



# **Mosquito Abatement and Vector Control Districts**

Municipal Service Review &  
Sphere of Influence Update

Commission Approved  
June 4 2020

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### **Acknowledgements:**

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# 1.0 INTRODUCTION

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This Municipal Service Review (MSR) and Sphere of Influence (SOI) Update provides information about the services and boundaries of three mosquito abatement and vector control providers in Shasta County. The report is for use by the Shasta Local Agency Formation Commission (LAFCO) in conducting a statutorily required review and update process. The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH Act) requires that the Commission conduct periodic reviews and updates of Spheres of Influence of all cities and special districts in Shasta County (Government Code § 56425). State law also requires that, prior to SOI adoption, LAFCO must conduct a municipal services review for the local agency (Government Code §56430). This report provides Shasta LAFCO with a tool to study current and future public service conditions comprehensively and to evaluate organizational options for accommodating growth, preventing urban sprawl, and ensuring that critical services are provided efficiently.

## **Mosquito Abatement and Vector Control Districts Summary**

Mosquito abatement and vector control districts (MAVCDs) and Mosquito Abatement Districts (MADs) are single purpose special districts organized under Health and Safety Code § 2000 et. seq. The District has the ability to conduct surveillance programs and other appropriate studies of vectors and vectorborne diseases, take any and all necessary or proper actions to prevent the occurrence of vectors and vectorborne diseases, and take any and all necessary or proper actions to abate or control vectors and vectorborne diseases.

Mosquito abatement involves a variety of monitoring and control techniques that are used in Integrated Vector Management (IVM) which is a science-based decision-making process that seeks to improve efficacy, fiscal responsibility, and ecological soundness. IVM includes regular monitoring of areas that may be prone to standing water that could act as breeding habitats for mosquitos. Ideally mosquitoes are controlled during the larval stage of growth where they are contained to water. Controls involve biological, chemical and physical controls described below.

In an effort to help control juvenile mosquitoes, most districts offer mosquito fish free of charge to area residents. Mosquito fish can be obtained from the district by delivery and placed in ponds, fountains, or other areas of standing water. The fish will feed on the larvae and help keep populations down.

Where funding is available, mosquito abatement and vector control districts also conduct research on vector populations. Mosquitoes can be collected and tested for potentially harmful diseases. Sentinel chicken flocks can also be monitored and tested regularly for vector transmitted diseases. These results are reported to the State of California which helps provide a better idea of where these diseases are and where they may be heading. Ticks and rodents can also be collected and tested for diseases such as Lyme disease and hantavirus.

The Mosquito Abatement and Vector Control District Law allows a district to exercise the following powers:

- Conduct surveillance programs, prevent, abate, and control vectors and vector-borne diseases.
- Request inspection warrants and enter property "where there is no reasonable expectation of privacy."
- Participate in land use planning and environmental quality processes.
- Abate public nuisances and recover the districts' costs with liens.
- Impose a \$1,000 a day civil penalty for failing to abate a public nuisance.
- Pay the boards of trustees' expenses and benefits but not regular stipends.
- Raise revenues with special taxes, benefit assessments, and fees.
- Borrow funds, like other local governments, for cash-flow purposes.
- Manage their own finances, similar to some other special districts.

The Mosquito Abatement and Vector Control District Law also:

- Provides that forming a new district requires adherence to the Cortese-Knox-Hertzberg Act but does not require voter approval.
- Allows county boards of supervisors and city councils to appoint the members of the districts' boards of trustees.
- Allows the Director of the State Department of Health Services to resolve disputes between districts and other public agencies.
- Retains an exception from public nuisance abatement for flies from agricultural operations that use accepted standards and practices.
- Exempts property that has not been artificially altered from its natural condition from the districts' power to abate public nuisances.
- Clarifies the districts' annual budget procedures, increasing the controls over budget reserves, including public health emergencies.
- Allows special benefit assessments to finance vector control projects and programs, consistent with Proposition 218.
- Allows officials to create zones within a district to provide different levels of service with different revenue sources.
- Contains cross-references to other major statutes that apply to mosquito abatement districts as well as to other local governments.
- Requires officers and employees to be bonded if they manage a district's funds.
- Requires stricter accounting for budgetary reserves.
- Repeats the requirement for the districts to conduct regular audits and file annual reports with the State Controller.

California Health and Safety Code §2022(a) states that persons appointed to a board of trustees by a board of supervisors shall be a registered voter in that county and a district resident. Section 2022(b) states that persons appointed by a city council to be a board of trustees member shall be a voter in that city and a resident of that portion of the city within the district. California Health & Safety Code §2022(d) states that it is the Legislature's intent that persons appointed to boards of trustees have experience, training, and education in fields that will assist in the district governance. 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, either 2 or 4 years as determined by the appointing authority.

### **Principal Act**

The principal act governing mosquito abatement and vector control districts is the Public Health and Safety Code §2000 *et seq.*

### **Service Review Determinations**

CKH Act §56430 requires LAFCO to conduct a review of municipal services provided in the county by region, sub-region or other designated geographic area, as appropriate, for the service or services to be reviewed, and prepare a written statement of determinations with respect to each of the following topics:

- Growth and population projections for the affected area;
- The location and characteristics of any disadvantaged unincorporated communities within or contiguous to the sphere;
- Present and planned capacity of public facilities, adequacy of public services, and infrastructure needs or deficiencies;
- Financial ability of the agency to provide services;
- Status of, and opportunities for, shared facilities;
- Accountability for community service needs, including governmental structure and operational efficiencies; and
- Any other matter affecting or related to effective or efficient service delivery, as required by Commission policy.

The service review provides an overview of mosquito abatement and vector control providers along with profiles of each agency. The report also includes service review determinations and sphere of influence recommendations for each of the following water districts:

### **Shasta Mosquito and Vector Control District**

### **Burney Basin Mosquito Abatement District**

### **California Environmental Quality Act**

The California Environmental Quality Act (CEQA) is contained in Public Resources Code § 21000 *et seq.* Public agencies are required to evaluate the potential environmental effects of their actions. MSRs are statutorily exempt from CEQA pursuant to § 15262 (feasibility or planning studies) and categorically exempt pursuant to CEQA Guidelines § 15306 (information collection). CEQA requirements are applicable to SOI Updates. The CEQA lead agency for SOI Updates is most often LAFCO, unless an agency has initiated an SOI expansion or update.

## 1.1 USES OF THE REPORT

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A County wide approach for conducting this service review provides the opportunity to identify shared trends relating to the adequacy, capacity, and cost of providing mosquito abatement and vector control services to Shasta County. This service review process identifies ways to expand district boundaries where appropriate, evaluate the feasibility of consolidations where appropriate and identify and implement other measures to address more complete County coverage. The potential uses of this report are described below.

### **To Update Spheres of Influence**

This service review serves as the basis for updating the spheres of influence for the mosquito abatement and vector control districts included in the report. Specifically, a sphere of influence designates the territory LAFCO believes represents an agency's appropriate future jurisdiction and service area. All boundary changes, such as annexations, must be consistent with an affected agency's sphere of influence with limited exceptions.

### **To Consider Jurisdictional Boundary Changes**

LAFCO is *not* required to initiate any boundary changes based on service reviews. However, LAFCO, other local agencies (including cities, special districts or the County) or the public may subsequently use this report together with additional research and analysis, where necessary, to pursue changes in jurisdictional boundaries.

### **Resource for Further Studies**

Other entities and the public may use this report for further study and analysis of issues relating to mosquito abatement and vector control provision in Shasta County.

## 1.2 REVIEW METHODS

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The following information was gathered from the districts to understand the current status of district operations and services:

- Governance and Organization
- Financial
- Personnel
- Facilities and Equipment

Information gathered was analyzed and applied to make the required determinations for each agency and reach conclusions about the focus issues identified in the service review. All information gathered for this report is filed by LAFCO for future reference.

## 1.3 COMMON TOPICS FOR EACH AGENCY PROFILE

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A number of topics are evaluated in each agency profile. Those topics are defined in this section and discussed further in the agency profiles.

### **Disadvantaged Unincorporated Communities**

LAFCO is required to evaluate disadvantaged unincorporated communities (DUCs) as part of its municipal service review process. Per California Senate Bill 244, a DUC is defined

as any area with 12 or more registered voters where the median household income (MHI) is less than 80 percent of the statewide MHI. Within a DUC, three basic services are evaluated: water, sewer and fire protection.

The California Department of Water Resources Disadvantaged Communities Mapping Tool uses US Census Block Groups, Tracts and Places from the US Census American Community Survey (ACS) 5- Year Data: 2010-2014 to map disadvantaged communities. Using this information, each district or agency is evaluated to determine whether or not it is a DUC, or in the case of cities, whether or not there are DUCs within the city's SOI. In many cases, Census Block Groups are larger than Districts. In these cases, LAFCO's evaluation was conducted with an abundance of caution to ensure no DUCs are overlooked.

### **Shasta County Growth Projections**

Between 2013 and 2017, the Shasta County population grew from 177,966 to 178,919 people, an average annual growth rate of 0.12 percent<sup>1</sup>. When reviewing population data, it is important to distinguish between population changes that affect the entire County and the unincorporated portion of the County, which can be affected by annexations and other boundary changes. The unincorporated area of the County currently makes up about 38% of the County's total population. The California Department of Finance projects the County's population will increase from 179,412 to 188,154, between 2020 and 2030, an average annual growth rate of 0.49%<sup>2</sup>. If the unincorporated area's portion of the County's population remains near 38%, it is estimated that the unincorporated area would increase from 68,177 to 71,499 people.

However, according to the most recent estimate from the California Department of Finance, the population of Shasta County as a whole decreased by 0.1% from 2018 to 2019<sup>3</sup>. This could be the result of the Carr Fire that consumed 359 square miles around Whiskeytown Reservoir in 2018. For the purposes of this report, we will use an annual population growth estimate of 0.12 to 0.49 percent to predict the range of future populations that may be served by the Districts during this MSR cycle. It should also be noted that the Department of Finance, Demographics Division, now states that assumptions used to project future population may no longer be applicable and that these projections could change with their next estimate cycle, which is every 5 years.

### **Existing and Planned Land Uses**

Land use within the unincorporated portion of the districts is subject to the Shasta County General Plan and Zoning Regulations. Portions of the districts within the City of Redding are subject to City land use regulations.

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<sup>1</sup> US Census Bureau, 2013-2017 American Community Survey 5-year Estimates.

<sup>2</sup> California Department of Finance, Projections, P-1: State Population Projections (2010-2060), Total Population by County (1-year increments).

<sup>3</sup> California Department of Finance, E-1 Population Estimates for Cities, Counties, and the State – January 1, 2018 and 2019, May 2019.



## **Types of Control Methods**

Mosquito abatement districts use an integrated approach to control nuisance and vector populations. This involves monitoring populations and deploying appropriate control for the situation. Methods fall into four categories: public outreach and education, biological, physical, and chemical control.

### **Biological Control**

Biological control is the use of living organisms, such as natural predators, parasites or pathogens, for pest control. These organisms attack harmful pests, resulting in a population reduction. The primary biological control for mosquitoes is the mosquitofish, *Gambusia affinis*. Mosquitofish are ideal control agents, as they feed primarily at the water's surface, where larvae are found. They can tolerate significant water temperature and water quality ranges.

Mosquitofish are easy to handle, transport, stock, and monitor. Their use is a long-term control strategy that works well in artificial water bodies such as ornamental ponds, animal watering troughs, water gardens, fountains, and unmaintained swimming pools.

Mosquito pathogens include an assortment of bacteria, including *Bacillus sphaericus* (Bs), *Bacillus thuringiensis israelensis* (Bti), and *Saccharopolyspora spinosa* (spinosid). These are also referred to as biorational products. Bs and Bti, produce proteins that are toxic to most mosquito larvae, while spinosid produces compounds known as spinosyns, which effectively control all larval mosquitoes.

### **Physical Control**

Physical control (also known as source reduction, environmental manipulation, or permanent control) to reduce mosquito breeding sites is a very effective control method. Physical control can be the most effective technique available and is accomplished by eliminating mosquito breeding sites or modifying sites to favor natural predation or to be unfavorable to mosquitoes. Source reduction can virtually eliminate the need for pesticide use and is recognized for its effectiveness and economic benefits. Physical controls include: promoting effective drainage, controlling vegetation, and encouraging appropriate irrigation timing.

### **Microbial and Chemical Control**

Microbial and chemical control is the judicious application of specific chemical compounds (insecticides) to reduce adult and immature mosquito populations. These are used when biological control methods have been incapable of reducing mosquito populations below tolerable levels or when emergency control measures are needed to rapidly disrupt or terminate the transmission of disease to humans. Adulticides are chemicals that specifically reduce adult mosquitoes. Larvicides target mosquito larvae and pupae.

The UC Davis Western Integrated Pest Center published 'Management of Mosquitoes: A Case Study of West Nile Virus in California (October 2017)' on the importance of an integrated pest management program in preventing West Nile Virus in California. This report documents integrated pest management tools used by California mosquito abatement districts and how recent changes in decision-tools, mapping and surveillance, area-wide management, and outreach, have further reduced the exposure of humans and the environment to mosquitoes and the products used to control them. This report can be downloaded at:

<http://westernipm.org/index.cfm/about-the-center/publications/special-reports/mosquito-pdf/>

## **2.0 AGENCY PROFILES**

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This section provides a review of the Mosquito Abatement and Vector Control Districts listed below. Included in each profile is a description of each agency's organizational development, tables listing key service information, and maps showing jurisdictional boundaries.

### **Shasta Mosquito and Vector Control District**

### **Burney Basin Mosquito Abatement District**

# Shasta Mosquito and Vector Control District

Shasta Mosquito and Vector Control District (SMVCD) covers a third of Shasta County including the Cities of Redding, Anderson, and Shasta Lake, the entire I-5 corridor through the county, Lakehead area and unincorporated areas to the west and east of Anderson. Due to the large District size and the many different types of land uses found in these areas, SMVCD utilizes a range of data collection and control techniques to serve the area.



SMVCD monitors and controls mosquito populations primarily by focusing on juvenile populations that are more concentrated and easier to abate through physical, biological, and chemical methods. SMVCD also conducts adult mosquito control activities and monitors for other vectors including ticks and rodents.

SMVCD previously operated with a budget deficit and utilized reserve funds to maintain operations and meet the rising costs of services. However, in recent years the District has been working towards a more sustainable budget by gradually increasing assessments in two primary benefit areas; central Shasta County and southwestern Shasta County.

Overall, SMVCD is able to maintain its level of service for District residents, maintains high transparency by posting information about the district online, and has sufficient revenue to meet current costs.

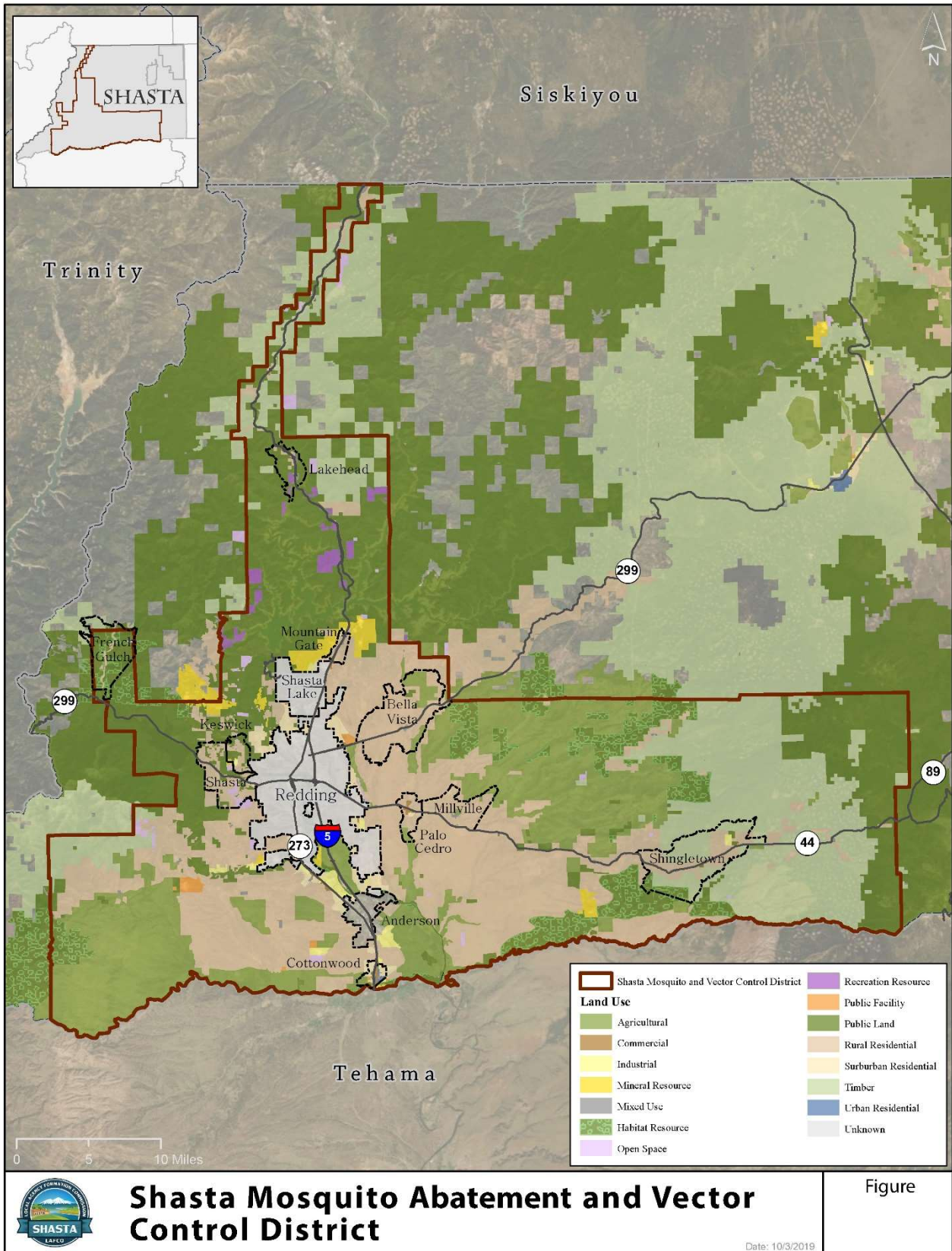
**Table 1: SMVCD Summary**

<b>Primary Contact</b>	Peter Bonkrude, District Manager		contact@shastamosquito.org		
<b>Address:</b>	19200 Latona Road, Anderson, CA 96007		(530) 365-3768		
<b>Website</b>	<a href="https://www.shastamosquito.org/">https://www.shastamosquito.org/</a>				
<b>Services</b>	Mosquito Abatement and Vector Control				
<b>Population Served:</b>	~166,400	<b>Service Area:</b>	1,291 sq. mi.	<b>Number of Staff</b>	15

## District Boundary and Sphere

SMVCD was originally formed in 1919 as the Redding Mosquito Abatement District. In the 1950's, several districts were consolidated, including Redding, to form the Shasta Mosquito Abatement District. In 1994, the district changed its name to the Shasta Mosquito and Vector Control District which at the time consisted of roughly 384 square miles. In 2007, an additional 700 acres was annexed to the district bringing the SMVCD area up to its current size of approximately 1,291 square miles. The SOI is coterminous with the District Boundary.

**Figure 1: SMVCD Boundary and Land Use**



Sources: Boundaries, Roads, Parcels: Shasta County GIS.

## **Existing and Planned Land Uses**

SMVCD is an expansive district, covering a third of Shasta County, that includes a wide range of designated land uses and zoning. Unincorporated areas of the district are subject to Shasta County General Plan land use designations and zoning. Incorporated portions of the District are subject to their respective city zoning.

The different land uses in the SMVCD boundary means that District staff must adapt a wide range of monitoring and control techniques. The use of Integrated Vector Management, discussed further under Municipal Services below, aids staff in this effort.

## **Land Use**

Land use in unincorporated portions of SMVCD range from Suburban Residential to Agricultural Grazing and Timber Production. The primary designations in the district include Rural Residential, Agricultural, and Timber. Other designations include Mineral Resource, Habitat Resource, Public Land, and Public Facility.

## **Zoning**

Zoning in SMVCD unincorporated areas is primarily comprised of Rural Residential and Limited Agricultural. Other zoning includes National Recreation Area, Open Space, Mineral Resource, and Unclassified lands. Combining designations include Mobile Home and Building Site.

Zoning in the City of Redding is a mix of Residential, Public Facility, Industrial, Open Space Commercial and Downtown Mixed. Zoning in the City of Anderson primarily consists of Low, Medium, and High Density Residential with interspersed Commercial, Public Facilities, Manufacturing, and Agricultural areas.

Zoning in the City of Shasta Lake primarily consists of Single Family Residential (R-1), Interim Residential (IR), and Rural Residential (R-R). Additional zoning consists of General Industrial (M), Public Facility (PF), various commercial designations, multi-family residential, Planned Development (PD), and Unclassified (U) among others.

## **Growth and Population**

SMVCD reports an estimated population of approximately 156,000 within the District boundary. Using the most recently available census data and GIS analysis, the estimated District population is approximately 166,400, which is approximately 92 % of the total county population. As discussed under Shasta County population, growth in the region has been limited in recent years. Utilizing the estimated population and the anticipated annual growth range of 0.12 to 0.49 percent, there could be 167,401 to 170,517 people in the District by 2024.

## **Disadvantaged Unincorporated Communities**

As noted above, SMVCD covers a large area with a wide range of uses that encompasses several communities. As such, the district boundary includes several Disadvantaged Communities as defined by US Census Tracts. To qualify as a

Disadvantaged Community the MHI of the area must fall below 80% of the state MHI which is \$67,169<sup>4</sup>. Therefore, any area reporting an MHI of less than \$53,735 qualifies as disadvantaged. Several areas surrounding the SMVCD qualify under these guidelines. These areas should be considered in more detail should further annexations be proposed.

Shingletown is included in US Census Tract 06089012603 which in 2017 had a MHI of \$45,375. Areas around Shasta Reservoir including Tract 06089011803 and 06089012500 had MHIs of \$41,379 and \$39,808 respectively<sup>5</sup>.

Several Disadvantaged US Census Blocks are also including in the SMVCD boundary. The area around Whiskeytown Lake (Block Group 060890124001) which includes the towns of French Gulch and Shasta, had a 2017 MHI of \$35,326. Block Group 060890123032 near Cottonwood had a 2017 MHI of \$38,500.

East on Hwy 299 are several communities including Oak Run, Round Mountain, and Montgomery Creek. These communities are split between three different block groups which include 060890126011, 060890126012, 060890126013 which had MHIs of \$53,608, \$38,750, and \$61,884 respectively. Portions of this area do qualify as a DUC and should be looked at carefully if future annexation is proposed in the area.

The communities of Ono and Igo are on the border of two block groups. The block group to the south of Platina Road had a 2017 MHI of \$66,250 while the block group to the north had a MHI of \$59,394. Neither of these areas qualifies as a DUC.

## **Municipal Services**

The SMVCD primarily focuses on monitoring and controlling the local mosquito population. They also monitor other vectors including ticks and some rodent species in an effort to track various diseases including Lyme disease and Hanta virus. Another important part of SMVCD's operation is community outreach, which informs the public about personal safety, how to limit potential vector habitat and provides information about vector-borne diseases of significance within District boundaries.

### ***Mosquito Abatement***

The primary focus of the SMVCD is mosquito population monitoring and control. The District utilizes Integrated Vector Management which is a "science-based decision-making process that seeks to improve efficacy, fiscal responsibility and ecological soundness"<sup>6</sup>. This approach relies on ample data collection to identify potential mosquito sources and to determine the makeup of the local population. This allows the district to tailor treatment options to the area for more effective control.

Control operations, which include biological, chemical, and physical methods, primarily focus on immature mosquitoes either in larval or pupal form. In these forms they are more concentrated and easier to control. In order to identify potential breeding habitat and

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<sup>4</sup> US Census Bureau, American Community Survey, 5-Year Estimates 2013-2017.

<sup>5</sup> US Census Bureau, American Community Survey, 5-Year Estimates 2013-2017.

<sup>6</sup> SMVCD 2018 Annual Report, pg. 5.

treatment areas, SMVCD staff conduct regular monitoring and collect data from residents who submit service requests. Service requests can be for inspection of potential breeding habitats, reports of neglected standing water, such as catch basins, drainage facilities and pools which can serve as breeding habitats, or for mosquitofish, which prey on immature mosquitos and are considered a form of biological control. Mosquitofish are raised and planted by SMVCD in potential mosquito breeding habitats and are provided free of charge to residents within the district upon request<sup>7</sup>. The Redding area sees the highest number of service requests with 327 submitted in 2018<sup>8</sup>.

Chemical control is also used by SMVCD in the form of microbial products, growth regulators, surface oils, and toxins derived from bacteria. In 2018 over 5,000 treatments were applied utilizing over 30 different products<sup>9</sup>. While these treatments primarily focus on the immature mosquitoes, adult mosquitoes are also targeted with fogging. In 2018, SMVCD treated over 120,000 acres by emitting adulticide fog along several routes within the district<sup>10</sup>.

SMVCD maintains a current National Pollutant Discharge Elimination System (NPDES) Permit (#CAG 990004) with the State Water Resources Control Board. Under this permit SMVCD is required to log all applications of pesticides to waters of the US and submit an annual report to the SWRCB that summarizes pesticide applications, any violations that may have occurred, monitoring data, Best Management Practices, and any changes to SMVCD's Pesticide Application Plan.

Physical control of mosquitoes is conducted by altering the habitat where mosquitoes can be found. This includes removal of brush with either machinery or by hand, and elimination of breeding habitats such as sources of standing water.

### **Vector Monitoring**

The SMVCD monitors vector borne diseases in mosquitoes, ticks, and rodents. In an effort to better serve the residents of the district, the SMVCD recently completed construction of new lab facilities that allow staff to better monitor such diseases.

The SMVCD monitors Western black legged tick populations for abundance and potential diseases. Adult ticks are collected and submitted for virus testing including Lyme disease and bacteria. In 2018, 439 samples were collected and tested<sup>11</sup>.

Limited monitoring of rodent-borne diseases is conducted by SMVCD. This monitoring is conducted by partnering with the California Department of Public Health. Samples are collected and tested for diseases such as plague and Hanta virus.

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<sup>7</sup>Ibid, pg. 8.

<sup>8</sup> Ibid, pg. 7.

<sup>9</sup> Ibid, pg. 9.

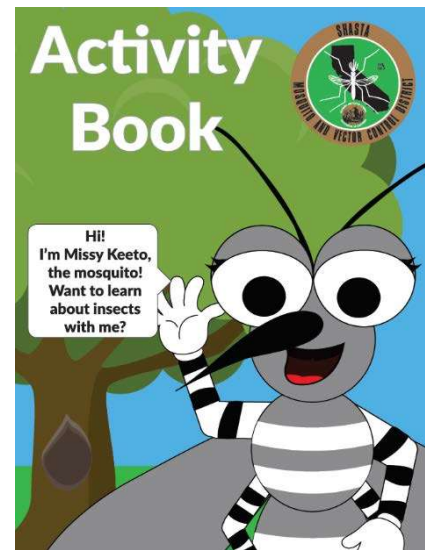
<sup>10</sup> Ibid, pg. 11.

<sup>11</sup> Ibid, 14.

Many different tools are utilized to survey for and track any instances of West Nile Virus. Most common is the use of mosquito samples. Other indicators include dead birds and sentinel chickens. Sentinel flocks consist of eight chickens each and are dispersed throughout the service area. They can be tested regularly which provides valuable information on the movement of West Nile Virus or any other mosquito borne diseases.

### **Community Outreach**

In recent years SMVCD has been working on improving its presence in the region. They utilize a multimedia approach and have recently added Missy Keeto, the mosquito mascot. Outreach is conducted to inform the public about personal defense against mosquitoes and other vector species and on how to reduce potential breeding habitat. In 2018, SMVCD released 168 public service announcements, participated in 18 community events, conducted 9 public presentations, and has highlighted in multiple other public outreach activities.



### **Equipment**

SMVCD maintains a fleet of vehicles to conduct district operations. Vehicles include all-terrain vehicles (ATVs), larvicide vehicles, multi-use vehicles, full-sized trucks, SUVs, a dump truck, super duty trucks, an amphibious all terrain off-road vehicle, a backhoe, a forklift, trailers, and a boat. The larvicide vehicles are used the most in day to day operations. These vehicles are typically small trucks that carry equipment for dispensing granular pesticides.

All vehicles are maintained according to SMVCD's Fleet Management Policy. This policy outlines the goals for the fleet along with routine maintenance schedules, transmission service schedules, and replacement schedules.

### **Work with Other Agencies**

SMVCD coordinates with local and state agencies to disseminate information and track vector transmitted diseases. The District works closely with both the Shasta County Public Health Department and with Shasta County Department of Agriculture, California Department of Food and Agriculture, and other county mosquito control districts. Other entities include the California Department of Public Health, California Mosquito-borne Virus Surveillance and Response Program, and the University of California, Davis.

### **Financial Overview**

SMVCD is funded by a portion of the ad valorem property tax and two benefit assessments from two different regions. Of the 1% ad valorem property tax collected by Shasta County, SMVCD receives 0.007113%. A third assessment is authorized for the district, but it is currently levied at \$0. Should additional funding be required by SMVCD,



the assessment can be levied at an amount designated by the Board but not to exceed \$7.02 per single family home<sup>12</sup>. A summary of SMVCD's annual budget is provided below in Table 2.

**Table 2: SMVCD Annual Budgets**

<b>Budget Category</b>	<b>FY 2017/18 Actual</b>	<b>FY 2018/19 Budget</b>	<b>FY 2019/20 Budget</b>
<b>Revenue</b>			
Secured Taxes	\$910,415	\$940,000	\$976,000
Old Benefit Assessment	\$0	\$0	\$0
Benefit Assessment -Area 1	\$1,138,342	\$1,208,850	\$1,262,121
Benefit Assessment – Area 2	\$140,606	\$149,685	\$156,600
Other	\$452,604	\$452,300	\$468,000
<b>Total</b>	<b>\$2,641,967</b>	<b>\$2,750,835</b>	<b>\$2,862,721</b>
<b>Expenses</b>			
Payroll	\$1,858,539	\$1,982,568	\$2,072,983
Administrative	\$297,744	\$330,559	\$367,684
Utilities	\$27,040	\$29,200	\$29,200
Operations	\$368,403	\$376,154	\$402,230
<b>Total</b>	<b>\$2,551,726</b>	<b>\$2,718,481</b>	<b>\$2,872,098</b>
<b>Difference (deficit)</b>	<b>\$90,241</b>	<b>\$32,354</b>	<b>(\$9,377)</b>

Additional expenses for FY 2019-20 not included in the budget table above include debt repayment of \$23,746 and fleet replacement costs which are planned up to \$33,000. These additional expenses will be covered by reserve fund transfers<sup>13</sup>.

While the District has been working towards a more sustainable and balanced budget, FY 2019/20 shows a deficit of \$9,377. This is due to several capital purchases and building improvements that are scheduled for the fiscal year. The District will be replacing furniture in their main office and board room. Additional costs include asphalt repair, replacement of damaged vinyl tile, and a new concrete pad near the new lab building<sup>14</sup>. The Capital Improvement Plan for District infrastructure is planned to be updated in FY 2019/20. This will allow the district to prepare for other needed improvements in the future.

The majority of SMVCD funding (44.1%) comes from Benefit Assessment Area 1 in central Shasta County around Redding and Anderson. The next largest funding source (39.5%) is from ad valorem property taxes. Minimal funding comes from Benefit Assessment Area 2, reimbursement for services, RDA monies, interest, and miscellaneous revenues<sup>15</sup>.

<sup>12</sup> Shasta Mosquito and Vector Control: 2019-2020 Budget Presentation, pg. 4.

<sup>13</sup> Ibid, pg. 7.

<sup>14</sup> Ibid, pg. 9.

<sup>15</sup> Ibid, pg. 4.

The largest SMVCD expense is employee salaries and benefits (71%). The next two largest expenses are for operations (14%) and administration (12%). Other expense areas include utilities and capital assets<sup>16</sup>. In 2018, SMVCD acquired a \$200,000 loan to help pay for the laboratory remodel. This will add to the District's long-term liability which also includes compensated absences and post-employment benefits.

In past years, the district has been operating with a deficit and utilizing reserve funds to cover rising costs of services. However, since FY 2014/15 the Board of Trustees has been working towards a balanced budget by gradually increasing assessment fees in assessment areas 1 and 2. This will lead to a more sustainable budget and potentially help rebuild reserves. Current fund balances as of June 30, 2018 are listed in Table 3.

**Table 3: SMVCD Committed Fund Balances**

Fund Name	Balance
Public Health Emergency Fund	\$300,000
Facility Improvement Fund	\$200,000
Bio-Control Development Fund	\$50,000
Existing Facilities Renovation Fund	\$87,000
Fixed Asset Replacement Fund	\$48,000
IT Equipment Replacement Fund	\$65,000
Revenue Stabilization Fund	\$80,381
<b>Total</b>	<b>\$830,381</b>

### **Accountability and Governance**

The SMVCD is an independent special district overseen by a five-member Board of Trustees (Table 3) which meet once per month on the third Thursday at 1:00pm. Meetings are held at the district office located at 19200 Latona Road, Anderson, CA. One board member is appointed by each of the cities in the district which includes Anderson, Redding, and Shasta Lake. Two additional board members are appointed by the Shasta County Board of Supervisors. Trustees receive an in-lieu of travel expense of \$100 per month for attending meetings.

**Table 4: SMVCD Board of Trustee Members**

Trustee	Appointed By	Term Start
Larry Mower - President	City of Anderson	2008
Ben Hanna – Vice President	Shasta County	2018
Michael McNamara - Secretary	City of Redding	2015
Vickie Marler	Shasta County	2011
Ann Morningstar	City of Shasta Lake	2016

Board of Trustee meeting agendas and minutes are posted on the district website listed in Table 4. Additional items available on the website include annual budgets and audits,

<sup>16</sup> Ibid, pg. 5.

district map, district annual report, safety data sheets for products used, and other general information about the district.

## **Municipal Service Review Determinations**

### **(1) Growth and population projections for the affected area**

- a. Currently, SMVCD serves an estimated population of 166,400.
- b. Using the 0.12 to 0.49 percent annual growth rate and the estimated population of 166,400, there could be an increase to between 167,401 and 170,517 persons by the year 2024.

### **(2) The location and characteristics of any disadvantaged unincorporated communities within or contiguous to the sphere of influence**

- a. Several DUCs exist in and around the SMVCD boundary. These include, but are not limited to, the Interstate 5 corridor from Shasta Lake to the northern border of Shasta County including Lakehead/Lakeshore, areas around Whiskeytown Lake including French Gulch, Cottonwood, and Shingle Town. Additional DUCs may be present to the east on Hwy 299 and should be considered carefully in the event annexation is proposed.

### **(3) Present and planned capacity of public facilities and adequacy of public services, including infrastructure needs or deficiencies**

- a. The SMVCD laboratory facility was recently updated and is now able to provide more District support services.
- b. SMVCD has the ability and capacity to provide vector control services and has no unmet infrastructure needs or deficiencies. The District has adequate staff and equipment to provide efficient and effective services. The District's equipment, vehicles and facilities appear to be well maintained and there is a vehicle replacement plan.

### **(4) Financial ability of agencies to provide services**

- a. SMVCD regularly relies on reserve funding to support District services. However, in recent years the Board has been taking steps to work towards a sustainable budget for the District. *[need to provide more info on this]*
- b. The District is able to continue providing services to the region within the means of its funding limitations.

### **(5) Status of and, opportunities for, shared facilities**

- a. SMVCD occasionally assists the California Department of Public Health with rodent surveillance as part of the District's vector monitoring.

### **(6) Accountability for community service needs, including governmental structure and operational efficiencies**

- a. SMVCD is governed by a five-member Board of Trustees.
- b. The District maintains a website ([www.shastamosquito.org](http://www.shastamosquito.org)) where it posts information about the District for the public. A link to the Board meeting

agendas and minutes is available on the main page along with links for notifications and service requests.

**(7) Any other matter related to effective or efficient service delivery.**

- a. No other matters have arisen during this MSR.

**Sphere of Influence Determinations**

Shasta LAFCO makes the following written SOI determinations.

**(1) The present and planned area land uses, including agricultural and open-space lands.**

- a. Land uses within the District and SOI are subject primarily to the Shasta County General Plan and Zoning Regulations with the exception of the incorporated territory within the Cities of Redding Anderson and Shasta Lake which are subject to each Cities' land use planning authority.
- b. Unincorporated area land uses in the SMVCD boundary are primarily Public Land, Rural Residential, Agricultural, and Timber.
- c. Unincorporated area land uses surrounding the District boundary are primarily Public Land, Agricultural Grazing, Rural Residential, and Timber.

**(2) The present and probable need for public facilities and services in the area.**

- a. The MSR indicates that there is a continued need for services in the region based on the amount of service requests and presence of vector spread diseases.
- b. The Carr Fire created an increase in potential mosquito breeding habitats due to unmaintained pools in affected areas. This creates a continued need for mosquito abatement and vector control in the area.

**(3) The present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide.**

- a. The MSR indicates the services are adequate to meet present and planned community needs for mosquito abatement and vector control.

**(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.**

- a. Other communities of interest near the District are Whitmore, Oakrun, and Dunsmuir (in Siskiyou County).

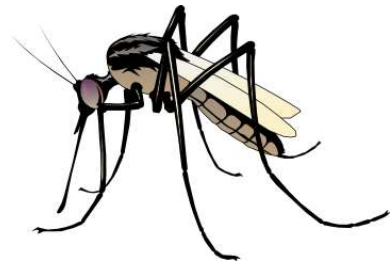
**(5) The Present and Probable Need for the Services for Any Disadvantaged Unincorporated Community within the Area**

- a. Portions of Oakrun and Whitmore near the current District boundary are considered DUCs and may request service in the future should need arise.
- b. Additional communities east on Hwy 299, including Round Mountain and Montgomery Creek can be considered DUCs. While no service has been requested at this time, they could ask for service at a later date.

# Burney Basin Mosquito Abatement District

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Burney Basin Mosquito Abatement District (BBMAD) is a special district located in northeast Shasta County. The District covers a wide area around and to the north of the town of Burney. The District provides abatement of juvenile and adult mosquitos by utilizing a range of control techniques. This is done to help control any diseases that may potentially be spread by mosquitos and to ease nuisance populations for District residents.



The town of Burney is located on Highway 299 approximately 25 miles from the eastern boarder of the County. BBMAD extends from Burney north to Cayton, a small ranching area located off of Highway 89. The District is primarily made up of timber, agricultural, and open space lands. It also includes a portion of Lake Britton and the smaller Lake Margaret.

**Table 5: Burney Basin MAD Overview**

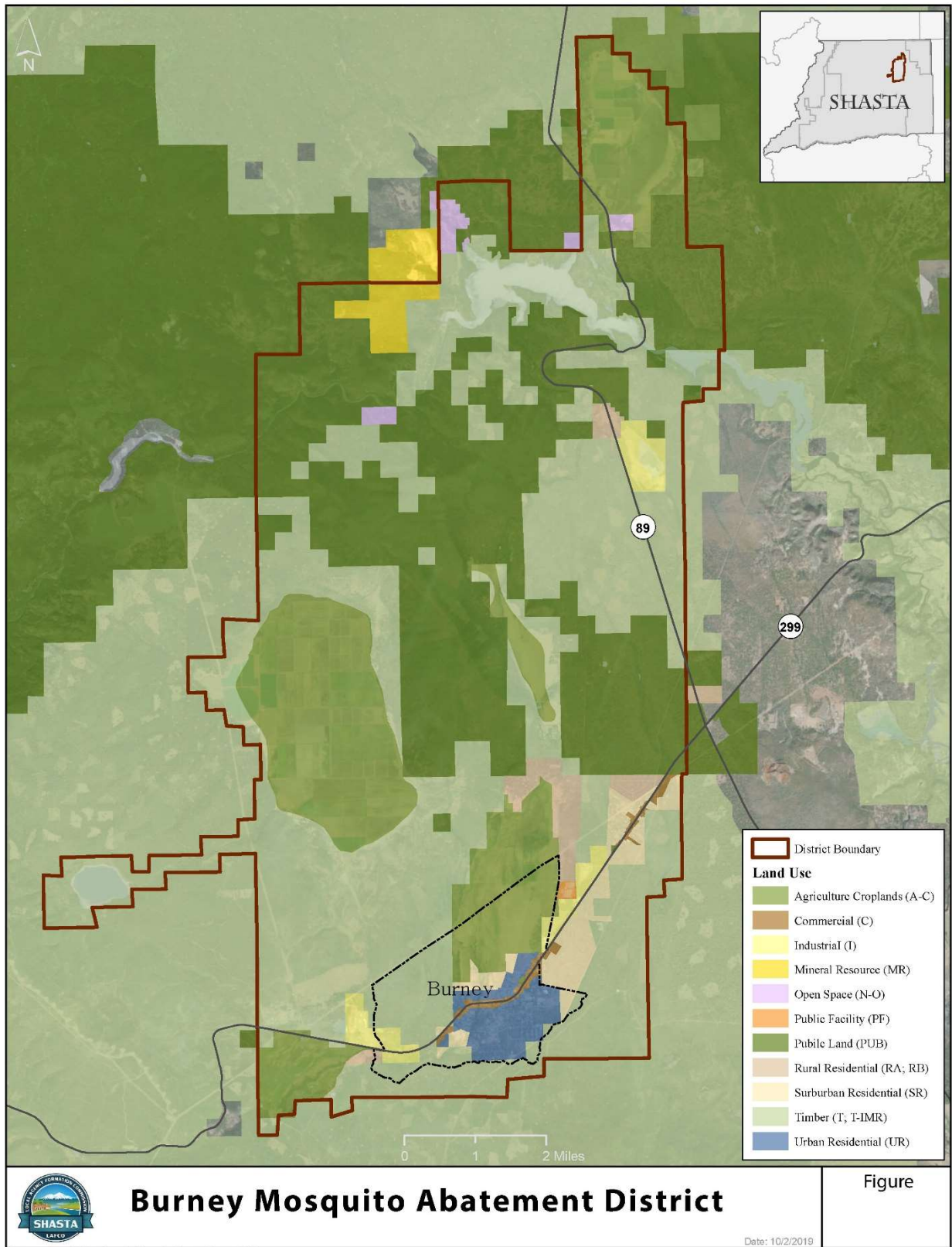
<b>Primary Contact</b>	Rick Dougherty	(530) 335-2133	manager@bbmad.org
<b>Address:</b>	37506 Main Street/ P.O. Box 1049, Burney, CA 96013		
<b>Website</b>	None		
<b>Services</b>	Mosquito Abatement		
<b>Population Served:</b>	~4,150	<b>Service Area:</b>	77.15 square miles
<b>Number of Staff</b>	1		

## District Boundary and Sphere

The BBMAD boundary is approximately 77.15 square miles and is coterminous with its Sphere of Influence (SOI) which includes large areas of public lands and farms. The boundary includes the towns of Burney and Johnson Park and extends up to Cayton along Highway 89. The northern section of the District around Cayton does not currently receive services from the District nor do parcels in that area pay taxes to the District.

Recently, residents from Cassel and Hat Creek, areas east and southeast of the District, have inquired about the cost of obtaining services from BBMAD. The District will be looking into potential service to those areas but is not actively seeking annexation at this time.

Figure 2: BBMAD District Boundary and Land Use



## **Land Use**

Land use designations in and around the unincorporated communities of Burney and Johnson Park, includes a mix of Residential, Public Facilities, Industrial, and Commercial. Additional District land use designations include Public Facility, Mineral Resource, Timber, Public Lands and Agricultural Croplands. Land use outside the District boundary are primarily Timber, Public Land, and Agricultural Croplands.

## **Zoning**

Zoning in the BBMAD boundary is primarily Timber Production (TP), Unclassified (U), and Agricultural Exclusive – Agricultural Preserve (EA-AP). Like with land use, zoning in and around Burney and Johnson Park are more diverse. Zoning designations include multiple low density residential (R-1,IR, R-L), commercial and industrial districts (M, C-2, M-L), Timberland (TL), Public Facility (PF), Planned Development (PD), Mineral Resource (MR), and Designated Floodway (F-1) along Burney Creek. Zoning outside the District is primarily Unclassified and Timber Production.

## **Growth and Population**

BBMAD reports a district population of approximately 3,000. Population is primarily centered around the town of Burney along Highway 299 with dispersed rural development throughout the rest of the district. Using the most recently available census data and GIS analysis, the estimated population within the District boundary is approximately 4,150. As discussed under Shasta County population, annual growth is estimated to between 0.12 and 0.49 percent. Using the estimated population of 4,150, there could be 4,175 to 4,253 people in the District by 2024.

## **Disadvantaged Unincorporated Communities**

BBMAD covers a wide area around and to the north of Burney which is a rural part of the County. The District serves areas in two adjacent US Census Tracts. Census Tract 06089012701 has a 2017 ACS 5-year MHI estimate of \$39,708 which is 59% of the California MHI. Census Tract 06089012702 has a 2017 ACS 5-year MHI estimate of \$48,125 which is 72% of the California MHI. Both tracts fall below 80% of the California MHI which qualifies them as DUC. Areas surrounding the District, including Cassel and Hat Creek, are also within these Census tracts and are therefore also considered DUCs.

## **Municipal Services**

BBMAD provides mosquito abatement services to areas within the District boundary. This involves utilizing a wide range of techniques to control juvenile mosquitos and adult mosquitos. District activities are typically surveillance and chemical control in the form of larvicide and adulticide. Surveillance includes identifying natural and residential mosquito breeding sources for potential treatment. Larvicide involves applying pesticides to water sources identified during surveillance. Adulticide involves applying an Ultra-Low Volume (ULV) pesticide in the air (fogging) to control disease-carrying and nuisance

populations of adult mosquitos. The District also raises mosquito fish which are provided to District residents free of charge as a form of biological control.

While there are residential and natural treatment areas, the majority of treatments conducted by the District take place at two large wild rice ranches along Goose Valley and Black Ranch Roads, with over 4,000 acres of irrigated cropland and pasture that provides mosquito breeding territory.

To help provide these services, BBMAD maintains a staff of one with seasonal staff brought on as needed. Seasonal staff is typically brought on from June through August to assist with surveillance and treatments. The District also maintains abatement equipment which is listed below:

- Electric, truck-mounted ULV fogging machine
- Truck-mounted larvicide granular blower
- ATV mounted granular spreader
- Pull behind 30-gallon liquid larvicide sprayer tank

### **Financial Overview**

The primary funding source for BBMAD is secured property taxes from parcels in the District. In FY 2018/19 this accounted for approximately 66% of the District's revenue. Additional funding comes from unsecured property taxes, Shasta County, and interest. The following table provides a summary of the last three fiscal years.

Additional taxes providing revenue to the District include unitary taxes. These are assessed on infrastructure and land utilized by gas and electric utility companies, railroads, and the like. State homeowner's insurance payments are received to account for taxes that would have been paid by those claiming a local homeowner's exemption.

Recently, Shasta County has started providing a line item for accounting services provided by the county. The Shasta County Contribution shows the value of those services. There is a corresponding amount included as part of the Professional Services expense to the District which makes the net effect zero.

The District strives to maintain a balanced budget and operate under budget when possible. However, the District has raised concerns about the increasing CalPERS unfunded liability payments and Governmental Accounting Standards Board Statement No. 68 reporting requirements. These two expense items are likely to increase the Districts expenses above revenue. In order to maintain a sustainable budget, the District may want to consider pursuing other long-term funding strategies, such as a special assessment, in order to cover rising costs.



**Table 6: BBMAD Financial Overview**

<b>Revenue</b>	<b>FY 2016/17 Actual</b>	<b>FY 2017/18 Actual</b>	<b>FY 2018/19 Actuals</b>
Secured Taxes	\$125,389	\$102,101	\$104,676
Unitary Taxes	\$17,523	\$18,511	\$19,261
Other Taxes	\$8,870	\$8,257	\$8,263
Interest	\$915	\$1,562	\$3,257
State Homeowners Ins.	\$2,219	\$1,711	\$1,670
Shasta Co. Contribution	-	-	\$7,145
Insurance Loss & Refunds	\$235	\$3,672	\$13,623
Other	-	-	\$6
<b>Total</b>	<b>\$155,151</b>	<b>\$135,814</b>	<b>\$157,901</b>
<b>Expenses</b>	<b>Budgeted</b>	<b>Budgeted</b>	<b>Actual</b>
Salaries and Benefits	\$67,019	\$65,873	\$68,396
Agricultural Expense	\$20,000	\$32,000	\$19,699
Maintenance	\$5,000	\$6,000	\$1,636
Professional Services	\$10,275	\$16,023	\$10,727
Transportation/ Travel	\$6,000	\$5,000	\$4,295
Utilities	\$3,250	\$3,250	\$2,931
Capital Equipment	\$0	\$0	\$0
Other	\$15,155	\$14,327	\$12,005
<b>Total</b>	<b>\$126,699</b>	<b>\$142,473</b>	<b>\$119,689</b>
Gain (Loss)	\$28,452*	(\$6,659)*	\$38,212

\*Budgeted expenses against actual revenue. Not a direct comparison and may not accurately reflect District standing for said FY.

### **Accountability and Governance**

BBMAD is governed by a Board of Trustees that meets the second Wednesday of each month at 4:30pm at the District office located at 37506 Main Street, Burney, CA. The current Trustees are:

- Chad Arseneau
- Dana Murray
- Walt Caldwell
- Abe Hathaway
- Bill Ford

Board agendas are posted 72 hours in advance at the District office in a waterproof container near the front gate. Copies of past agendas are also available to the public in the District office and are provided to Shasta LAFCo.

There is currently no District website. The District may want to consider setting up a basic website where agendas, meeting minutes, financial documents, and other important

District information can be posted. This would help increase transparency for the District and accessibility for residents seeking information and services.

SB 929 became effective January 1, 2020, which requires all special districts to have a website with basic information about the district or to adopt a resolution hardship which prevents the district from maintaining a website. More information on SB 929, including options for coming into compliance, can be found on the California Special Districts Association website. On December 11, 2019 the BBMAD Board passed resolution 20-03 stating a hardship for the District which satisfies the SB929 requirements.

### **Municipal Service Review Determinations**

#### **(1) Growth and population projections for the affected area**

- a. Currently, BBMAD serves an estimated population of 3,000.
- b. Using the 0.12 to 0.49 percent annual growth rate and the estimated population of 3,000, there could be an increase to between 4,175 and 4,253 persons by the year 2024.

#### **(2) The location and characteristics of any disadvantaged unincorporated communities within or contiguous to the sphere of influence**

- a. There are two census tracts that cover the District area and they both qualify as DUCs. Any surrounding areas will require careful consideration before any potential annexation.

#### **(3) Present and planned capacity of public facilities and adequacy of public services, including infrastructure needs or deficiencies**

- a. The current BBMAD office/equipment storage facility is considered adequate to serve the needs of the public.
- b. District vehicles and equipment are in working order and no deficiencies have been identified. District must have website or pass hardship resolution per AB 929.

#### **(4) Financial ability of agencies to provide services**

- a. BBMAD has been operating with expenses below revenue for several fiscal years allowing for small increases to the reserve fund.
- b. Rising costs of CalPERS unfunded liability and governmental accounting standards may impact the District's ability to operate within budget. Additional funding mechanisms may be beneficial in future years.

#### **(5) Status of and, opportunities for, shared facilities**

- a. BBMAD is in close proximity to the Fall River Mills area in the Pine Grove MAD. While no sharing of facilities currently exists, it may be possible to share resources should the need arise.

**(6) Accountability for community service needs, including governmental structure and operational efficiencies**

- a. BBMAD is governed by a five-member Board of Trustees.
- b. The District does not currently have a website. Creating a simple website to post Board meeting agendas and minutes along with other District information would help improve transparency for the District.

**(7) Any other matter related to effective or efficient service delivery.**

- a. No other matters have arisen during this MSR.

**Sphere of Influence Determinations**

Shasta LAFCO makes the following written SOI determinations.

**(1) The present and planned area land uses, including agricultural and open-space lands.**

- a. Land uses within the District and SOI are subject to the Shasta County General Plan and Zoning Regulations.
- b. Currently land uses in the BBMAD boundary are primarily Timber Production and Public Lands.
- c. Current land uses surround the District boundary are primarily Timber Production, Public Lands, and Agricultural Croplands.

**(2) The present and probable need for public facilities and services in the area.**

- a. The MSR indicates that there is a continued need for services in the region due to the large amounts of heavily irrigated cropland which provides breeding habitat for mosquitos.

**(3) The present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide.**

- a. The MSR indicates the services are adequate to meet present and planned community needs for mosquito abatement.

**(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.**

- a. The nearby rural towns of Cassel of Hat Creek are of interest to the District.
- b. Additional communities of interest include Montgomery Creek and Round Mountain to the south west of the District.

**(5) The Present and Probable Need for the Services for Any Disadvantaged Unincorporated Community within the Area**

- a. The towns of Cassel and Hat Creek are considered DUCs and have expressed interest in receiving services from the District.