager to file an annexation application for the rice fields and authorized the district manager to participate in any future community meetings regarding annexation of the rice fields.

The rice field detachment/annexation area would be approximately 14,702 acres in size, consisting of approximately 87 parcels. The Rancho Esquon wetlands area, which is already being treated by BCMVCD, is within the detachment/annexation area. With the detachment, DMAD's service area would decrease from its current size of approximately 38,372 acres to approximately 23,675 acres (a 39% reduction). Annexing the rice field area to BCMVCD would result in DMAD losing approximately \$14,900 in tax revenue. BCMVCD has stated that providing effective mosquito abatement services to the rice field area will cost the District approximately \$350,000 or more annually.

The following map shows the potential rice field detachment/annexation area.



MSR DETERMINATION 7-1: BOUNDARY CHANGES - RANCHERO ESQUON WILDLIFE/WETLANDS AREA

BCMVCDC currently provides mosquito abatement services to the Rancho Esquon wildlife/wetlands area, which is within the boundaries of the Durham Mosquito Abatement District. The wildlife/wetlands area should be detached from DMAD and annexed to BCMVCDC.

MSR DETERMINATION 7-2: BOUNDARY CHANGES – RICE FIELDS

Due to a lack of adequate funding, DMAD does not provide comprehensive mosquito abatement services to the numerous rice fields within their jurisdictional boundaries and in all likelihood will never have the ability to provide services to the rice fields. The rice fields should be detached from DMAD and annexed to BCMVCDC, which has the funding, staffing, and equipment needed to service the rice fields.

MSR DETERMINATION 7-3: DUAL SERVICE PROVISIONS WITHIN THE BUTTE CREEK ESTATES SUBDIVISION

The Durham Mosquito Abatement District currently fogs for adult mosquitoes in a portion of the Butte Creek Estates Subdivision that is within the boundaries of the Butte County Mosquito and Vector Control District. DMAD should stop all fogging operations within the BCMVCDC portion of the Butte Creek Estates Subdivision as this area is outside of DMAD's boundaries and because BCMVCDC provides other mosquito abatement services to this area and clearly has the ability to provide fogging services.

DMAD and BCMVCDC should work together to resolve the issue of the dual service provisions within the Butte Creek Estates Subdivision. If a mutually agreeable solution cannot be negotiated, BCMVCDC should explore the annexation of the south portion of BCES to promote consistency in services throughout the residential subdivision.

SPHERE OF INFLUENCE PLAN REVIEW FACTORS FOR THE DURHAM MOSQUITO ABATEMENT DISTRICT

There are numerous factors to consider in reviewing an SOI Plan, including current and anticipated land uses, facilities, and services, as well as any relevant communities of interest. Updates generally involve a comprehensive review of the entire SOI Plan, including boundary and SOI maps and the District's MSR. In reviewing an agency's sphere, the Commission is required to consider and prepare written statements addressing five factors enumerated under California Government Code Section 56425(e), as listed below.

1. The present and planned land uses in the area, including agricultural and open space lands;
2. The present and probable need for public facilities and services in the area;
3. The present capacity of public facilities and adequacy of public services which the agency provides, or is authorized to provide; and
4. The existence of any social or economic communities of interest in the area if the commission determines that they are relevant to the agency.
5. For an update of a SOI of a city or special district that provides public facilities or services related to sewers, municipal and industrial water, or structural fire protection, the present and probable need for those public facilities and services of any disadvantaged unincorporated communities within the existing sphere of influence.

As was noted previously, in 2005, the Commission adopted Resolution No. 17 2004/05 that gave the Durham Mosquito Abatement District and the Oroville Mosquito Abatement District a Zero Sphere of Influence. Pursuant to Butte LAFCo Policy 3.1.11, the Zero SOI designation indicates that one or more of the public service functions of the agency are either non-existent, inadequate, no longer needed, or should be reallocated to some other agency of government. Adoption of a "zero" sphere indicates the agency should ultimately be reorganized or dissolved and that the Commission may initiate dissolution of an agency when it deems such appropriate. Resolution 17 2004/05 gave the Butte County Mosquito and Vector Control District an expanded sphere of influence, which took in the SOI of Durham Mosquito Abatement District and the Oroville Mosquito Abatement District and BCMVCD's SOI now encompasses all of Butte County.

SOI FACTOR NO. 1: THE PRESENT AND PLANNED LAND USES IN THE AREA, INCLUDING AGRICULTURAL AND OPEN-SPACE LANDS.

DMAD's jurisdictional boundaries consist of the unincorporated community of Durham and the surrounding area. Land uses within the community of Durham include single-family residential uses, commercial uses, industrial uses, and public uses. Outside of the immediate Durham area, the predominant land use is agricultural, consisting of rice fields, orchards, row crops, irrigated pastures, and seasonal livestock grazing. A portion of the Butte Creek Estates Subdivision on Estates Drive is located within the District and consists of approximately 60 residential units and a golf course. Also found within the District is a 70-acre industrial subdivision located at the intersection of SR 99 and Durham Dayton Highway.

Approximately 1,195 acres within the District consist of urban uses on smaller parcels, most of which are located within the community of Durham. Agricultural is the largest land use within the District, consisting of approximately 34,500 acres. Orchard crops (12,200 acres) are the largest agricultural use, followed by rice (9,000 acres), and grazing (6,650 acres). The District's mosquito abatement services do not have an impact on any development related to agricultural uses, however, agricultural lands are often irrigated and become a mosquito breeding source that impacts adjacent residential and commercial uses.

There is very little potential for significant new development within the boundaries of the District. A large portion of the community of Durham is zoned for medium and medium-high density residential uses. However, the lack of a public sanitary sewer system in the Durham area precludes the creation of small parcels or the construction of additional dwellings on existing developed parcels. The area of the District outside of the community of Durham is mostly zoned for agricultural uses on parcels with a minimum parcel size of 20 to 40 acres. One potential development within the District is located on a 40-acre parcel located on the east side of Durham, which is proposed to be developed with 40 1-acre single-family residential parcels.

SOI DETERMINATION 1-1: PRESENT AND PLANNED LAND USES	
	<i>Land uses with the boundaries of the Durham Mosquito Abatement District include residential, commercial, industrial, public, and agricultural uses. Future growth within the boundaries of the District is expected to occur primarily within the unincorporated community of Durham. The provision of mosquito abatement services has no significant impact on existing or future land uses within the District, including agricultural uses.</i>

SOI FACTOR NO. 2: THE PRESENT AND PROBABLE NEED FOR PUBLIC FACILITIES AND SERVICES IN THE AREA.

The Durham Mosquito Abatement District provides vital and necessary mosquito abatement services to the greater Durham area. The District's services are aimed primarily at preventing large numbers of adult mosquitoes from reaching the more populated areas of the District, such as the unincorporated urban community of Durham (population 1,450), the Lott Road area (population 800), and the Butte Creek Estates Subdivision (population 320). The abatement services the District currently provides results in reduced adult mosquito populations in the populated areas of the District. The mosquito abatement services the District provides to these areas does reduce the potential for mosquito-borne diseases affecting area residents.

Due to a lack of revenue, the District is unable to provide mosquito abatement services to the areas of the District that contain rice fields and wetlands, both of which are significant breeding habitat for mosquitoes. The District's inability to effectively treat

these areas allows large populations of adult mosquitoes to migrate to the population areas of the District and to areas outside of the District's boundaries.

SOI DETERMINATION 2-1: THE PRESENT AND PROBABLE NEED FOR PUBLIC FACILITIES AND SERVICES IN THE AREA	
	DMAD provides vital and necessary mosquito abatement services to the more populated areas of the District, such as the unincorporated community of Durham. The District's services are crucial to the prevention of significant mosquito populations and the prevention of mosquito-borne diseases.

SOI DETERMINATION 2-2: THE PRESENT AND PROBABLE NEED FOR PUBLIC FACILITIES AND SERVICES IN THE AREA	
	<i>DMAD does not have the ability to provide mosquito abatement services to the large number of rice field located within the District. The lack of mosquito abatement services to the rice fields results in extremely large mosquito populations, which represents a significant public health threat to people within, and outside, of the District boundaries.</i>

SOI FACTOR NO. 3: THE PRESENT CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES THAT THE AGENCY PROVIDES OR IS AUTHORIZED TO PROVIDE.

As presented in MSR Factor No. 3 (Present and planned capacity of public facilities, adequacy of public services, and infrastructure needs or deficiencies) the Durham Mosquito Abatement District has adequate facilities, equipment, staff, and funding to provide effective mosquito abatement services to the more population areas of the district, such as the unincorporated community of Durham. DMAD does not have the ability to provide mosquito abatement services to the large number of rice fields located within the District.

MSR Determination 3-2 determined that the Durham Mosquito Abatement District has not adopted an integrated pest management (IPM) program, which if followed would improve and enhance the mosquito abatement services the District provides. Implementation of an integrated pest management program would provide for greater public health benefits to the residents of the District. Determination 3-2 recommends that the District adopt and follow an integrated pest management program. The DMAD District Manager has recently indicated that the District will adopt and implement an integrated pest management program.

SOI DETERMINATION 3-1: PRESENT CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES

	<p><i>The Durham Mosquito Abatement District has adequate facilities, equipment, staff, and funding to provide basic, but not comprehensive mosquito abatement services to the more populated areas of the District. However, DMAD does not have the ability to provide mosquito abatement services to the large number of rice fields and wildlife habitat located within the District, which represents a significant public health threat to people within and outside of the District boundaries.</i></p>
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SOI DETERMINATION 3-2: PRESENT CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES

	<p>While DMAD aggressively pursues adult mosquito eradication through consistent fogging, it does not have a comprehensive vector control strategy that is based on an adopted and documented Integrated Vector Management Plan (IVMP). The District should immediately develop, adopt, and make publicly available an IVMP that clearly details its vector control strategy that includes a reasonable and effective plan to address currently unmet needs in the vast agricultural areas where mosquito breeding grounds surround populated areas of the District. The integrated vector management program should, at a minimum, include the following elements:</p> <ol style="list-style-type: none"> 1. Outreach and education; 2. Mosquito surveillance; 3. Treatment thresholds; 4. Biological and microbial control; 5. Physical and cultural control; and 6. Chemical control. <p>The DMAD District Manager has recently indicated that the District will adopt and implement an integrated vector management program. It is vitally important to public accountability that the District maintain adequate records/documentation that demonstrates how each of the IVMP factors have been implemented and evaluated for effectiveness.</p>
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SOI FACTOR NO. 4: THE EXISTENCE OF ANY SOCIAL OR ECONOMIC COMMUNITIES OF INTEREST IN THE AREA IF THE COMMISSION DETERMINES THAT THEY ARE RELEVANT TO THE AGENCY.

DMAD's jurisdictional boundaries consist of the greater Durham area, which includes the unincorporated urban community of Durham. Outside of the immediate Durham area, the District consists mostly of agricultural uses and rural residential uses.

SOI DETERMINATION 4-1: EXISTENCE OF ANY SOCIAL OR ECONOMIC COMMUNITIES OF INTEREST IN THE AREA	
	<p>The jurisdictional boundaries of the Durham Mosquito Abatement District include the unincorporated community of Durham and a portion of the Butte Creek Estates Subdivision.</p>

SOI FACTOR NO. 5: FOR AN UPDATE OF A SPHERE OF INFLUENCE OF A CITY OR SPECIAL DISTRICT THAT PROVIDES PUBLIC FACILITIES OR SERVICES RELATED TO SEWERS, MUNICIPAL AND INDUSTRIAL WATER, OR STRUCTURAL FIRE PROTECTION, THAT OCCURS PURSUANT TO SUBDIVISION (G) ON OR AFTER JULY 1, 2012, THE PRESENT AND PROBABLE NEED FOR THOSE PUBLIC FACILITIES AND SERVICES OF ANY DISADVANTAGED UNINCORPORATED COMMUNITIES WITHIN THE EXISTING SPHERE OF INFLUENCE.

The Durham Mosquito Abatement District does not provide public facilities or services related to sewers, municipal and industrial water, or structural fire protection.

SOI DETERMINATION 5-1: DISADVANTAGED UNINCORPORATED COMMUNITIES	
	<i>The Durham Mosquito Abatement District does not provide public facilities or services related to sewers, municipal and industrial water, or structural fire protection.</i>

Sphere of Influence Findings and Recommendations

Based on the MSR and SOI determinations contained in this document, the Commission:

1. Finds that the Durham Mosquito Abatement District provides basic mosquito abatement services to only the more populated areas of the District.
2. Finds that the Durham Mosquito Abatement District does not provide effective mosquito abatement services to the wetland/wildlife areas and to the numerous rice fields within the District, which results in extremely large populations of breeding mosquitoes that represent a significant public health threat as they migrate both within and outside the District.
3. Finds that in 2005 the Commission gave the Durham Mosquito Abatement District a Zero Sphere of Influence boundary for many of the same reasons identified in this MSR and that there have been no substantial changes to the services provided by the District in 2017.
4. Finds that the 2004 Mosquito and Vector Control District Municipal Service Review determined that the three mosquito abatement districts in Butte County should be consolidated.
5. Finds that the 2016-17 Butte County Grand Jury determined that the Butte County Mosquito and Vector Control District, the Durham Mosquito Abatement District, and the Oroville Mosquito Abatement District should be consolidated into one district.
6. Finds that the residents of the Durham Mosquito Abatement District would be provided more effective, efficient, and comprehensive mosquito abatement and vector control services by the Butte County Mosquito and Vector Control District, which presently surrounds the Durham Mosquito Abatement District.
7. Concurs with the Butte County Department of Public Health's observations contained above and finds that the public health of the residents of the Durham Mosquito Abatement District, as well as the residents of Butte County as a whole, would be better protected from mosquito infestations by the Butte County

Mosquito and Vector Control District, which has effective, efficient, and comprehensive mosquito abatement and vector control programs.

8. Finds the Durham Mosquito Abatement District should be dissolved, and the area subsequently annexed to the Butte County Mosquito and Vector Control District, or consolidated with the Butte County Mosquito and Vector Control District. It is acknowledged that this finding may be difficult to implement given the current state laws governing dissolutions and consolidations and therefore the item 10 below is considered a necessary action to improve public health outcomes.
9. Finds that the rice fields and the Rancho Esquon wetland area located within the boundaries of the Durham Mosquito Abatement District should be detached from DMAD and annexed to the Butte County Mosquito and Vector Control District, which has the ability to provide effective mosquito abatement services to these areas.
10. Finds that the Durham Mosquito Abatement District has recognized that the services it provides, and the public health of residents of the District, can be improved and enhanced through the adoption and ongoing implementation of a comprehensive integrated vector management program (IVMP), and through the creation and upkeep of a comprehensive website. Given these factors, the Commission finds that the Durham Mosquito Abatement District should be given a Probationary Sphere of Influence boundary for a period of one year following the adoption of this MSR/SOI Plan. At the end of the one year period, or sooner at the direction of the Commission, the Commission shall review the service provisions of the Durham Mosquito Abatement District to ensure that the District has adopted and implemented a measurable and documented comprehensive integrated vector management program and has created and maintained a comprehensive website. The integrated pest management program should, at a minimum, include the following elements:
 1. Outreach and education;
 2. Mosquito surveillance;
 3. Treatment thresholds;
 4. Biological and microbial control;
 5. Physical and cultural control; and
 6. Chemical control.

It is vitally important to public accountability that the District maintain adequate records/documentation that demonstrates how each of the IVMP factors have been implemented and evaluated for effectiveness. Should the Commission determine that the District has adequately implemented the above measures, the Commission may give the District a traditional coterminous Sphere of Influence boundary. Should the Commission determine that the District has not adequately followed through with these measures and/or determine that District services are inadequate, the Commission can remove the Probationary Sphere of Influence and give the District a Zero Sphere of Influence. The Probationary Sphere of Influence shall exclude the DMAD's portion of the Butte Creek Estates

Subdivision as shown on the map on Page 3-46 and shall also exclude the rice fields/wetlands area as shown on the map on Page 3-47 of this MSR.