FINAL

MUNICIPAL SERVICE REVIEW

VOLUME II—UTILITY SERVICES

Report to the
Alameda Local Agency Formation Commission

Upper San Leandro Reservoir Photo Credit: Charles Webber, California Academy of Sciences © 2002

Prepared by Burr Consulting
In association with
CDM
Braitman & Associates
P&D Consultants

Accepted on November 10, 2005

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Report to the
Alameda Local Agency Formation Commission

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ACRONYMS

ABAG	Association of Bay Area Governments
ACCWP	Alameda Countywide Clean Water Program
ACFCD	Alameda County Flood Control & Water Conservation District
ACRCD	Alameda County Resource Conservation District
ACWA	Association of California Water Agencies
ACWD	Alameda County Water District
ACWMA	Alameda County Waste Management Authority
ADWF	Average dry weather flow
afa	Acre-feet per year (annum)
AWWA	American Water Works Association
BAWAC	Bay Area Water Agencies Coalition
BAWSCA	Bay Area Water Supply and Conservation Agency
CALFED	California Bay Delta Authority
CAFR	Comprehensive Annual Financial Report
ccf	Hundreds of cubic feet
CCTV	Closed circuit television
CCWD	Contra Costa Water District
cfs	Cubic feet per second
CIP	Capital Improvement Plan
CKH Act	Cortese-Knox-Hertzberg Local Government Reorganization Act
CSA	County Service Area
CVP	Central Valley Project
CVSD	Castro Valley Sanitary District
CWP	Clean Water Program
CY	Calendar year
DHS	California Department of Health Services

DSRSD	Dublin San Ramon Services District
DWR	California Department of Water Resources
EBDA	East Bay Dischargers Authority
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
EPA	U.S. Environmental Protection Agency
ERAF	Educational Revenue Augmentation Fund
FY	Fiscal year
GIS	Geographic Information Systems
gpm	Gallons per minute
IWMB	California Integrated Waste Management Board
ISO	Insurance Services Organization
JPA	Joint Powers Authority
LAFCo	Local Agency Formation Commission
LAVWMA	Livermore-Amador Valley Water Management Agency
LLNL	Lawrence Livermore National Laboratory
MCL	Maximum Contaminant Level
mg	Millions of gallons
mgd	Millions of gallons per day
MS4	Municipal separate storm sewer systems
MSR	Municipal Service Review
MUD	Municipal Utility District
NA	Not applicable
NP	Not provided
NPDES	National Pollutant Discharge Elimination System
OLSD	Oro Loma Sanitary District
PUC	California Public Utilities Commission
PWWF	Peak wet weather flow
RCD	Resource conservation district
RWQCB	Regional Water Quality Control Board
SBA	South Bay Aqueduct
SCADA	Supervisory Control and Data Acquisition
SDAF	Special District Augmentation Fund (abolished)
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
SFPUC	San Francisco Public Utilities Commission
SOI	Sphere of influence
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total dissolvable solids
TMDL	Total maximum daily load
TWA	Tri-Valley Wastewater Authority (abolished)
UGB	Urban growth boundary
ULFT	Ultra low-flush toilets
USBR	U.S. Bureau of Reclamation
USD	Union Sanitary District
WTHCD	Washington Township Health Care District
WTP	Water treatment plant
WWTP	Wastewater treatment plant

GLOSSARY

Assessment: In a financial context, the term refers to special benefit assessments. State constitutional requirements include two-thirds voter approval for such assessments.

Average dry weather flow: The average non-storm flow over 24 hours during the dry months of the year (May through September). It is composed of the average sewage flow and the average dry weather inflow/infiltration.

Charter city: Organizational form of certain California cities, including Alameda, Albany, Berkeley, Hayward, Oakland, Piedmont, and San Leandro. Areas in which a charter city has greater control over its own affairs than a general law city include, for example only, the conduct of municipal elections, procedures for initiatives, referendum and recall, procedures for adopting ordinances, bidding by public works contracts, making charitable gifts, organizational structure of city government, and regulations and government of the police force.

Community Facilities District: An assessment district used to finance agency-owned infrastructure (e.g., sewer lines, water lines, drainage infrastructure, streets, etc.) and occasionally to finance certain municipal service costs. Districts are formed under the Mello-Roos Community Facilities Act of 1982 with formation subject to two-thirds voter approval.

Conservation pricing: Water and sewer rate structures with incentives for water conservation.

Declined block rate structure: A multi-tier rate structure with lower rates for households with relatively high monthly use levels.

Desalination: Removing salts from ocean or brackish water using reverse osmosis or other technologies.

Distribution loss rate: Percentage of water placed into the water distribution system that does not make its way to customers in the form of metered consumption.

Diversion Rate: Percentage of waste materials diverted from traditional disposal, such as landfilling or incineration to be recycled, composted or re-used**.**

Effluent: Wastewater (treated or untreated) that flows out of a treatment plant, sewer or industrial outfall. Generally refers to wastes discharged into surface waters.

Employee health and safety severity rate: Annual number of work days lost due to work-related injury or illness per full-time equivalent employee.

Enterprise: Business-type operations, such as water and sewer utilities. The agency must maintain separate funds for each enterprise and may not use enterprise revenues to finance unrelated governmental activities.

Excellent condition: Facilities in excellent condition are relatively new (less than 10 years old) and require minimal maintenance.

Fair condition: Facilities in fair condition are operating at or near design levels; however, non-routine renovation, upgrading and repairs are needed to ensure continued reliable operation.

General law city: Standard organizational form for California cities, such as Dublin, Emeryville, Fremont, Livermore, Newark, Pleasanton, and Union City. While a general law city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general law, it is subject to constraints imposed by the general law, even those which are applicable to municipal affairs.

Good condition: Facilities in good condition provide reliable operation in accordance with design parameters and require only routine maintenance.

Groundwater: Supply of fresh water found beneath the Earth's surface, usually in aquifers, which supply wells and springs.

High-threat overflow location: Wastewater collection system locations with a high probability of sanitary sewer overflows.

Inclined block rate structure: A multi-tier rate structure with higher rates for households with relatively high monthly use levels.

Intertie: Pipeline connection between water service providers through which water may be transported and shared in the event of an outage.

Long-term: Within 15 years or longer.

Maximum contaminant level: The regulatory limit on contaminant concentrations. In drinking water, this is the level not anticipated to produce adverse health effects after a lifetime of exposure, based upon toxicity data and risk assessment principles.

Measure D: Refers to two separate Alameda County ballot measures passed by the voters in 1990 and 2000. 1) The 2000 Measure D established an urban growth boundary (UGB) and restricts the nature and extent of land uses outside the UGB to agriculture, resource management, watershed management, and low-density rural residential uses. It also barred the provision of public facilities and infrastructure in excess of what would be needed to serve the level and type of development that the measure allowed. 2) The 1990 Measure D, also known as Alameda County Waste and Recycling Act, imposed a $6.95/ton fee to be collected by the Alameda County Source Reduction and Recycling Board (ACSRB). The fee is apportioned between the ACSRB and the cities. Fifty percent of Measure D funds go to cities to fund waste reduction efforts.

Peak wet weather flow: Average volume of sewage under wet (winter) weather conditions.

Poor condition: Facilities in poor condition cannot be operated within design parameters. Major renovations are required to restore the facility and ensure reliable operation.

Potable water: Water suitable for human consumption.

Primary treatment: Basic wastewater treatment process that involves removing solids, such as rags, sticks and grit, from wastewater.

Recycled water: Usually refers to wastewater effluent treated at a tertiary level; in limited circumstances, wastewater effluent treated at a secondary level is used for landscape and irrigation watering.

Safe annual yield: Annual amount of water that can be taken from a source of supply over a period of years without depleting that source beyond its ability to be replenished naturally in wet years.

Sanitary sewer: Channel or conduit that carries household, industrial and commercial wastewater from the source to a treatment plant or receiving stream.

Secondary treatment: The second step in most publicly owned waste treatment systems in which bacteria consume the organic parts of the waste. It is accomplished by bringing together waste, bacteria and oxygen in trickling filters or in the activated sludge process. This treatment removes floating and settleable solids and about 90 percent of the oxygen-demanding substances and suspended solids. Disinfection is the final stage of secondary treatment.

Septic system: On-site system designed to treat and dispose of domestic sewage. A typical septic system consists of tank that receives waste from a residence or business and a system of tile lines or a pit for disposal of the liquid effluent (sludge) remaining after decomposition of the solids by bacteria in the tank. This sludge must be pumped out periodically.

Single-stream recycling: System in which all recyclables items are mixed together in a collection truck instead of being sorted into separate commodities (e.g., newspaper, cardboard, plastic, glass, etc.) by the resident.

Solid waste: Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues.

Stormwater: Outdoor water runoff, including rainwater, anything the rain carries with it, and runoff from outdoor uses, such as firefighting, street cleaning and residential car washing.

Tertiary treatment: Advanced treatment of wastewater that exceeds the secondary or biological stage, removing nutrients such as phosphorus, nitrogen and most suspended solids.

Tipping fees: Fees charged by landfills and other disposal facilities per ton of solid waste disposed.

Transfer station: Facility where solid waste is transferred from collection vehicles to larger trucks or rail cars for longer distance transport.

Wastewater: Spent or used water from a home, community, farm, or industry. Wastewater drains from sinks, showers, washers, toilets, and drains for chlorinated pool water, commercial car washes and industrial processes, among other sources.

Water turnout: Branch or service connection in the main water distribution pipeline.

Wholesale wastewater service: Wastewater treatment or disposal service.

PREFACE

This report includes analyses of municipal service delivery and policy options for the Commission to consider as it makes its determinations with respect to Municipal Service Reviews (MSRs) and sphere of influence (SOI) updates. The decision whether or not to approve or disapprove any policy options, with or without amendments, wholly, partially or conditionally, rests entirely with the Commission. This report is not a substitute for those discretionary decisions yet to be made by the Commission.

This report has been reviewed by the MSR Working Group, comprised of County, city and special district representatives. Affected agencies were given an opportunity to preview and comment on the Draft MSR. The Draft MSR was issued for a 21-day public review period. Comments received were considered and incorporated into the Draft Final MSR as appropriate. LAFCo held a public hearing to consider the Draft Final MSR and its contents and to receive testimony. The Commission accepted the MSR and adopted a resolution making MSR determinations on November 10, 2005.

GUIDE TO DOCUMENT

The Executive Summary provides an overview of the report including conclusions and factors affecting services reviewed;

Chapter 1 provides the policy context and the purpose of the report;

Chapter 2 provides an overview of the service providers, local government agencies responsible for utility services, growth projections, and growth areas in Alameda County;

Chapter 3 reviews water utility services—wholesaling, treatment and retailing;

Chapter 4 reviews wastewater treatment and disposal services as well as wastewater collection system services;

Chapter 5 reviews flood control services;

Chapter 6 reviews stormwater services;

Chapter 7 reviews solid waste collection and disposal services;

Chapter 8 reviews resource conservation services;

Chapter 9 provides a description and analysis of each agency's SOI and sets forth policy options with respect to SOI updates;

The references section provides a bibliography and identifies data sources and interviewees;

Appendix A provides a detailed summary of each agency; and

Appendix B provides service overview and agency maps.

DATA SOURCES

The local agencies providing utility service have provided a substantial portion of the information included in this report. Each local agency provided budgets, financial statements, bonded debt statements, and various plans, and responded to questionnaires. The water and wastewater service providers participated in interviews covering workload, performance, facilities, finances, and service challenges. We extend our thanks and recognition for their substantial contributions to this effort.

In order to minimize the burden on the agencies and maximize the comparability of the data across providers, the report relies whenever possible on standard, central data sources, including the Alameda County Clean Water Program, the Alameda County Waste Management Authority, Association of Bay Area Governments, the California Water Quality Control Board, the California Department of Health Services, the California Department of Water Resources, the Integrated Waste Management Board, the State Controller, U.S. Environmental Protection Agency, U.S. Census Bureau, U.S. Department of Agriculture, and the following Alameda County departments: Registrar of Voters, Auditor/Controller, Community Development Agency, Assessor, Public Works, Environmental Health, Surveyor, and Information Technology.

The data in this report reflect best efforts. Some data were unavailable. Much of the data used represents a snapshot in time and may not reflect a long-term trend or average. For a more detailed listing of data sources, please refer to the references section.

CREDITS

This report was prepared by a team of experts. Beverly Burr, economist and public finance expert, served as principal author and project coordinator. Jake Boomhouwer of CDM served as the utility systems engineering and financial expert; in that capacity, he advised on appropriate benchmarks and data sources and reviewed the report throughout its development. Bob Braitman served as public administration and policy expert; in that capacity, he advised on policy options and reviewed the report. Burr Consulting research analysts Cecelia Griego, Nelson Chen, Carter McCoy, and Rorie Overby contributed research and editorial assistance. Enabell Diaz of P&D Consultants prepared maps. Beverly Werber served as editor.

Alameda LAFCo Executive Officer Lou Ann Texeira oversaw preparation of the report and provided guidance and review. Alameda LAFCo Planner Barbara Graichen of Graichen Consulting provided technical assistance and review. Legal Counsel Brian Washington also provided review and guidance as needed.

Guidance was also provided by the MSR Working Group: Dublin San Ramon Services District General Manager Bert Michalczyk, Hayward City Manager Jesús Armas, Principal Analyst of the County Administrator's Office Ken Gross, Alameda County Fire District Finance Manager Don Graff, and Mosquito Abatement District General Manager John Rusmisel.

EXECUTIVE SUMMARY

This report is the second in a series of Municipal Service Review (MSR) reports for the Alameda Local Agency Formation Commission (LAFCo). An MSR is a State-required comprehensive study of services within a designated geographic area; in this case, Alameda County. The MSR requirement is codified in the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code Section 56000 et seq.), which took effect on January 1, 2001.[1]

MSRs are required before LAFCo creates or updates spheres of influence (SOIs) for public agencies. LAFCo only reviews services provided by public agencies that have, or are required to have, SOIs. Those agencies providing utility services—including water, wastewater, flood control, stormwater, and solid waste services—within the boundaries of Alameda County are the focus of the review. Other public and private providers of the same or similar services in the County are included in this MSR for informational purposes, but are not generally subjected to in-depth review.

This MSR contains general information regarding land use, service provider and population data used to support analyses and conclusions. State-required evaluations of nine specific service evaluation categories are also included. Service issues are evaluated and practices compared with consideration for local conditions, circumstances and resources. Government structure options, such as mergers or consolidations which might enhance government functions, are identified. MSR options, conclusions and recommendations are used by LAFCo when rendering the State-required MSR determinations.

BACKGROUND

LAFCO SERVICE REVIEW REQUIREMENTS

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 requires that each LAFCo conduct MSRs prior to or in conjunction with SOI updates. These reviews must be conducted at least every five years. As part of the service review, LAFCo must prepare an analysis and written statement of determinations regarding each of the following nine evaluation categories. The category descriptions are pursuant to the Alameda LAFCo Guidelines, Policies and Procedures.

1) **Infrastructure needs and deficiencies** – This evaluation category focuses on the adequacy of existing and planned public facilities in accommodating future growth and the efficient delivery of public services.

2) **Growth and population projections for the affected area** – This evaluation category focuses on projected short- and long-term demand for services within the particular area, as measured by current and future population and their relationship to land use plans and programs.

[1] A detailed description of the history, purpose and process for conducting MSRs is included in Chapter 1.

3) **Financing constraints and opportunities** – Under this evaluation category, LAFCo must identify service financing conditions and practices and weigh a community's public service needs against the resources available to fund the services.

4) **Cost avoidance opportunities** – This evaluation category relates to service duplication, inefficiencies due to overlapping boundaries, and other practices or circumstances which may increase service costs. Cost reduction opportunities related to economies of scale, shared facilities, transferring service obligations, financing opportunities, infrastructure upgrades, and other practices are identified.

5) **Opportunities for rate restructuring** – Rate review—for example, rate-setting methodologies, conditions that could impact future rates, variances among rates, fees, taxes, charges—is outlined and opportunities to modify rates are identified.

6) **Opportunities for shared facilities** – Under this evaluation category, LAFCo identifies and evaluates capacity, staff and infrastructure needs to identify opportunities for agencies to reduce costs by sharing facilities and eliminating duplications.

7) **Government structure options, including advantages and disadvantages of consolidation or reorganization of service providers** – LAFCo must adopt written determinations with respect to government structure options that could improve service conditions. The objective is to provide LAFCo with sufficient information to render informed decisions. Service reviews are required to review and update SOIs, and LAFCo is directed to study a variety of feasible and reasonable options. LAFCo is empowered following these studies to initiate certain reorganizations, such as district consolidation, dissolution, mergers, and establishment of subsidiary districts (§56375(a)). Alameda LAFCo's policies also encourage service providers to consider alternative structures to improve service provision.

8) **Evaluation of management efficiencies** – The term "management efficiency" refers to the organized provision of public services with the lowest necessary expenditure of public funds. Among items considered are adequate training, advance planning, implementation of effective strategies for budgeting, managing costs, personnel utilization, customer service and involvement, ability to provide service over the short and long term, resource management, compliance with accepted standards considering local conditions, circumstances and resources, and maintenance of adequate contingency reserves.

9) **Local accountability and governance** – This evaluation category focuses on the visibility and accessibility of the decision-making body, staff and the decision-making process, public participation in elections, publicly disclosed agency budgets, programs, and plans, as well as public participation in the consideration of work and infrastructure plans.

The service reviews are intended as an informational tool to help LAFCo, other agencies and the public better understand the public service structure. The service review will serve as a tool to help LAFCo achieve its goals of ensuring efficient municipal services, logical boundaries and protection of open space and agricultural lands. LAFCo is not required to initiate boundary changes based on service reviews. However, LAFCo, local agencies and/or the public may use the service review, together with additional research and analysis, to pursue changes in jurisdictional boundaries or SOIs.

AGENCIES INCLUDED IN THIS SERVICE REVIEW

The service review has been conducted on a countywide basis and includes agencies involved in the provision of utility services, including water, wastewater, flood control, stormwater, and solid waste services. It focuses on 16 special districts, including four County Service Areas, and utility services provided by the 14 cities in Alameda County.

Table ES-1. Utility-Related Local Agencies with SOIs

Independent Special Districts	Dependent Special Districts	Cities
Alameda County Resource Conservation District	Alameda County Flood Control and Water Conservation District	Alameda
Alameda County Water District	Zone 7 Water Agency[2]	Albany
Castro Valley Sanitary District	Curbside Recycling CSA	Berkeley
Contra Costa Water District[3]	Castlewood CSA	Dublin
Dublin San Ramon Services District	Five Canyons CSA	Emeryville
East Bay Municipal Utility District	Livermore-Amador Valley Sewer Study CSA	Fremont
East Bay Regional Park District		Hayward
Oro Loma Sanitary District		Livermore
Union Sanitary District		Newark
Washington Township Health Care District[4]		Oakland
		Piedmont
		Pleasanton
		San Francisco[5]
		San Leandro
		Union City

[2] The Zone 7 Water Agency has features of both an independent and dependent special district. According to law, the agency is a zone of the Alameda County Flood Control and Water Conservation District—a dependent special district. The agency is governed by an elected board, similar to the independent special districts.

[3] Contra Costa is the principal county for the Contra Costa Water District. The Contra Costa LAFCo has not yet adopted an MSR and SOI update for this agency. The agency's territory includes watershed lands in Alameda County, but the agency does not provide water service within Alameda County.

[4] SOI update for the Washington Township Health Care District was deferred until completion of this MSR due to preliminary information indicating that the District relies on a private water well. The MSR found that the District relies on ACWD for potable water service and uses well water only for landscape purposes.

[5] The San Francisco Public Utilities Commission (SFPUC) provides wholesale and retail water service in Alameda County. The agency owns land in the County, but its boundaries do not extend into the County. SFPUC is a component of the City and County of San Francisco. San Francisco LAFCo is required to adopt an MSR and SOI update for this agency.

Table ES-2. Utility Service Matrix

Provider	Water								Sewer			Flood Control	Stormwater				Solid Waste			Resource Conservation
	Wholesale					Retail														
	Importing	Extraction / Wells	Groundwater Management	Treatment	Recycled Water	Potable	Raw	Recycled	Collection	Treatment	Disposal		Maintenance	Permitting	Preventive	Treatment	Administration	Collection	Recycling	
Limited Purpose Agencies																				
ACFCD												●								
ACRCD																				●
ACWD		●	●	●		●														
Contra Costa Water District																				
Curbside Recycling CSA																	●			
Castro Valley Sanitary Dist.									●								●			
DSRSD					●	●		●	●	●										
EBMUD	●			●	●	●		●		●	●									
Oro Loma Sanitary District									●	●							●			
Sewer Study CSA																				
Union Sanitary District									●	●				●						
Washington HCD		●																		
Zone 7 Water Agency	●	●	●	●			●					●								
Multipurpose Agencies																				
Alameda									●			●	●	●	●		●			
Albany									●			●	●	●			●			
Berkeley									●			●	●	●	●		●	●		
Dublin													●	●			●			
Emeryville									●				●	●			●			
Fremont													●		●		●			
Hayward						●			●	●			●	●	●		●			
Livermore					●	●		●	●	●			●	●	●		●			
Newark													●	●	●		●			
Oakland									●				●	●	●		●			
Piedmont									●			●	●	●	●		●			
Pleasanton						●			●				●	●	●		●			
San Leandro									●	●			●	●	●		●			
Union City													●	●	●		●			
Castlewood CSA						●			●											
EBRPD		●																		
Five Canyons CSA													●	●	●					
Major Non-LAFCo Providers																				
Cal Water						●														
San Francisco PUC	●	●		●		●														
State Water Project	●																			
EDBA										●	●									
LAVWMA											●									
U.S. Army Corps												●								
Alameda County													●	●	●					
Republic Services, Inc.																		●	●	
Waste Management, Inc.																		●	●	

Utility services are also provided by private companies, joint powers authorities and other entities outside LAFCo's purview. The report includes information on these providers to the extent necessary to establish relationships, quantify services and provide a comprehensive overview of utility services in Alameda County, recognizing that LAFCo has no authority over these types of agencies.[6]

HOW THE REPORT WILL BE USED

The report and the data collected through the service review process will be used by LAFCo to review and update SOIs of cities and special districts, including expansion or reductions in SOI boundaries or creation of new SOIs. This report will be used to update the SOIs of limited purpose agencies—12 special districts exclusively engaged in utility services, including two county service areas (i.e., Curbside Recycling and Livermore-Amador Valley Sewer Study). With regard to the multipurpose agencies–including the 14 cities, two multipurpose CSAs and the regional park district–LAFCo will use this information along with that gathered in the previously submitted public safety MSR and a subsequent service review relating to these agencies.

Government Code §56375(a) gives LAFCo the power to initiate certain types of boundary changes consistent with service reviews and SOI studies. These boundary changes include:

- Consolidation of districts (joining two or more into a single successor district);
- Dissolution (termination of a district and its corporate powers);
- Merger (termination of a district by merging that district with a city);
- Establishment of a subsidiary district (where a city council becomes the board of directors of the district); or
- A reorganization that includes any of the above.

Any local agency may apply to LAFCo for a boundary change. This applies to cities and special districts that contain or will contain (or whose SOI contains) any territory within the proposal to be reviewed by LAFCo and the County. Also, registered voters or property owners within the proposed area may petition LAFCo for a boundary change. The following types of boundary changes may be proposed to LAFCo:

- Formation of a new district or city;
- Annexation to or detachment from a city or district; or
- A reorganization that includes any of the above.

LAFCo may also use the information presented in the MSR report to review future proposals for extension of service beyond an agency's jurisdictional boundaries or for amendment of urban service area boundaries of a city.

[6] For a detailed listing of public and private agencies, along with services provided by each agency, please refer to Chapter 2.

DETERMINATIONS

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 requires LAFCo to prepare Municipal Service Reviews. Part of that process is the adoption of written determinations for nine specific evaluation categories as enumerated in Government Code §56430.

A determination is a declaratory statement or conclusion based on the information and evidence presented to the Commission in the administrative record. These determinations are supported by evidence in the record of the service review proceedings, including all of the information collected, LAFCo's analysis and interpretation of the information, oral and written information presented by the public, and oral and written testimony given at public hearings.

Determinations included in this Executive Summary are based on information compiled and analyzed in this MSR.

1. INFRASTRUCTURE NEEDS AND DEFICIENCIES

General

- The infrastructure needs of providers differ due to local conditions. Older cities and urban areas possess infrastructure that is often deteriorating or is in need of replacement or upgrade. Newer cities and urban areas need to fund new facilities.
- Financing for some needed capital improvements has not been identified. It is reasonable to expect that new capacity will need to be added to facilities to accommodate increased demands based on future population growth. The pace of improvements will depend on available financing and their relative priority in local capital improvement programs.

Water Services

- Alameda County relies on imported surface water for 78 percent of its water supply and, therefore, relies on regional water suppliers responsible for the operation and maintenance of conveyance systems, water treatment plants, dams, reservoirs, and pump stations. The primary imported sources of potable water (suitable for human consumption) in Alameda County are the Mokelumne River, the San Francisco Bay/Sacramento-San Joaquin River Delta (Bay-Delta) and the Tuolumne River. Local sources account for 22 percent of water supply; the major local water sources are the Alameda Creek watershed and the Niles Cone and Livermore groundwater basins.
- Water from the Mokelumne River makes up 36 percent of the County's water supply. This water is of high quality, but supplies are projected to decrease in the future due to water use by prior right holders and obligations to protect fish, wildlife and riparian habitats.
- The County receives 31 percent of its water supply from the Bay-Delta. This water is of variable quality due to pollution resulting from recreational use, seawater intrusion and agricultural, industrial and urban runoff. The California Bay Delta Authority is involved in improving water quality in the Bay-Delta through funding from state and federal appropriations and local water user contributions.

- Tuolumne River water makes up 11 percent of the County's water supply. This water is of high quality. Supply is constrained by precipitation levels and local runoff.
- Alameda Creek watershed and the Niles Cone Basin contribute 11 percent of the County water supply. Although total dissolvable solid (TDS) levels meet maximum contaminant standards, this water source remains vulnerable to surface source contamination.
- Livermore Basin groundwater contributes four percent of the County's water supply. There is a relatively high mineral content to the groundwater. Tetrachloroethylene (PCE) levels meet standards but are slowly rising. The eastern portion of the basin—the Mocho sub-basin—is vulnerable to surface source contamination.
- Local runoff makes up five percent of the County's water supply. The supply from this source varies significantly from year to year due to hydrologic conditions.
- Major water facilities in Alameda County are generally in fair to good condition. However, San Francisco Public Utilities Commission's (SFPUC) Calaveras and Crystal Springs Reservoirs are in poor condition. The condition of the Alameda Siphon and Irvington Tunnel pipelines is unknown because these 80-year-old facilities have never been inspected and are located on or near three earthquake faults. San Pablo Dam needs replacement.
- The Zone 7 Water Agency (Zone 7) plans to enhance treatment processes to address hard, salty water supplied to Pleasanton and algae in water supplied to Livermore. Zone 7 needs to make seismic upgrades to its Patterson Water Treatment Plant and needs additional treatment plant capacity to accommodate growth. The Zone is building a new treatment plant.
- East Bay Municipal Utility District (EBMUD) and SFPUC need water treatment plant improvements due to new water quality regulations, particularly those limiting disinfectant and microorganism concentrations.
- Tri-Valley water retailers need infrastructure to accommodate growth and new developments. Dublin San Ramon Services District (DSRSD) needs additional water supplies, pump stations and reservoirs to serve Dublin growth. Water main replacement and new pump stations are needed in northwest Livermore.
- The Castlewood CSA needs to install water meters to conform with conservation best management practices.
- A number of seismic concerns exist for water facilities serving the County. State Water Project supplies are vulnerable to seawater intrusion in a major seismic event. In the event of a catastrophic disruption to water supply, SFPUC's water system is most vulnerable. A.B. 1823, passed in 2002, stated that in the event of a major earthquake, the system could face a potential interruption of 30 to 60 days, affecting the water supplies of two million people systemwide. Legislation requires the agency to make seismic upgrades for pipelines, tunnels, dams, and treatment facilities. Improvements include developing an alternative tunnel to the Irvington Tunnel, replacement of the seismically vulnerable Calaveras Dam, and connecting SFPUC with East Bay Municipal Utility District (EBMUD) through a regional emergency intertie in Hayward. Additionally, EBMUD's San Pablo Dam is in need of replacement and Zone 7's Patterson Water Treatment Plant needs seismic upgrades. Many agencies also require seismic upgrades to storage facilities.

Wastewater Services

- Wastewater facilities consist of wastewater treatment plants (WWTP), disposal facilities, outfalls, pumping stations, and pipelines.
- Major wastewater facilities are generally in fair to excellent condition. The smaller wastewater treatment plants—operated by San Leandro, Livermore and Oro Loma Sanitary District (OLSD)—are in fair condition.
- Treatment plant capacity expansion is needed at several facilities. The Oro Loma Sanitary District (OLSD) is operating its plant at 95 percent of capacity, was ordered by the Regional Water Quality Control Board (RWQCB) to restore its facility's design capacity, and completion is targeted for November 2007. The Union Sanitary District (USD) is at 88 percent of capacity. USD, San Leandro and Livermore need to expand treatment capacity to accommodate peak flows during wet weather.
- The Tri-Valley wastewater providers—DSRSD, Livermore, Pleasanton, and the Castlewood CSA—need additional disposal capacity to accommodate growth. Disposal capacity is being addressed through Livermore-Amador Valley Water Management Authority (LAVWMA) infrastructure improvements. In Livermore, voter approval is a prerequisite for using the expanded disposal capacity; without voter approval, Livermore's disposal capacity will not accommodate peak wet weather flows or future growth.
- EBMUD WWTP needs seismic upgrade and Hayward WWTP needs improvements to treatment reliability. Both agencies are addressing these issues through their capital improvement programs. EBMUD anticipates completion of seismic upgrades by 2010.
- Old and deteriorating pipelines need replacement throughout Alameda County. Wet weather infiltration is problematic throughout the County, particularly in the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont in the EBMUD service area, as well as in Castro Valley Sanitary District (CVSD) and San Leandro.
- The RWQCB has ordered the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont to remedy excessive infiltration and inflow into their collection systems. Piedmont has completed the corrective action.
- Relatively high sewer overflow rates in Livermore and Oakland and to a lesser extent in CVSD, OLSD and Pleasanton may indicate underlying capacity or sewer collection system deficiencies. Overflow rates in the cities of Berkeley and Piedmont are also relatively high, but are not comparable to other agencies due to data availability issues.
- Pipeline capacity enhancements are needed in CVSD, Hayward, DSRSD, and Livermore. Alameda, Livermore and Pleasanton are in need of pump station expansion and upgrades.
- Oakland plans to make improvements to reduce overflow potential at one location considered by RWQCB to be at great risk for overflow.
- Property owners in outlying areas—unincorporated areas in the eastern part of the County, unincorporated islands within the City of Hayward, the Oakland Hills, and hillside and canyonland areas—rely on onsite septic systems due to a lack of sewer collection infrastructure.

- The lack of sewer collection infrastructure in unincorporated islands within the City of Hayward should be addressed with any annexation proposals in these areas.

Flood Control Services

- The Alameda County Flood Control and Water Conservation District (ACFCD) and Zone 7 provide flood control services throughout Alameda County and are responsible for the operation and maintenance of regional runoff collection, conveyance and discharge systems. These systems consist of channels, piping, pump stations, and natural waterways.
- Increased runoff as a result of expanded impervious surface areas requires enhanced channel capacity throughout the County.
- Improvement needs include desilting of channels, bank enhancements, flood wall construction, and creek restoration. Improvements are needed in most areas of the County, except in the cities of Alameda and Emeryville and the eastern and northern portions of San Leandro.
- Channel capacity enhancements are needed especially in developed communities within the 100-year flood plain, such as southern San Leandro, Fremont hillside areas and Pleasanton communities near Arroyo Mocho.
- The U.S. Army Corps of Engineers is involved in three projects to reduce flood plains in developed areas surrounding the Laguna Creek Watershed, Estudillo Canal and Arroyo de la Laguna. Federal funds have not yet been appropriated for the projects.
- Future facility needs are expected to be greatest in Zone 7 as a result of the large amount of impervious surface area that is developing in the Tri-Valley area, particularly Pleasanton.
- Future peak flow through arroyos in Zone 7 is projected to exceed existing capacity at five major arroyos near the cities of Pleasanton and Livermore.
- Financing for some needed capital improvements has not been identified.

Stormwater Services

- Local infrastructure includes storm drains, inlets, catch basins, channels, natural waterways, pump stations, pipes, and ditches. Each agency maintains its own stormwater system which eventually flows into regional flood control systems or directly into San Francisco Bay.
- Localized ponding is problematic in Fremont, Hayward and Livermore.
- Storm drain pipe capacity in flood-prone areas in southwest San Leandro needs replacement to alleviate flooding.
- Storm drain improvements are needed in Newark, Oakland and unincorporated areas.
- Creek restoration is needed on segments of many creeks throughout the County. Within urban areas, Albany, Fremont, Hayward, Oakland, and Castro Valley have creek restoration needs that are being addressed.
- Berkeley has accumulated approximately $23 million in deferred stormwater capital improvement projects due to financing constraints.

- Stormwater conveyance capacity in developing areas, such as eastern Dublin, southern Livermore and Pleasanton, must be expanded as development increases impervious surfaces and runoff.
- Newly developed areas, such as the Five Canyons CSA, Dublin and Pleasanton, reported no infrastructure needs due to relatively new drainage systems.

Solid Waste Services

- Regional infrastructure includes 28 landfills and transfer stations. The top five landfills are privately owned and accommodate 93 percent of the County's waste.
- Infrastructure at individual landfills includes gas monitor systems, gas recovery systems, groundwater monitoring wells, and surface water test stations.
- When the Tri-Cities landfill closes in 2006, Fremont, Newark and Union City may need a new solid waste transfer station to consolidate and transfer solid waste and recyclables.
- The County's food waste—unused food products disposed by restaurants and manufacturers—is transported to Gilroy and Vacaville. Alameda County Waste Management Authority is considering construction of a food composting facility in the County, which would provide a more convenient food compost facility and reduce the amount of waste entering landfills.
- Among the top five landfills, none have been notified recently by regulatory agencies of areas of concern.
- The Forward, Inc. landfill in San Joaquin County was found deficient in 2004 for failure to meet explosive gas control requirements, and the owner was placed under enforcement action to remedy the problem. The facility is owned and operated by Allied Waste Systems and handles approximately two percent of Alameda County's solid waste.

Resource Conservation Services

- Facilities include only the office space used by the Alameda County Resource Conservation District (ACRCD), which is in good condition.
- No infrastructure needs or deficiencies were identified.

2. GROWTH AND POPULATION PROJECTIONS

General

- Alameda County's population is projected to increase by 13 percent, or approximately 197,400, during the next 15 years. Growth is projected to occur more quickly in some locations than others, especially eastern Dublin, Oakland, southern Livermore, Pleasanton, Alameda Point, Bay Farm Island, Marina Village, and portions of Emeryville and Union City.
- The County's daytime population, i.e., employment, is expected to increase by 27 percent over the next 15 years. This is over double the rate of residential population growth, indicating an increased number of job opportunities for Alameda County residents and

commuters, as well as increased service demand. Associated increases in demand need to be addressed by agency planning processes.

- Some providers have different perceptions of projected population growth and its effect on capacity needs than transportation planners at the Association of Bay Area Governments (ABAG). Improved communication and coordination among local and regional land use planners and infrastructure planners should be encouraged.

Water Services

- Annual potable water demand in Alameda County is projected to grow from 84.3 billion gallons in 2005 to 85.3 billion gallons in 2010 and to 90.3 billion gallons by 2020.
- Over the next 15 years, water demand is expected to grow by seven percent countywide.
- The pace of growth in water demand is expected to be fastest in the DSRSD service area, where 47 percent growth is expected in the next 15 years. In the Livermore and Cal Water service areas, demand growth is projected at 32 and 24 percent, respectively. Water demand growth in Hayward is expected to be 17 percent by the City and its water supplier (SFPUC).
- Water demand growth is projected to occur somewhat faster in the ACWD service area than countywide. In the Pleasanton service area, water demand is projected to grow more slowly than countywide. Water demand is projected to decline in the EBMUD service area. Water demand growth anticipated by Pleasanton and EBMUD is significantly lower than ABAG population and job growth projections. Water demand growth could be significantly lower than population growth if consumers conserve.
- Residential demand currently makes up 64 percent of water demand in Alameda County. Much residential demand (two-fifths) involves outdoor uses, such as landscaping, pools and car washing.
- Inland areas with less rainfall and larger lot sizes have relatively high per capita water demand compared with coastal areas. Per capita water use is greatest in the Tri-Valley area—Livermore, Pleasanton and DSRSD—where the average person uses more than 200 gallons daily, and lowest in the EBMUD and Hayward areas where, respectively, 130 and 141 daily gallons per capita are consumed. In the ACWD service area, the average person uses 161 gallons daily.
- State and federal regulations for new building construction require installation of water efficient toilets, showerheads and faucets, thereby lessening per capita water demand.
- Increased use of recycled water by golf courses, airports and other institutions will reduce the amount of potable water used for landscaping purposes. Recycled water is distributed to limited areas by DSRSD, EBDA, Livermore, and EBMUD. ACWD is considering recycled water service in collaboration with Union Sanitary District.
- Agencies are encouraged to implement conservation best management practices to promote water use efficiency.

Wastewater Services

- Demand for wastewater services is affected directly by population and economic growth, water conservation efforts, and groundwater infiltration and inflow.

- Demand growth is projected to be greatest in the DSRSD, Livermore and USD service areas. EBMUD, Hayward and San Leandro service areas will experience less growth. Hayward and EBMUD have sufficient treatment and disposal capacity to accommodate projected growth; other agencies will need to enhance treatment or disposal capacity to accommodate projected growth.
- Groundwater infiltration and inflow cause peak flows that strain wastewater infrastructure, particularly in areas with older collection systems. Infiltration and inflow in the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont are particularly high, leading to relatively high peak flows in these areas. Agencies can and should maintain and upgrade their systems.
- Several agencies reported efforts to encourage property owners to address infiltration and inflow on private sewer lines. The cities of Alameda and Albany require inspection and upgrade of deficient private sewers when properties transfer. CVSD inspects private lines and offers grant funds for rehabilitation of deficient lines. Agencies can and should require property owners to address deficiencies in privately owned portions of the system.
- Effective industrial pretreatment and recycling programs reduce the amount and strength of industrial waste.
- Installation of water efficient toilets, faucets and showerheads along with greater use of water efficient washers should decrease per capita demands.

Flood Control Services

- While population growth may not affect flood risks directly, increased development to accommodate the growing population is resulting in expanded impervious surface areas. The inability of water to be absorbed into local soils results in an increased rate and volume of runoff flows, in effect causing greater amounts of sedimentation and reducing channel capacity.
- Although short-term service needs may increase due to storms and heavy rainfalls, long-term increases are a result of increasing runoff and capacity inadequacy as well as regulatory requirements.
- Expansion of developed areas located within flood plains requires flood control service agencies to expand infrastructure.

Stormwater Services

- Growth and development increase municipal maintenance, regulatory and monitoring workloads.
- Similar to flood control services, stormwater facility needs are affected by growth in impervious surface areas through increased development. The increased rate and volume of runoff must be addressed by stormwater facility improvements and increased conveyance capacity. Stormwater service providers may reduce runoff caused by new development by implementing development standards that minimize impervious surfaces and by requiring site measures (e.g., swales and bioretention basins) that direct runoff to pervious surfaces.

- Stormwater service needs are also affected by pollutant loads in stormwater runoff and emerging regulatory requirements, including total maximum daily load requirements, for reducing pollutants to the maximum extent practicable.

Solid Waste Services

- Population and business growth, the success of recycling programs, municipal progress in diverting trash from landfills, and other factors are expected to affect the need for disposal space and facilities as well as other service demands.
- Growth in industries disposing relatively large volumes of trash—restaurants, medical services, retail, and construction—will result in the largest increases in solid waste service demands.
- Legislative (A.B. 939) and local policies (a voter-initiated landfill diversion goal of 75 percent with a target date of 2010 to reach the diversion goal set by the Alameda County Source Reduction and Recycling Board) are expected to reduce the pace of growth in demand for landfill space and to increase demand for recycling programs and services and regional recycling facilities.

Resource Conservation Services

- As development continues in rural areas of the County, the amount of farm land declines, resulting in reduced service demands from agricultural service recipients.
- Given the urban benefits of water quality education, erosion prevention, proper disposal of manure, and watershed restoration services, urban demand for resource conservation services may expand as a result of countywide growth.

3. FINANCING CONSTRAINTS AND OPPORTUNITIES

General

- Local agencies with business-type operations, such as water and sewer utilities, must maintain separate enterprise funds for each utility and may not use utility revenues to finance unrelated governmental activities.
- Water and sewer service charges, connection fees, development impact fees, and user fees must be based on reasonable costs of service, and may be imposed and increased without voter approval.
- Water and sewer connection fees and development impact fees must reasonably reflect the costs of extending infrastructure to new development, and may not be used to subsidize operating costs.
- Municipalities must obtain majority voter approval to increase or impose new general taxes and two-thirds voter approval for special taxes, such as flood control and stormwater assessments and parcel taxes.
- Limitations on both property tax rates and increases in taxable property values are financing constraints. Property tax revenues are subject to a formulaic allocation and are vulnerable to State budget needs. Agencies relying on the one-percent property tax face temporary reductions in revenue to finance a state budget deficit.

- Tri-Valley service providers and others with new developments have more options to finance infrastructure than do some service providers. Developers are typically required to fund infrastructure extensions through connection fees, development impact fees and, sometimes, through land dedications, infrastructure construction or specific infrastructure financing requirements. Alternative financing methods, such as Community Facilities Districts, are most commonly used in planned developments where the two-thirds voter approval requirement is frequently achieved or not relevant.
- Borrowing costs are affected by the performance of the providers. Bond ratings differ based on revenue projections, cost containment, reserves, management efficiencies, and other factors. Providers need to maximize efficiency to minimize the cost of borrowed funds.
- There are significant financing constraints to municipal annexation of developed areas. Annexing cities do not receive property taxes in lieu of vehicle license fees on the annexed property values and do not receive development impact fees to finance capital improvements, such as street rehabilitation and installation of sidewalks, curbs and gutters. LAFCo should identify and evaluate creative financing approaches to ensure that cities and property owners have incentives to annex developed areas.

Water Services

- Most revenues are obtained through water service charges, while Tri-Valley providers obtain significant portions of revenue through connection fees. A smaller portion of revenues is generated from property taxes.
- SFPUC may increase wholesale rates annually. SFPUC retail rate increases are constrained by voter-initiated limitations through 2007. Although the limitation was approved by San Francisco voters, the limitation extends to retail customers in the Sunol and Castlewood areas.
- Cal Water rates are established by the California Public Utilities Commission and the agency must provide detailed justification for any rate increases.
- ACWD receives a portion of the one percent property tax for properties within District boundaries, and is subject to temporary state-imposed reductions. ACWD imposed a temporary supplemental water rate increase to compensate for revenue shortages.
- Service providers finance capital improvements with rate increases, connection fees, reserves, and bonded debt.

Wastewater Services

- Most revenues are obtained through sewer service charges, while Tri-Valley providers obtain significant portions of revenue through connection fees. A smaller portion of revenues is generated from property taxes.
- EBMUD's wastewater enterprise receives a portion of the one percent property tax for properties within District boundaries, and is subject to temporary state-imposed reductions.
- Service providers finance capital improvements with rate increases, connection fees, reserves, State Revolving Fund loans, and bonded debt.

- In developed areas, conversion from septic to public sewers imposes private costs of $8,000 to $15,000 on each affected household. Cities annexing such areas may finance private septic-sewer costs through State Revolving Fund loans, allowing homeowners to repay the loan gradually through supplemental sewer service charges. These loans are competitive, and require the agency to file an application with the State.

Flood Control Services

- Funding sources for ACFCD include benefit assessment levies, property tax allocation, government aid, interest on cash reserves, and fees for property rental, permits and plan reviews. Zone 7 receives its funding from assessments and from developer fees through its Special Drainage Area Program.
- For federally authorized flood control projects, the federal government contributes 65 percent of planning and construction costs. The California Department of Water Resources (DWR) funds 50 to 70 percent of the non-federal share of project costs.
- FEMA extends grants to flood-prone communities to reduce or eliminate flooding risks.
- The amount of financing received from benefit assessments is determined by property acreage and land use. Flood control assessment financing has been eroded over time by inflation. LAFCo should support legislation and constitutional amendments, such as Assembly Constitutional Amendment 13 (A.C.A. 13), that enhance revenue and financing opportunities for flood control providers.
- Development-related fees, such as plan review and permitting fees, may be increased to cover increased service costs.

Stormwater Services

- Stormwater funding sources include stormwater assessments, sewer funds and municipal general fund revenues.
- Stormwater assessments do not increase with inflation, have been eroded over time by inflation and are particularly low in high-growth areas—unincorporated areas, Fremont and Pleasanton. Dublin, Emeryville, Oakland, and Piedmont do not have stormwater assessments in place and rely on general fund and other resources.
- LAFCo should support legislation and constitutional amendments, such as A.C.A. 13, that enhance revenue and financing opportunities for municipal stormwater providers.
- Development impact fees may be imposed or adjusted without voter approval, but are limited to recouping the costs of extending infrastructure. The cities of Alameda, Berkeley, Livermore, Union City, Dublin, and Fremont levy stormwater and/or general capital development impact fees; other cities could impose such stormwater service impact fees.
- In setting regulatory fees, such as stormwater permit fees, jurisdictions may impose fees that include the costs of inspection, enforcement and administration.
- Additional opportunities exist for agencies to increase user fees, such as inspection fees for businesses with permitted discharges.

Solid Waste Services

- In all jurisdictions, except for the City of Berkeley, private haulers collect service fees directly from their customers. Municipalities charge the haulers franchise fees which vary by jurisdiction and are absorbed by residents in the haulers' collection fees. The City of Berkeley bills its residents directly to finance solid waste collection services.
- Recycling and waste reduction programs are funded using solid waste franchise fees, Alameda County Waste and Recycling Act (Measure D) fees imposed by landfills, and general fund sources.
- Landfills are financed primarily by tipping fees charged to haulers for waste disposed and passed on to consumers through service fees.
- Bonds may be issued to finance the acquisition, rehabilitation or construction of solid waste facilities, although none of the local agencies has relied on bonded debt for solid waste purposes.

Resource Conservation Services

- Major project-based financing sources for resource conservation—Alameda County Clean Water Program, the National Resource Conservation Service, State Water Resources Control Board, California Bay Delta Authority, California Department of Water Resources, and property taxes—are constrained by economic and policy factors.
- Other financing sources include property taxes, grants and federal agricultural appropriations.

4. COST-AVOIDANCE OPPORTUNITIES

General

- Local agencies rely on a variety of methods to avoid or minimize costs to provide service. Interagency cooperation, including contracts for services and joint activities, presents opportunities to avoid duplication of administrative capacity and cost.
- Agencies may provide performance incentives to managers who identify or implement new cost-reducing strategies. For example, DSRSD offers performance compensation to managers achieving cost efficiencies.
- Agencies that implement benchmarking, continuous improvement and other management efficiency programs can minimize costs over the long term.
- Land use planning designed to promote infill development, redevelopment of underutilized urban lands, and creation of compact, well-served communities present opportunities to minimize future public service costs through strategic growth.
- The County provides stormwater and recycling services to several unincorporated islands within the cities of Livermore, Pleasanton and Hayward. LAFCo should facilitate annexation of unincorporated islands in order to reduce duplication, enhance service efficiency and reduce costs.

Water Services

- The water service providers in Alameda County have pursued and continue to pursue cost avoidance opportunities through facility sharing and joint projects, such as the regional desalination feasibility study being conducted by EBMUD, SFPUC, Contra Costa Water District (CCWD), and the Santa Clara Valley Water District.
- Livermore and EBMUD have relatively high water rates. Because rates are determined by service costs, relatively high rates may indicate underlying cost avoidance opportunities. However, relatively high costs are not necessarily avoidable if related to constituent preferences, wholesale supply costs or topography, among other factors.

Wastewater Services

- The wastewater service providers in Alameda County have pursued and continue to pursue cost avoidance opportunities through facility sharing and joint projects, such as regional disposal pipeline projects.
- There may be cost avoidance opportunities for small wastewater treatment providers, such as San Leandro, through wastewater treatment contracting with larger providers, such as EBMUD, to reap economies of scale. However, San Leandro has rejected this option as not cost effective.
- Livermore, Piedmont, Berkeley, and Albany have relatively high wastewater rates. Because rates are determined by service costs, relatively high rates may indicate underlying cost avoidance opportunities. However, relatively high costs are not necessarily avoidable if related to capital needs, economies of scale, treatment requirements or topography, among other factors.

Flood Control Services

- Labor costs may be reduced by using inmate labor and mechanical equipment to clear vegetation.
- Agencies may explore staff-sharing opportunities with sanitary and water districts during emergencies or preventive maintenance activities. Although not currently practiced in Alameda County, this approach may reduce costs.
- Agencies may avoid certain planning, forecasting and mapping costs by relying on the California Department of Water Resources (DWR) for flood forecasts, flood insurance technical assistance, and mapping and studying flood prone areas.

Stormwater Services

- Countywide stormwater planning efforts have already been implemented to provide cost efficiencies for stormwater providers.
- The transition to a countywide inspection tracking database will result in reduced database maintenance costs for individual stormwater providers in Alameda County, as demonstrated by the cities of Newark, Union City and Albany.
- Labor costs could be reduced by use of court appointees and volunteers for litter removal.

Solid Waste Services

- Single-stream recycling reduces collection costs and worker injury.
- Automated waste collection reduces collection costs and worker injuries and is feasible in suburban areas.
- For collection of bulky waste, switching from citywide collection days to use of on-call pickups reduces service costs.

Resource Conservation Services

- The District conserves on expenses by utilizing volunteers and sharing office space with the National Resource Conservation Service environmental experts.

5. OPPORTUNITIES FOR RATE RESTRUCTURING

General

- Rates generally refer to ongoing service charges for use of enterprises, such as water and sewer treatment, and supply or collection facilities. Fees generally refer to charges for the costs of providing a particular service, such as connection to a sewer or water line.
- Agencies may not increase rates for business-type utility operations in order to finance unrelated services.
- Development impact fees may be adjusted without voter approval, but are limited to recouping the costs of extending infrastructure.
- User fees may be adjusted without voter approval, but are limited to recouping relevant service costs.

Water Services

- Water rates vary among service providers as a result of a number of factors, including purchased water cost and quality, distance from the water source, service area topography and density, infrastructure needs resulting from system age, and capital financing approaches.
- Most agencies can and do increase rates annually.
- Most water providers charge flat amounts as well as rates based on the volume of water used. The Castlewood CSA should restructure flat charges into rates based on water usage to deter water waste. If water billing for CSA residents reflected the amount of water used, residents would have incentives to conserve water.
- Connection fees are charged by all agencies and are greatest in areas of new development, such as the Tri-Valley area.
- Conservation pricing may be used to discourage excessive use. For example, inclined block rate structures—with higher rates for households with relatively high monthly use levels—are used by DSRSD, EBMUD, Hayward, Livermore, and Pleasanton.

- ACWD, Cal Water and SFPUC could encourage conservation by implementing inclined block rate structures for residents.
- All agencies could encourage nonresidential water conservation by implementing excess use charges, demand-based rates or seasonal rates.
- Agencies may offer their customers incentives to purchase water efficient appliances and plumbing fixtures by offering credits or rebates.

Wastewater Services

- Rates may vary among service providers as a result of a number of factors, including variance in treatment costs, differences in distance from discharge locations, service area density, and infrastructure needs resulting from system age.
- Most agencies can and do increase rates annually.
- Most providers charge a fixed amount for residential users and could promote water conservation by charging residential sewer rates on the basis of flow, as EBMUD and Berkeley do.
- Piedmont should consider replacing its parcel tax with sewer service charges to promote financing flexibility and conservation.
- Albany, Piedmont and the Castlewood CSA should follow conservation best management practices by implementing nonresidential sewer rates on the basis of flow.
- OLSD should consider implementing rates that account for differences in the strength (i.e., pollutant load) of wastewater among nonresidential customers.

Flood Control Services

- Rate restructuring opportunities for flood control assessments are constrained by the two-thirds voter approval requirement.

Stormwater Services

- Rate restructuring opportunities for stormwater assessments are constrained by the two-thirds voter approval requirement.
- In structuring stormwater assessments for voter consideration, agencies might consider including a pollutant load factor to cover costs of pollutant abatement and remediation activities.

Solid Waste Services

- Most agencies levy a franchise fee as a percentage of service charges. Pleasanton may consider changing its franchise fees levied on solid waste disposal companies from a flat fee to a fee based on percentage of service charges.
- Collection service charges paid to private haulers in Fremont and Pleasanton are relatively high compared with other jurisdictions and might be restructured through franchise negotiations and competitive bid processes with haulers.
- Landfills may increase tipping fees when justified by cost-of-service considerations.

Resource Conservation Services

- The District has no opportunities for restructuring property tax rates. The District does not charge fees or service charges other than to cover its costs. Hence, no rate restructuring opportunities were identified.

6. OPPORTUNITIES FOR SHARED FACILITIES

General

- A significant degree of interagency facility sharing is occurring in Alameda County.
- The ability of local agencies to identify and implement opportunities to share facilities is predicated on interagency communication and cooperation.

Water Services

- Extensive facility sharing and regional collaboration are practiced among municipal water providers. Water storage and conveyance facilities are shared by agencies receiving water from a common source. State Water Project contractors Zone 7 and ACWD share conveyance facilities. SFPUC customers, including Hayward and ACWD, share conveyance facilities.
- The Tri-Valley Water Retailers of Livermore, Pleasanton, DSRSD, and Cal Water all receive water and treatment services from Zone 7.
- Interties connecting neighboring water providers exist among most agencies to ensure water supply in case of emergencies.
- EBMUD and SFPUC are developing an emergency intertie to enhance water reliability for EBMUD and SFPUC customers, including Hayward and ACWD.
- EBMUD, SFPUC, CCWD, and the Santa Clara Valley Water District are mutually conducting feasibility studies of regional desalination projects to enhance water supplies.
- ACWD, Zone 7 and the Santa Clara Valley Water District are potential partners in a Bay Area initiative for shared use of CCWD's Los Vaqueros Reservoir. The project would increase the amount of water available for drought management purposes and reduce water salinity.
- DSRSD and EBMUD work collectively through a JPA to develop the infrastructure to supply recycled water to central Dublin, south San Ramon and Dougherty Valley.

Wastewater Services

- Municipal wastewater providers practice extensive facility sharing. Facility sharing is most notable through participation in the EBDA joint powers authority, which provides joint use of a wastewater outfall and dechlorination facilities, and in LAVWMA, offering joint use of a wastewater disposal system.
- Future facility sharing opportunities include joint efforts for water recycling and treatment.

- USD and ACWD are assessing a possible joint water recycling project.
- EBMUD is interested in sharing excess treatment capacity with neighboring agencies. San Leandro evaluated and rejected this option in 2002 because it was not cost effective. OLSD and CVSD are unlikely to pursue this option as these agencies are investing in capacity restoration at their own shared plant. This option may be evaluated in the future by EBMUD and neighboring agencies.

Flood Control Services

- There are minimal opportunities for shared facilities as flood control services are mostly a countywide effort.

Stormwater Services

- Several agencies rely on other providers for staffing through contract service arrangements. The Five Canyons CSA relies on the County Public Works Agency for contract service; Fremont relies on USD for stormwater permitting; and the cities of Albany, Dublin and Emeryville rely on private service providers for street sweeping.
- Due to the contained nature of stormwater services, each jurisdiction's facilities are constructed and maintained at the local level. Therefore, there are minimal opportunities to share facilities.

Solid Waste Services

- Agencies already engage in the sharing of disposal facilities and haulers; haulers are contracted private companies and dispose of waste at common landfills. Several haulers as well as landfills serve multiple jurisdictions.
- The public service providers—the 14 cities and the sanitary districts—collaborate on waste management planning through the Alameda County Waste Management Authority, a JPA. They collaborate on source reduction and the promotion and marketing of recycling through the Alameda County Source Reduction and Recycling Board.
- The Curbside Recycling CSA relies on the Alameda County Community Development Agency for administrative staffing and franchise agreement oversight.
- Construction of a shared food waste facility in Alameda County would reduce the volume currently disposed at landfills.

Resource Conservation Services

- The District currently shares its facilities with the Local Partnership Office of the National Resources Conservation Service (NRCS), a division of the U.S. Department of Agriculture. The Executive Officer reports that this arrangement provides synergies, efficiency and access to NRCS staff expertise.

7. GOVERNMENT STRUCTURE OPTIONS

General

- Government structure options[7] should be pursued only if there are potential benefits in terms of reduced costs, greater efficiency, greater accountability, or other advantages to the public.
- Additional study of potential government structure options presented in this report may be undertaken in cooperation with the agencies and with sensitivity to local control issues.
- For small agencies and departments, regionalization and consolidation of services may provide greater efficiency in administrative functions as well as additional purchasing savings. Other advantages include cost savings, professionalism, improved ability to meet dynamic regulatory requirements, and enhanced promotional opportunities for personnel. Disadvantages of regionalization through the formation of new local agencies include a potential loss of community identity and local perspective, rigidity in a larger bureaucracy, higher costs that sometimes occur in large agencies, and loss of control by individual agencies.
- The MSR identified out-of-area service provided by several agencies. LAFCo should conduct a thorough review of out-of-area service by all relevant agencies to ensure that agencies are in compliance with LAFCo approval requirements for service extended since 2000. LAFCo might also evaluate how approval of out-of-area service agreements affects incentives for property owners to propose annexation.
- LAFCo should evaluate financing constraints for annexation of developed areas to cities, including Hayward, Livermore, Oakland, and Pleasanton. LAFCo should encourage the development of solutions to the lack of annexation incentives for public agencies and affected property owners.

Actions Subject to LAFCo Approval

- Dissolution of the Livermore-Amador Valley Sewer Study CSA is an option. The CSA was formed in 1984 to finance the County's participation in studies and easement purchases for a Tri-Valley wastewater disposal pipeline extending from Pleasanton to Suisun Bay. The County participated through a joint powers authority (JPA) in collaboration with DSRSD and Pleasanton. The Suisun Bay pipeline was never constructed. The JPA was dissolved. The financing source was eliminated. Another provider, LAVWMA, has constructed disposal pipelines extending from Pleasanton to San Leandro without the County or the CSA's participation. The CSA has been inactive for nearly 20 years, but has not been formally dissolved. The only disadvantage identified is the cost and effort associated with dissolution proceedings.
- Consolidation of ACWD and USD is an option. The districts provide water and wastewater services to similar service areas, including the cities of Fremont, Newark and Union City. The districts did not recommend this option. A 1995 study recommended against consolidation because there were no apparent service or financing concerns and transition costs would be too high to benefit from savings. Hence, this option is unlikely.

[7] Government structure options are policy alternatives, such as formation, consolidation, dissolution, merger, annexation, or detachment, for local agencies. SOI policy options are discussed in Chapter 9 of this report.

- Consolidation of OLSD and CVSD is an option. The districts provide sewer and solid waste services to adjacent service areas and jointly own treatment and disposal infrastructure. OLSD identified consolidation as an option, but did not recommend consolidation because the district boards have never seriously considered consolidation. Consolidation may offer opportunities to enhance planning efforts and service, share management, staff and equipment, and meet new regulatory requirements.

- Special district formation for stormwater treatment purposes is an option for long-term consideration. In an effort to combat pollution of the Bay, RWQCB has ordered EBMUD to study the feasibility of stormwater treatment by 2009. EBMUD has excess treatment capacity which is used to handle peak wet weather flows for the strongest storm expected in up to a five-year period. This excess capacity may also be used to treat stormwater flows diverted into the wastewater system. This approach could be particularly applicable to the "first flush" stormwater flows early in the rainy season. Compared with rain events later in the season, these flows tend to carry a higher pollutant loading and occur when peak flows at the treatment plant are at lower levels. In areas south of the EBMUD service area, there is no treatment facility with excess wet weather capacity. If RWQCB requires stormwater treatment in the future, formation of a special district may help to finance and govern a stormwater treatment entity.

- Resource conservation district options include annexing territory to make the district's boundary countywide. The ACRCD boundary has not been updated over the years and extends into the cities of Dublin, Livermore and Pleasanton, but excludes most other incorporated areas in the County. ACRCD recommends expansion of its SOI to be countywide. The District may pursue annexation of urban areas in the future if invited to do so by cities.

- Annexation of adjacent unincorporated areas receiving water and/or wastewater service from the cities of Hayward, Livermore and Pleasanton is an option. Annexation would afford the city control over land use planning and development requirements, and would promote logical boundaries and service efficiencies. Disadvantages of annexing developed areas include unfavorable allocation of the property tax in lieu of vehicle license fees and the costs of extending infrastructure to the area.

- Annexation of unserved pockets and fringe areas to ACWD, CVSD, DSRSD, EBMUD, OLSD, and USD is an option. Annexation would be advantageous when utility infrastructure can be extended in a cost-effective manner and when utility services are required in the affected areas.

Actions Not Subject to LAFCo Approval

- Regionalization of various water and waste services could result in the more efficient provision of services and reduce costs per unit of service. Formation of joint powers authorities for various regional services, such as desalination, storage, water reliability, and recycled water projects, could be explored by local agencies desiring to implement regional approaches to service functions.

- The City of San Leandro may choose to contract with EBMUD for treatment services. The City rejected this option in 2002 after a financial evaluation determined it would not be cost effective at the rates offered at that time by EBMUD. The City and EBMUD may

reconsider this option in the future. LAFCo should evaluate this and other related options during the next MSR cycle.

- The cities of Berkeley and Albany include developed areas within the 100-year flood plain. These two cities provide integrated flood control and stormwater services and are not included in a zone of the ACFCD. The cities may propose to become an ACFCD zone if they want flood control services to be provided by ACFCD. The Board of Supervisors is empowered to create and alter zones subject to voter approval.

8. EVALUATION OF MANAGEMENT EFFICIENCIES

General

- As the population grows and changes, increased attention to management efficiencies will be necessary, especially given fiscal constraints affecting local governments in California. Intergovernmental cooperation, regionalization of services and joint efforts for efficiency warrant continued attention.
- The individual agencies that have been reviewed generally exhibit the characteristics of well-managed local governments, which strive to serve their residents and constituents effectively. Many agencies have instituted programs to evaluate and improve service provision. All service providers use accepted budgeting procedures, balance their budgets and maintain adequate reserves.
- Local agencies need to continue to take actions to increase efficiency, reduce unnecessary duplication of effort and streamline antiquated procedures in order to maximize management efficiencies.
- Management practices that improve efficiency should be encouraged. For example, many agencies could improve efficiency by benchmarking (i.e., comparing their basic performance indicators to those in comparable jurisdictions) and implementing improvements where indicated. EBMUD, DSRSD, ACWD, and USD participate in utility service benchmark studies. The City of Oakland participates in service benchmark studies, is developing performance-based budgeting and monitors workload. The cities of Albany, Emeryville and Piedmont also monitor workload as part of their budget processes. Although other service providers reported efforts to monitor productivity, their budgets often track accomplishments rather than workload indicators/performance.
- Elimination of unnecessary local governments or inefficient service structure should be pursued with sensitivity to retaining local accountability.

Water Services

- ACWD, DSRSD, EBMUD, Zone 7, and Castlewood CSA conduct performance monitoring, maintain contingency and emergency plans, and track workload.
- Most providers could improve management efficiencies by conducting performance-based budgeting, as DSRSD does.
- Zone 7, Livermore, Pleasanton, Hayward, and Castlewood CSA could consider utilizing benchmarking to help identify areas for potential improvement, as EBMUD and DSRSD do.

- The total cost of water service per acre-foot is highest in DSRSD, EBMUD and ACWD. Operation and maintenance costs were also highest at these agencies and lowest at Castlewood CSA, Livermore and Pleasanton.
- Service cost per account is highest in the DSRSD and Castlewood CSA enterprises. Service costs per account are lowest in the Livermore and Hayward enterprises.
- All public service providers maintain adequate financial reserves. None of the public providers' reserves could be characterized as excessive, particularly in light of their capital improvement plans.
- None of the providers have recent water quality violations. However, Zone 7 and ACWD violated treatment technique standards in 1995 and 1996, respectively. Pleasanton violated coliform standards in FY 1995-96. The Castlewood CSA and several small private water providers failed to monitor copper and lead in tap water from 1993 to 2000.
- Water retailers providing response times (six of nine) for water emergencies generally manage to stop water flow within two hours. The California Water Services Company (Cal Water), EBMUD and SFPUC did not disclose response times.
- All water service employees are certified as required by law. ACWD invests the most in formal employee training.
- Most agencies maintain updated water contingency plans with the exception of Livermore, which has not updated its plan since 1995.
- Emergency preparedness plans have been prepared by all agencies. In the event of a catastrophic disruption to water supply, SFPUC's water system is most vulnerable due to the location of its distribution infrastructure near earthquake faults. A particular concern is the condition of the Alameda Siphon and Irvington Tunnel pipelines, which is presently unknown because these 80-year-old facilities have never been inspected and are located on or near three earthquake faults.

Wastewater Services

- Wastewater service costs are highest in the Tri-Valley area, where providers are extending infrastructure to accommodate growth and face higher discharge infrastructure costs.
- All of the wastewater treatment agencies prepare wastewater collection and treatment master planning documents and conduct performance evaluations and financial audits. CVSD and OLSD may benefit from participation in benchmarking studies.
- All of the wastewater treatment providers—Hayward, Livermore, San Leandro, DSRSD, EBMUD, OLSD, and USD—maintain emergency response plans covering emergency operating procedures and back-up equipment and parts. All treatment providers except Livermore share emergency repair assistance and equipment through mutual aid arrangements.
- Of the providers engaged in wastewater collection (but not treatment), only the cities of Albany, Berkeley and Pleasanton have wastewater master planning documents. Although new regulatory requirements should improve planning by wastewater collection providers, LAFCo should encourage long-term planning of capacity and infrastructure needs. None of

the collection-only providers maintain emergency response plans specific to sewer collection systems.

- Response times for clearing sewer blockages are generally rapid, with most agencies managing to resolve problems within two hours of receipt of call. OLSD and Hayward reported the quickest response times. Castlewood CSA and Piedmont did not disclose response time policies and practices.
- All collection service providers conduct cost-efficient sewer line inspection through closed circuit television.
- Under new requirements, sewer collection providers must complete system planning elements, with elements due in three batches between August 2006 and August 2008. The newly required planning efforts are designed to prevent sewer overflows.

Flood Control Services

- ACFCD conducted a nationwide benchmarking study, comparing its performance to similar jurisdictions. Future flood control benchmarking could be enhanced by comparison to Bay Area providers facing similar labor costs and service challenges.
- ACFCD's engineering department develops labor cost estimates and schedules for each project which are monitored monthly. Workloads are also monitored through monthly workload assignment status updates.
- Zone 7 retains outside consultants to audit programs and performance and conducts departmental performance evaluations.

Stormwater Services

- Stormwater providers conduct regional planning efforts jointly through the Alameda Countywide Clean Water Program (ACCWP).
- Several of the service providers—the cities of Alameda, Albany, Berkeley, and Emeryville and Alameda County—mentioned lack of funds to finance the costs of regulatory activities, such as inspections and pollution source control management. The cost of providing stormwater service has increased due to more stringent regulatory measures, and agencies are searching for additional resources to finance programs aimed at meeting these new requirements.
- Most agencies have been in compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements to monitor and regulate stormwater discharges. However, Berkeley received a NPDES permit violation notice from the Regional Water Quality Control Board (RWQCB) for failure to implement a restaurant stormwater inspection program, as required by the permit. Berkeley addressed this issue by launching an inspection program in October 2005.
- Stormwater providers need to provide summary reporting on monitoring efforts or risk potential violation of the NPDES stormwater permit.
- Although providers are compliant with standards for controlling pollution at new construction, RWQCB considers the City of Oakland and the County to lack enforcement efforts in post-construction controls.

- Illicit discharge programs track stormwater problems, monitor the drainage system and track investigations. All providers have such programs, and the RWQCB has noted significant recent improvements made by providers.
- All providers except Union City respond to stormwater blockages within two hours. Union City responds within eight hours.
- The median stormwater provider inspects storm drains once annually. By comparison, inspection rates are relatively low in Union City, unincorporated areas and the cities of Alameda, Albany, Fremont, and San Leandro.
- The City of Oakland participates in service benchmark studies and is developing performance-based budgeting and monitoring workload. Albany, Emeryville and Piedmont also monitor workload as part of the budget process. Other agencies need improvements in benchmarking and tracking workload and performance.

Solid Waste Services

- Solid waste providers conduct regional planning efforts mutually through the Alameda Countywide Waste Management Authority.
- Recycling efforts could be enhanced at certain agencies. Berkeley, Dublin, Piedmont, Pleasanton, and Livermore do not provide residential hazardous waste pickup. Only Dublin, Livermore, Newark, and CVSD provide commercial onsite greenwaste pickup. CVSD, Albany, Berkeley, Dublin, Emeryville, Fremont, Livermore, Oakland, and San Leandro offer food waste composting.
- The cities of Pleasanton and Berkeley have not achieved the 50 percent diversion rate standard established by A.B. 939 and monitored by the California Integrated Waste Management Board (CIWMB).
- Promotion of reuse programs reduces the amount of bulky waste by allowing non-profits a "first pass" on disposed items, such as furniture.
- Oakland conducts benchmarking and performance-based budgeting. CVSD, OLSD and the other cities could enhance management efficiencies by conducting performance-based budgeting and benchmarking.

Resource Conservation Services

- The District conducts performance evaluations and monitors productivity through monthly staff reports. However, it does not conduct performance-based budgeting or benchmark studies.

9. LOCAL ACCOUNTABILITY AND GOVERNANCE

General

- The County and its cities demonstrate a high degree of public participation in elections as well as other forms of citizen participation. In most cases, special districts also have significant voter participation both in electing and holding accountable the members of governing boards and in supporting revenue measures to enable agencies to provide

adequate services. All agencies prepare meeting agendas and minutes and have accessible staff and elected officials.

- Most local agencies make information about their activities available to the public through a variety of sources, including Internet websites, distribution of agenda and related documents, public access to city council and board meetings, mailing information to constituents, and similar methods. With few exceptions, as documented in the report, local agencies appear to operate in an open manner that facilitates the public's ability to learn about and participate in current civic affairs.
- Government Code §56378 requires that local and State agencies provide information requested by LAFCos. LAFCo was unable to obtain needed information from some agencies included in this review due to lack of compiled data resources, staffing, time, or other constraints. Public agency operations and management should be transparent to the public. LAFCo should encourage local agencies to develop better methods for information compilation and exchange so that constituents have access to information about their service providers, and so that LAFCo is able to make informed decisions.
- To ensure accountability, agencies that do not provide services directly, such as the Castlewood CSA and the cities, are encouraged to maintain independent staffing to oversee the service provider.
- All service providers cooperated with LAFCo's requests for information. Most had at least a few items they were unable to provide.

Water Services

- Local accountability and governance are focused on the special districts providing service in the County, including ACWD, DSRSD, EBMUD, Zone 7, and Castlewood CSA.
- All agencies are direct service providers governed by boards elected by the public.
- None of the agencies have had uncontested elections since 1994.
- The Castlewood CSA governing body—the Board of Supervisors—is the only agency that broadcasts meetings, but all agencies conduct other public information efforts, including website postings, solicitation of constituent input, public outreach, and disclosure of finances and plans.
- All agencies have submitted the required terrorism vulnerability assessments.
- Public service providers disclose plans and finances and were generally responsive to LAFCo inquiries. Livermore, Castlewood CSA and SFPUC did not provide all requested information. Most private providers—Cal Water and Mohrland Mutual Water Company—were responsive to some LAFCo inquiries and not to others. Others, such as the Norris Canyon Property Owners Association, were unresponsive.

Wastewater Services

- All service providers are governed by boards elected by their constituents and provide services directly.
- Although none of the service providers broadcasts meetings, all update constituents via outreach and solicit constituent input.

- All service providers post public documents to their websites, with the exception of USD.
- All service providers disclose plans and finances and were generally responsive to LAFCo inquiries. Piedmont did not provide all information requested by LAFCo.

Flood Control Services

- ACFCD is governed by the County Board of Supervisors. The Board informs its constituents through broadcasting meetings, soliciting constituent input, and disclosing financial and other public documents. The agency provided nearly complete responses to requested information.
- ACFCD could improve information about its services by providing its constituents with maps of flood plain areas on its website.
- The Zone is governed by an independently elected governing board; however, approval by the County Board of Supervisors is also required on matters affecting both Zone 7 and other portions of ACFCD. The Board informs its constituents through soliciting constituent input and disclosing financial and other agency documents. The agency provided full disclosure of requested information.

Stormwater Services

- All service providers hold local elections for their governing bodies, prepare meeting agendas and minutes, and have accessible staff and elected officials.
- All service providers disclose plans and finances and were generally responsive to LAFCo inquiries.

Solid Waste Services

- All local agencies providing solid waste services hold elections for their governing bodies, prepare meeting agenda and minutes, and have accessible staff and elected officials.
- In order to inform constituents, all agencies post public documents on the web. Constituents are kept updated through outreach, but only Curbside Recycling CSA broadcasts meetings.

Resource Conservation Services

- The Alameda County Board of Supervisors appoints the Resource Conservation District governing body.
- The District has accessible staff, updates constituents, posts documents on its website, and solicits constituent input.
- The District discloses financial information and cooperated fully with the LAFCo MSR process.

SPHERE OF INFLUENCE OPTIONS

The report describes each agency's SOI, discusses policy issues such as urban growth boundaries, and identifies policy options with respect to SOI updates.

For limited purpose agencies exclusively providing utility services, the Commission may update SOIs after adoption of this report. The report recommends SOI options for the following agencies:

- Alameda County Flood Control and Water Conservation District
- Alameda County Water District
- Alameda County Resource Conservation District
- Castro Valley Sanitary District
- Contra Costa Water District
- Curbside Recycling CSA
- Dublin San Ramon Services District
- East Bay Municipal Utility District
- Livermore-Amador Valley Sewer Study CSA
- Oro Loma Sanitary District
- Union Sanitary District
- Washington Health Care District
- Zone 7 Water Agency

This is the second of three MSR volumes. Multipurpose agencies will be reviewed further in the third volume. SOI options for multipurpose agencies will be finalized in the third and final report. The report identifies SOI options for these agencies relating to urban growth boundaries, boundary logic, annexable areas, and clean-up issues. Those options are described in Chapter 9.

CHAPTER 1: INTRODUCTION

This report is prepared pursuant to legislation enacted in 2000 that requires LAFCo to conduct a comprehensive review of municipal service delivery and update the spheres of influence (SOIs) of all agencies under LAFCo's jurisdiction by January 1, 2008. This chapter provides an overview of LAFCo's history, powers and responsibilities. It discusses the origins and legal requirements for preparation of the municipal service review (MSR). This chapter also explains SOIs and the legal and procedural requirements for updating the SOIs. Finally, the chapter reviews the process for MSR review, MSR approval and SOI updates.

LAFCO OVERVIEW

After World War II, California experienced dramatic growth in population and economic development. With this boom came a demand for housing, jobs and public services. To accommodate this demand, many new local government agencies were formed, often with little forethought as to the ultimate governance structures in a given region, and existing agencies often competed for expansion areas. The lack of coordination and adequate planning led to a multitude of overlapping, inefficient jurisdictional and service boundaries, and the premature conversion of California's agricultural and open-space lands.

Recognizing this problem, in 1959, Governor Edmund G. Brown, Sr. appointed the Commission on Metropolitan Area Problems. The Commission's charge was to study and make recommendations on the "misuse of land resources" and the growing complexity of local governmental jurisdictions. The Commission's recommendations on local governmental reorganization were introduced in the Legislature in 1963, resulting in the creation of a Local Agency Formation Commission, or "LAFCo," operating in every county except San Francisco.

The Alameda LAFCo was formed as a countywide agency to discourage urban sprawl and encourage the orderly formation and development of local government agencies. LAFCo is responsible for coordinating logical and timely changes in local governmental boundaries, including annexations and detachments of territory, incorporations of cities, formations of special districts, and consolidations, mergers and dissolutions of districts, as well as reviewing ways to reorganize, simplify, and streamline governmental structure. The Commission's efforts are focused on ensuring that services are provided efficiently and economically while agricultural and open-space lands are protected. To better inform itself and the community as it seeks to exercise its charge, LAFCo conducts service reviews to evaluate the provision of municipal services within the County.

LAFCo regulates, through approval, denial, conditions and modification, boundary changes proposed by public agencies or individuals. It also regulates the extension of public services by cities and special districts outside their boundaries. LAFCo is empowered to initiate updates to the SOIs and proposals involving the dissolution or consolidation of special districts, mergers, establishment of subsidiary districts, and any reorganization including such actions. Otherwise, LAFCo actions must originate as petitions or resolutions from affected registered voters, landowners, cities or districts.

Alameda LAFCo consists of seven regular members: two members from the Alameda County Board of Supervisors, two city council members, two special district board members and one public member. The public members are appointed by the other members of the Commission. There is an alternate in each category. All Commissioners are appointed to four-year terms.

Table 1-1. Commission Members, 2005

Appointment Source	Members	Alternate Members
Two members from the Board of Supervisors appointed by the Board of Supervisors.	Supervisor Nate Miley Supervisor Gail Steele	Supervisor Scott Haggerty
Two members representing the cities in the county. Must be a city officer and appointed by the City Selection Committee.	Mayor Marshall Kamena *City of Livermore* Mayor Janet Lockhart *City of Dublin*	Jennifer Hosterman *City of Pleasanton*
Two members appointed by the Independent Special District Selection Committee.	Jocelyn Combs *Alameda County Resource Conservation District* Katy Foulkes *East Bay Municipal Utility District*	Herbert Crowle *Oro Loma Sanitary District*
One member from the general public appointed by the other six Commissioners.	Bob Butler	Linda Sheehan

MUNICIPAL SERVICE REVIEW ORIGINS

The MSR requirement was enacted by the State Legislature months after the release of two studies recommending that LAFCos conduct reviews of local agencies. The "Little Hoover Commission" focused on the need for oversight and consolidation of special districts, whereas the "Commission on Local Governance for the 21st Century" focused on the need for regional planning to ensure adequate and efficient local governmental services as the California population continues to grow.

LITTLE HOOVER COMMISSION

In May 2000, the Little Hoover Commission released a report entitled *Special Districts: Relics of the Past or Resources for the Future?* This report focused on governance and financial challenges among independent special districts, and the barriers to LAFCo's pursuit of district consolidation and dissolution. The report raised the concern that "the underlying patchwork of special district governments has become unnecessarily redundant, inefficient and unaccountable."[8]

In particular, the report raised concern about a lack of visibility and accountability among some independent special districts. The report indicated that many special districts hold excessive reserve funds and some receive questionable property tax revenue. The report expressed concern about the lack of financial oversight of the districts. It asserted that financial reporting by special districts is

[8] Little Hoover Commission, 2000, page 12.

inadequate, that districts are not required to submit financial information to local elected officials, and concluded that district financial information is "largely meaningless as a tool to evaluate the effectiveness and efficiency of services provided by districts, or to make comparisons with neighboring districts or services provided through a city or county."[9]

The report questioned the accountability and relevance of certain special districts with uncontested elections and without adequate notice of public meetings. In addition to concerns about the accountability and visibility of special districts, the report raised concerns about special districts with outdated boundaries and outdated missions. The report questioned the public benefit provided by health care districts that have sold, leased or closed their hospitals, and asserted that LAFCos consistently fail to examine whether they should be eliminated. The report pointed to service improvements and cost reductions associated with special district consolidations, but asserted that LAFCos have generally failed to pursue special district reorganizations.

The report called on the Legislature to increase the oversight of special districts by mandating that LAFCos identify service duplications and study reorganization alternatives when service duplications are identified, when a district appears insolvent, when district reserves are excessive, when rate inequities surface, when a district's mission changes, when a new city incorporates and when service levels are unsatisfactory. To accomplish this, the report recommended that the State strengthen the independence and funding of LAFCos, require districts to report to their respective LAFCo, and require LAFCos to study service duplications.

COMMISSION ON LOCAL GOVERNANCE FOR THE 21ST CENTURY

The Legislature formed the Commission on Local Governance for the 21st Century ("21st Century Commission") in 1997 to review statutes on the policies, criteria, procedures and precedents for city, county and special district boundary changes. After conducting extensive research and holding 25 days of public hearings throughout the State at which it heard from over 160 organizations and individuals, the 21st Century Commission released its final report, *Growth Within Bounds: Planning California Governance for the 21st Century,* in January 2000.[10] The report examines the way that government is organized and operates and establishes a vision of how the State will grow by "making better use of the often invisible LAFCos in each county."

The report points to the expectation that California's population will double over the first four decades of the 21st Century, and raises concern that our government institutions were designed when our population was much smaller and our society was less complex. The report warns that without a strategy open spaces will be swallowed up, expensive freeway extensions will be needed, job centers will become farther removed from housing, and this will lead to longer commutes, increased pollution and more stressful lives. *Growth Within Bounds* acknowledges that local governments face unprecedented challenges in their ability to finance service delivery since the voters cut property tax revenues in 1978 and the Legislature shifted property tax revenues from local government to the schools in 1993. The report asserts that these financial strains have created governmental entrepreneurism in which cities, counties and districts compete for sales tax revenue and market share.

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[9] Little Hoover Commission, 2000, page 24.

[10] The Commission on Local Governance for the 21st Century ceased to exist on July 1, 2000, pursuant to a statutory sunset provision

The 21st Century Commission recommended that effective, efficient and easily understandable government be encouraged. In accomplishing this, the 21st Century Commission recommended consolidation of small, inefficient or overlapping providers, transparency of municipal service delivery to the people, and accountability of municipal service providers. The sheer number of special districts, the report asserts, "has provoked controversy, including several legislative attempts to initiate district consolidations,"[11] but cautions LAFCos that decisions to consolidate districts should focus on the adequacy of services, not on the number of districts.

Growth Within Bounds stated that LAFCos cannot achieve their fundamental purposes without a comprehensive knowledge of the services available within its county, the current efficiency of providing service within various areas of the county, future needs for each service, and expansion capacity of each service provider. Comprehensive knowledge of water and sanitary providers, the report argued, would promote consolidations of water and sanitary districts, reduce water costs and promote a more comprehensive approach to the use of water resources. Further, the report asserted that many LAFCos lack such knowledge and should be required to conduct such a review to ensure that municipal services are logically extended to meet California's future growth and development.

MSRs would require LAFCo to look broadly at all agencies within a geographic region that provide a particular municipal service and to examine consolidation or reorganization of service providers. The 21st Century Commission recommended that the review should include water, wastewater, garbage, and other municipal services that LAFCo judges to be important to future growth. The Commission recommended that the service review be followed by consolidation studies and be performed in conjunction with updates of SOIs. The recommendation indicated that service reviews be designed to make nine determinations, each of which was incorporated verbatim in the subsequently adopted legislation.

MUNICIPAL SERVICE REVIEW LEGISLATION

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 requires LAFCo review and update SOIs not less than every five years and to review municipal services before updating SOIs. The requirement for service reviews arises from the identified need for a more coordinated and efficient public service structure to support California's anticipated growth. The service review provides LAFCo with a tool to study existing 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.

Effective January 1, 2001, Government Code Section 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 determination with respect to each of the following topics:

1) Infrastructure needs or deficiencies;

2) Growth and population projections for the affected area;

[11] Commission on Local Governance for the 21st Century, 2000, page 70.

3) Financing constraints and opportunities;

4) Cost avoidance opportunities;

5) Opportunities for rate restructuring;

6) Opportunities for shared facilities;

7) Government structure options, including advantages and disadvantages of consolidation or reorganization of service providers;

8) Evaluation of management efficiencies; and

9) Local accountability and governance.

The MSR process does not require LAFCo to initiate changes of organization based on service review findings; it only requires that LAFCo identify potential government structure options and determine their advantages and disadvantages per Government Code Section 56430. However, LAFCo, other local agencies, and the public may subsequently use the determinations to analyze prospective changes of organization or reorganization or to establish or amend SOIs.

It is likely that the type of MSRs being conducted by the Alameda LAFCo are exempt from California Environmental Quality Act (CEQA) pursuant to §15262 (feasibility or planning studies) or §15306 (information collection) of the CEQA Guidelines. LAFCo's actions to adopt MSR determinations are not generally considered "projects" subject to CEQA.

It is expected that MSR determinations may be closely followed by LAFCo actions to update various SOIs. A CEQA determination will then be made on a case-by-case basis once the proposed project characteristics are clearly identified. The ultimate outcome of conducting a service review may result in LAFCo acting with respect to a recommended change of organization or reorganization on its own initiative, at the request of any agency, or in response to a petition.

SPHERE OF INFLUENCE UPDATES

The Commission is charged with developing and updating the SOI for each city and special district within the county.[12] A SOI is a LAFCo approved plan that designates an agency's probable future boundary and service area. Spheres are planning tools used to provide guidance for individual boundary change proposals and are intended to encourage efficient provision of organized community services and prevent duplication of service delivery. Territory cannot be annexed to a city or district unless it is within that agency's sphere.

The purposes of the SOI are to ensure the efficient provision of services, discourage urban sprawl and premature conversion of agricultural and open space lands, and prevent overlapping jurisdictions and duplication of services.

[12] The initial statutory mandate, in 1971, imposed no deadline for completing sphere designations. When most LAFCos failed to act, 1984 legislation required all LAFCos to establish spheres of influence by 1985.

LAFCo cannot regulate land use, dictate how an agency should operate, or set rates. LAFCo can, however, enact policies that indirectly affect land use decisions. On a regional level, LAFCo promotes logical and orderly development of a community through reconciling differences between agency plans so that the most efficient urban service arrangements are created for the benefit of area residents and property owners.

The Cortese-Knox-Hertzberg (CKH) Act requires LAFCo to develop and determine the SOI of each local governmental agency within the county and to review and update the SOI every five years. LAFCos are empowered to adopt, update and amend the SOI. They may do so with or without an application and any interested person may submit an application proposing an SOI amendment.

If a city submits an application to expand its SOI, it must first negotiate the boundaries, development standards, and zoning requirements within the annexable sphere area with the county. Questionnaire responses about desirable sphere changes are not considered formal applications; however, LAFCo will take into consideration any negotiated agreements between affected cities and the county. LAFCo reserves the right to require cities to negotiate such agreements with the county prior to approving the sphere update.

LAFCo may recommend government reorganizations to particular agencies in the county, using the SOIs as the basis for those recommendations. Based on review of the guidelines and practices of Alameda LAFCo as well as other LAFCo's in the State, six conceptual approaches have been identified from which to choose in designating an SOI.

1) **Coterminous Sphere**: The sphere for a city or special district that is the same as its existing boundaries.

2) **Annexable Sphere**: A sphere larger than the agency's boundaries identifies areas the agency is expected to annex. The annexable area is outside its boundaries and inside the sphere.

3) **Detachable Sphere**: A sphere that is smaller than the agency's boundaries identifies areas the agency is expected to detach. The detachable area is the area within the agency but is not within its sphere.

4) **Zero Sphere**: A zero sphere indicates the affected agency's public service functions should be reassigned to another agency and the agency should be dissolved or combined with one or more other agencies.

5) **Consolidated Sphere**: A consolidated sphere includes two or more local agencies and indicates the agencies should be consolidated into one agency.

6) **Limited Service Sphere**: A limited service sphere is the territory included within the SOI of a multi-service provider agency that is also within the boundary of a limited purpose district which provides the same service (e.g., fire protection), but not all needed services. Territory designated as a limited service SOI may be considered for annexation to the multi-service agency without detachment from the limited purpose district. This type of SOI is generally adopted when a) the limited service provider is providing adequate, cost effective and efficient services, b) the multi-service agency is the most logical provider of the other services, c) there is no feasible or logical SOI alternative, and d) inclusion of the territory is in the best interests of local government organization and structure in the area.

In determining the SOI, LAFCo is required to conduct an MSR and adopt the nine determinations discussed in the next section.

In addition, in adopting or amending an SOI, LAFCo must make the following determinations:

- Present and planned land uses in the area, including agricultural and open-space lands;
- Present and probable need for public facilities and services in the area;
- Present capacity of public facilities and adequacy of public service that the agency provides or is authorized to provide;
- Existence of any social or economic communities of interest in the area if the Commission determines these are relevant to the agency; and
- The effects upon land under Williamson Act land conservation contracts.

The CKH Act stipulates several procedural requirements in updating SOIs. It requires that special districts file written statements on the class of services provided and that LAFCo clearly establish the location, nature and extent of services provided by special districts.[13]

LAFCo must notify affected agencies 21 days before holding the public hearing to consider the SOI and may not update the SOI until after that hearing. The LAFCo Executive Officer must issue a report including recommendations on the SOI amendments and updates under consideration at least five days before the public hearing.

MUNICIPAL SERVICE REVIEW PROCESS

The Alameda LAFCo is charged with preparing MSRs and updating the SOIs of 56 local agencies. Given the enormity of this task, the project has been divided into three separate reports based on type of services delivered:

- Volume I—Public Safety Services: police, fire, EMS and health care
- Volume II—Utility Services: water, wastewater, flood control, stormwater, solid waste and resource conservation
- Volume III—All Other Services: Streets, parks, mosquito abatement, lead abatement and vector control.

This MSR report focuses on utility services. It reports on 16 special districts, including four County Service Areas, and utility services provided by the 14 cities in Alameda County. This report will be used to update the SOIs of 12 special districts exclusively engaged in utility services, including two county service areas (Curbside Recycling and Livermore-Amador Valley Sewer Study). The report provides partial review of the 14 cities, two county service areas and a regional parks district providing other services to be covered in the third volume in this series of studies.

[13] In conducting the MSRs, the Commission has required written statements entitled Requests for Information on the nature of services from all agencies including special districts.

The MSR process involves agency review and public hearings prior to the Commission making the nine determinations and SOI updates. The process generally involves the following steps:

1) Phase 1 – Work Plan

2) Phase 2 – Data Collection and Initial Service Review

3) Phase 3 – Policy Alternatives

4) Phase 4 – In-Depth Service Reviews

5) Phase 5 – Public Hearings

6) Phase 6 – Final Service Review Report Including SOI Updates

CHAPTER 2: AGENCY OVERVIEW

This chapter reviews the agencies that provide utility services, their respective populations, projected growth and growth areas.

SERVICE PROVIDERS

To review services, the report assesses service providers. It focuses primarily on service providers that are local agencies under Alameda LAFCo's jurisdiction. Three distinct groups of service providers are evaluated in this report:

Limited purpose agencies that exclusively provide utility services, including two water districts, a flood control district, a municipal utility district, three sanitary districts, a community services district and three county service areas;

Multipurpose agencies that provide utility services and other services, including 14 cities, a regional parks district, a health care district, and a county service area; and

Other agencies that are not subject to Alameda LAFCo's jurisdiction, including multi-county public agencies with a principal county other than Alameda, state agencies and private service providers.

Because these agencies do not provide services to be covered in the third MSR report, LAFCo will adopt SOIs for these limited purpose agencies following adoption of this report. Table 2-1 indicates which services are provided directly by these agencies or by another service provider.

Table 2-1. Limited Purpose Agencies

Service Provider	Water	Sewer	Flood	Storm-water	Solid Waste	Resource
Alameda County Flood Control and Water Conservation District (ACFCD)			Direct			
Alameda County Resource Conservation District (ACRCD)						Direct
Alameda County Water District (ACWD)	Direct					
Castro Valley Sanitary District (CVSD)		Direct			WMI	
Contra Costa Water District (CCWD)	Direct[14]					
Curbside Recycling CSA					WMI	

[14] Contra Costa is the principal county for the Contra Costa Water District. The Contra Costa LAFCo has not yet adopted an MSR and SOI update for this agency. The agency's territory includes watershed lands in Alameda County, but the agency does not provide water service within Alameda County.

Dublin San Ramon Services District (DSRSD)	Direct	Direct				
East Bay Municipal Utility District (EBMUD)	Direct	Direct				
Livermore Amador Valley Sewer Study CSA		Inactive				
Oro Loma Sanitary District (OLSD)		Direct			WMI	
Union Sanitary District (USD)		Direct				
Zone 7 Water Agency	Direct		Direct			

The report reviews utility services provided by multipurpose agencies and partially reviews the agencies themselves. Multipurpose agencies provide other services, such as parks, to be reviewed in a subsequent volume of this report. LAFCo will update the SOIs of the multipurpose agencies after adopting the third and last volume of this MSR series. Table 2-2 indicates which service provider directly provides each service to the multipurpose agencies and their constituents.

Table 2-2. Multipurpose Agencies

Service Provider	Water	Waste-water	Flood Control	Storm-Water	Solid Waste
City of Alameda	EBMUD	EBMUD	Direct	Direct	Alameda Co. Industries
City of Albany	EBMUD	EBMUD	Direct	Direct	WMI
City of Berkeley	EBMUD	EBMUD	Direct	Direct	Direct
City of Dublin	DSRSD	DSRSD	Zone 7	Direct	Amador Valley Industries
City of Emeryville	EBMUD	EBMUD	ACFCD	Direct	WMI
City of Fremont	ACWD	USD	ACFCD	Direct	Browning-Ferris
City of Hayward	Direct	Direct	ACFCD	Direct	WMI & CurbCycle
City of Livermore	Direct & Cal Water	Direct	Zone 7	Direct	WMI
City of Newark	ACWD	USD	ACFCD	Direct	WMI
City of Oakland	EBMUD	EBMUD	ACFCD	Direct	WMI
City of Piedmont	EBMUD	EBMUD	Direct	Direct	Republic Services, Inc.
City of Pleasanton	Direct	DSRSD	Zone 7	Direct	Pleasanton Garbage
City of San Leandro	EBMUD	Direct	ACFCD	Direct	Alameda Co. Industries
City of Union City	ACWD	USD	ACFCD	Direct	Allied Waste & Tri-CED
Castlewood CSA	Cal Water	Pleasanton			
EBRPD	Various	Various			
Five Canyons CSA				Direct	
Washington Health Care District[15]					

[15] LAFCo may update the SOI for the District after adoption of this MSR. The health care services provided by Washington Township Health Care District were covered in Volume I. This MSR reviews the District's use of a water well, and has determined that the District is not a water service provider. The District's well is used exclusively for landscape irrigation. For further discussion, please refer to Appendix A, chapter A-15.

The report includes reference to other utility providers not under the jurisdiction of Alameda LAFCo. These include private entities as well as public agencies not under Alameda LAFCo jurisdiction. Table 2-3 indicates which services are provided directly by or under contract for those service providers not under Alameda LAFCo's purview.

Table 2-3. Other Providers

Service Provider	Water	Waste-water	Flood Control	Storm-Water	Solid Waste
Major Providers					
Alameda County				Direct	WMI
California State Water Project	Wholesale				
California Water Service Co.	Direct				
East Bay Dischargers Authority		Direct			
Livermore Amador Valley Water Management Agency		DSRSD			
Republic Services of California					Direct
San Francisco Public Utilities Commission	Direct[16]				
U.S. Army Corps of Engineers			Direct		
Waste Management, Inc.					Direct
Minor Providers					
Alameda County Agricultural Fair Association	Direct				
Alameda County Industries					Direct
Allied Waste					Direct
Amador Valley Industries					Direct
Browning-Ferris Industries					Direct
CurbCycle					Direct
Mohrland Mutual Water Company	Direct				
Mountain House School	Water				
Norris Canyon Property Owners Association	Direct				
Pleasanton Garbage Service					Direct
Rivers End Marina	Direct				
Stivers Academy	Direct				
Trailer Haven Mobile Home Park	Direct				
Tri-CED					Direct

[16] The principal county for the San Francisco Public Utilities Commission (SFPUC) is San Francisco. San Francisco LAFCo has not yet adopted an MSR for this agency. SFPUC provides wholesale and retail water services in Alameda County.

GROWTH AND POPULATION PROJECTIONS

This section reviews the residential and daytime (i.e., working) population as well as projected residential and economic growth.[17] Using ABAG's 2005 projections, the section discusses projected growth from 2005 to 2025. Although data covering a 20-year horizon is provided, the report generally defines the long-term as a 15-year period. Indeed, agency SOIs will be established to accommodate growth within the next 5-15 years because LAFCo must review SOIs every five years. The 20-year projections are provided as a courtesy for readers such as municipal planners who typically focus on a 20-year time horizon. Three agencies disagree with ABAG growth projections, as discussed below.

RESIDENTIAL POPULATION

Over the next 15 years, the population in Alameda County is expected to increase 13 percent. By 2020, ABAG projects countywide population will increase by approximately 197,400. The most significant increases in population level are projected to occur in large cities such as Oakland and Fremont and in fast-growing cities such as Dublin.

As shown in Table 2-4, ABAG projects that the countywide population will increase from approximately 1.52 million in 2005 to 1.58 million by 2010 and to 1.71 million by 2020.

Population is projected to grow faster in Dublin, Emeryville, Pleasanton, Union City and Livermore than in other areas of Alameda County over the next 5-15 years.[18] Projected annual population growth rates by city and district are shown in Table 2-5.

Piedmont, Albany, Berkeley, and Hayward are expected to grow more slowly than the countywide population over the next 5-15 years.

Three agencies do not agree with ABAG's projections. In Livermore, the projections exceed the City's target growth rate of no more than 1.5 percent annually. Pleasanton anticipates growing more slowly than projected, and Albany anticipates more growth than as projected by ABAG as a result of UC Berkeley housing facilities.

[17] As defined by the U.S. Census Bureau, the residential population includes institutional populations and group quarters populations, such as those in the military, prisons and universities.

[18] Note that the change in the population **level** refers to the actual change in the number of people, whereas the population **growth rate** refers to the rate of change in the population. For example, the Oakland population level is projected to increase by 16,800 people between 2005 and 2010 (the difference between 430,900 and 414,100) and is expected to grow at an annual rate of 0.8 percent. The higher the growth rate, the more quickly the population is growing in an area. The higher the change in population level, the more additional people are projected in a jurisdiction.

Table 2-4. Projected Population, 2005-25

	2005	2010	2015	2020	2025
COUNTYWIDE	1,517,100	1,584,500	1,648,800	1,714,500	1,796,300
City of Alameda	75,400	77,600	79,900	82,300	86,200
City of Albany	16,800	17,200	17,400	17,800	18,400
City of Berkeley	105,300	107,200	109,500	111,900	115,000
City of Dublin	40,700	50,000	57,000	63,800	70,800
City of Emeryville	8,000	8,800	9,300	9,900	10,600
City of Fremont	211,100	217,300	226,900	236,900	247,500
City of Hayward	146,300	151,400	156,600	160,300	165,100
City of Livermore	78,000	84,300	90,200	96,300	103,300
City of Newark	44,400	46,000	47,400	49,000	51,100
City of Oakland	414,100	430,900	447,200	464,000	488,100
City of Piedmont	11,100	11,200	11,200	11,200	11,200
City of Pleasanton	68,200	72,600	76,500	80,400	84,900
City of San Leandro	82,400	84,300	87,500	90,800	94,900
City of Union City	71,400	75,100	78,600	82,600	88,200
Unincorporated	143,900	150,600	153,600	157,300	161,000
Alameda County RCD	345,176	374,220	397,255	420,215	446,642
Alameda County Water District	328,793	340,279	354,834	370,439	388,753
Castro Valley Sanitary District	47,256	47,808	48,724	49,666	50,568
DSRSD (Alameda)[1]	41,013	50,161	57,096	63,991	71,246
DSRSD (Total)[2]	59,381	69,715	78,468	87,407	96,746
EBMUD (Alameda)[1]	856,119	883,910	911,853	940,995	981,038
EBMUD (Total)[2]	1,350,880	1,390,696	1,439,477	1,490,181	1,551,613
EBRPD (Alameda)[1]	1,517,100	1,584,500	1,648,800	1,714,500	1,796,300
EBRPD (Total)[2]	2,533,400	2,640,100	2,751,100	2,865,400	2,996,800
Oro Loma Sanitary District	128,014	131,404	135,007	138,618	142,933
Union Sanitary District	324,484	335,700	350,040	365,542	383,717
Castlewood CSA	832	934	967	990	1,017
Five Canyons CSA	3,027	3,314	3,385	3,464	3,583
Recycling CSA	12,821	13,291	13,628	13,833	14,095
Sewer Study CSA	4,297	6,178	6,682	7,341	8,319
Flood Control	1,308,433	1,371,233	1,430,733	1,491,233	1,565,433
Zone 7	197,942	221,827	239,305	257,024	276,291

Notes:

(1) Alameda County portion of a multi-county agency.

(2) Total representing all areas of a multi-county agency.

Table 2-5. Projected Annual Population Growth Rates, 2005-25

	2005-10	2010-15	2015-20	2020-25
COUNTYWIDE	0.9%	0.8%	0.8%	0.9%
City of Alameda	0.6%	0.6%	0.6%	0.9%
City of Albany	0.5%	0.2%	0.5%	0.7%
City of Berkeley	0.4%	0.4%	0.4%	0.5%
City of Dublin	4.2%	2.7%	2.3%	2.1%
City of Emeryville	1.9%	1.1%	1.3%	1.4%
City of Fremont	0.6%	0.9%	0.9%	0.9%
City of Hayward	0.7%	0.7%	0.5%	0.6%
City of Livermore	1.6%	1.4%	1.3%	1.4%
City of Newark	0.7%	0.6%	0.7%	0.8%
City of Oakland	0.8%	0.7%	0.7%	1.0%
City of Piedmont	0.2%	0.0%	0.0%	0.0%
City of Pleasanton	1.3%	1.1%	1.0%	1.1%
City of San Leandro	0.5%	0.7%	0.7%	0.9%
City of Union City	1.0%	0.9%	1.0%	1.3%
Unincorporated	0.9%	0.4%	0.5%	0.5%
Alameda County RCD	1.6%	1.2%	1.1%	1.2%
Alameda County Water District	0.7%	0.8%	0.9%	1.0%
Castro Valley Sanitary District	0.2%	0.4%	0.4%	0.4%
DSRSD (Alameda)[1]	4.1%	2.6%	2.3%	2.2%
DSRSD (Total)[2]	3.3%	2.4%	2.2%	2.1%
EBMUD (Alameda)[1]	0.6%	0.6%	0.6%	0.8%
EBMUD (Total)[2]	0.6%	0.7%	0.7%	0.8%
EBRPD (Alameda)[1]	0.9%	0.8%	0.8%	0.9%
EBRPD (Total)[2]	0.8%	0.8%	0.8%	0.9%
Oro Loma Sanitary District	0.5%	0.5%	0.5%	0.6%
Union Sanitary District	0.7%	0.8%	0.9%	1.0%
Castlewood CSA	2.4%	0.7%	0.5%	0.5%
Five Canyons CSA	1.8%	0.4%	0.5%	0.7%
Recycling CSA	0.7%	0.5%	0.3%	0.4%
Sewer Study CSA	7.5%	1.6%	1.9%	2.5%
Flood Control	0.9%	0.9%	0.8%	1.0%
Zone 7	2.3%	1.5%	1.4%	1.5%

Notes:

(1) Alameda County portion of a multi-county agency.

(2) Total representing all areas of a multi-county agency.

DAYTIME POPULATION

This section reviews the daytime population (i.e., employment) and projected economic growth throughout Alameda County.

Over the next 15 years, the daytime population in Alameda County is expected to increase 28 percent—over double the rate of growth in the residential population. By 2020, the number of jobs is projected to increase by 205,810. The most significant increases in daytime population level are projected in large cities such as Oakland and Fremont and fast-growing cities such as Livermore and Pleasanton.

ABAG projects that the number of jobs countywide will increase from approximately 747,500 in 2005 to 818,800 by 2010 and to 953,300 by 2020.[19]

Service sector jobs are projected to increase slightly more rapidly than others. Service jobs currently constitute 36 percent of jobs in Alameda County. By 2020, service jobs are expected to make up 38 percent of the economic base.

ABAG projects that Alameda, Dublin, Livermore and Union City will create jobs at faster rates than other areas over the next 5-15 years. Projected annual job growth rates by city and district are shown in Table 2-7.

In the short-term, job creation in Albany is expected to be unusually rapid in the next five years and to slow thereafter. Job creation in San Leandro is expected to be unusually slow in the next five years and to increase thereafter.

Service sector jobs are expected to grow most quickly with the 15-year expected growth rate of 29 percent. Manufacturing, wholesale and retail industries are expected to grow by approximately 18 percent over the next 15 years.

Generally, projected job growth rates exceed projected residential growth rates. ABAG is projecting the commercial population in Alameda County will grow more quickly than the residential population. Some portion of these jobs will be filled by residents of the County and the remainder by commuters from other counties. Because projected growth in the ratio of jobs per resident in Alameda County is higher than in the Bay Area as a whole, and higher than in neighboring Contra Costa and Santa Clara counties, it is reasonable to expect some increase in the portion of jobs will be filled by residents of other counties. In other words, the projections are consistent with an increase in commuting.

[19] The projection source is *ABAG Projections 2005*. Note that Vol. I MSR relied on 2003 ABAG Projections.

Table 2-6. Projected Jobs, 2005-25

	2005	2010	2015	2020	2025
COUNTYWIDE	747,500	818,840	884,970	953,310	1,021,960
City of Alameda	27,960	34,750	37,990	41,080	44,680
City of Albany	4,940	5,560	5,650	5,670	5,700
City of Berkeley	76,890	79,080	80,580	81,690	82,550
City of Dublin	19,950	24,770	29,170	32,030	36,770
City of Emeryville	20,140	21,460	21,750	21,900	22,050
City of Fremont	96,530	105,060	119,360	136,770	147,760
City of Hayward	73,670	80,030	84,330	88,790	93,880
City of Livermore	33,660	40,420	46,170	55,070	67,490
City of Newark	21,180	23,310	23,810	24,230	24,540
City of Oakland	207,100	223,490	235,030	250,260	265,700
City of Piedmont	2,120	2,140	2,160	2,190	2,230
City of Pleasanton	58,670	66,050	72,020	73,410	76,180
City of San Leandro	42,790	44,840	50,460	54,380	59,310
City of Union City	19,920	24,000	29,010	34,900	40,390
Unincorporated	41,980	43,880	47,480	50,940	52,730
Alameda County RCD	203,070	233,620	262,846	288,997	318,313
Alameda County Water District	138,140	152,936	172,842	196,624	213,479
Castro Valley Sanitary District	12,636	12,610	13,245	13,758	13,676
DSRSD (Alameda)[1]	21,459	26,780	31,422	34,965	40,961
DSRSD (Total)[2]	25,916	31,731	36,783	41,153	47,577
EBMUD (Alameda)[1]	414,813	444,783	469,889	495,991	521,748
EBMUD (Total)[2]	612,821	659,142	697,398	736,771	776,554
EBRPD (Alameda)[1]	747,500	818,840	884,970	953,310	1,021,960
EBRPD (Total)[2]	1,120,500	1,224,850	1,323,990	1,426,140	1,529,750
Oro Loma Sanitary District	35,483	36,949	41,235	44,881	47,710
Union Sanitary District	136,045	150,726	170,340	193,831	210,492
Castlewood CSA	187	195	205	208	210
Five Canyons CSA	339	376	384	412	430
Recycling CSA	4,957	5,372	5,494	5,687	5,874
Sewer Study CSA	6,964	8,483	9,447	10,826	12,957
Flood Control	635,590	697,310	758,590	822,680	886,800
Zone 7	123,332	144,074	161,604	176,112	197,708

Notes:

(1) Alameda County portion of a multi-county agency.

(2) Total representing all areas of a multi-county agency.

Table 2-7. Projected Annual Job Growth Rates, 2005-25

	2005-10	2010-15	2015-20	2020-25
COUNTYWIDE	1.8%	1.6%	1.5%	1.4%
City of Alameda	4.4%	1.8%	1.6%	1.7%
City of Albany	2.4%	0.3%	0.1%	0.1%
City of Berkeley	0.6%	0.4%	0.3%	0.2%
City of Dublin	4.4%	3.3%	1.9%	2.8%
City of Emeryville	1.3%	0.3%	0.1%	0.1%
City of Fremont	1.7%	2.6%	2.8%	1.6%
City of Hayward	1.7%	1.1%	1.0%	1.1%
City of Livermore	3.7%	2.7%	3.6%	4.2%
City of Newark	1.9%	0.4%	0.4%	0.3%
City of Oakland	1.5%	1.0%	1.3%	1.2%
City of Piedmont	0.2%	0.2%	0.3%	0.4%
City of Pleasanton	2.4%	1.7%	0.4%	0.7%
City of San Leandro	0.9%	2.4%	1.5%	1.8%
City of Union City	3.8%	3.9%	3.8%	3.0%
Unincorporated	0.9%	1.6%	1.4%	0.7%
Alameda County RCD	2.8%	2.4%	1.9%	2.0%
Alameda County Water District	2.1%	2.5%	2.6%	1.7%
Castro Valley Sanitary District	0.0%	1.0%	0.8%	-0.1%
DSRSD (Alameda)[1]	4.5%	3.2%	2.2%	3.2%
DSRSD (Total)[2]	4.1%	3.0%	2.3%	2.9%
EBMUD (Alameda)[1]	1.4%	1.1%	1.1%	1.0%
EBMUD (Total)[2]	1.5%	1.1%	1.1%	1.1%
EBRPD (Alameda)[1]	1.8%	1.6%	1.5%	1.4%
EBRPD (Total)[2]	1.8%	1.6%	1.5%	1.4%
Oro Loma Sanitary District	0.8%	2.2%	1.7%	1.2%
Union Sanitary District	2.1%	2.5%	2.6%	1.7%
Castlewood CSA	0.9%	1.1%	0.2%	0.2%
Five Canyons CSA	2.1%	0.4%	1.4%	0.9%
Recycling CSA	1.6%	0.5%	0.7%	0.6%
Sewer Study CSA	4.0%	2.2%	2.8%	3.7%
Flood Control	1.9%	1.7%	1.6%	1.5%
Zone 7	3.2%	2.3%	1.7%	2.3%

Notes:

(1) Alameda County portion of a multi-county agency.

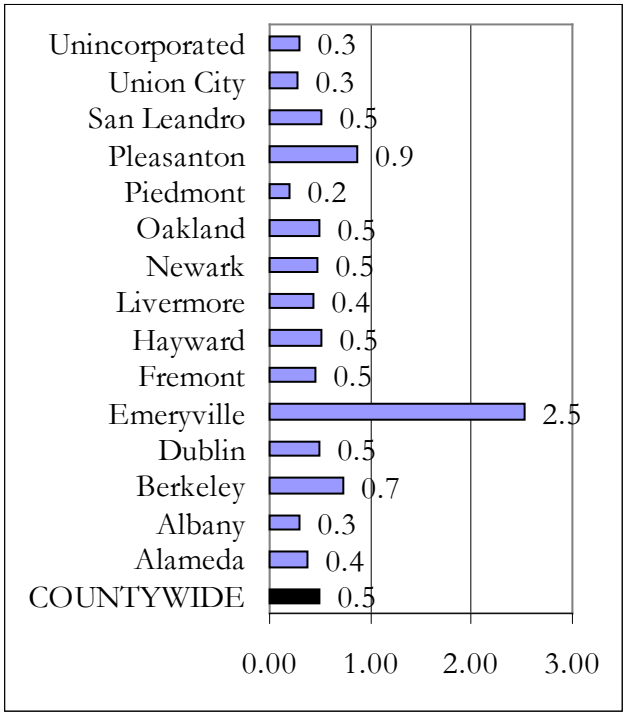
(2) Total representing all areas of a multi-county agency.

24-HOUR POPULATION

In addition to residential population and jobs, this report makes use of a concept called the 24-hour population in order to draw meaningful per capita comparisons.

Water, wastewater and other utility services benefit not only residents, but also businesses, workers and commuters. Utility services are provided throughout the relevant service areas without regard to place of residence. All contribute to the municipal tax bases as well.

Figure 2-8. Jobs per Resident, 2004



The cities and communities in this study vary significantly in the relative size of their respective commercial populations. Figure 2-8 shows the ratio of jobs to residents in each of the areas. In a commercial center like Emeryville, the number of jobs per resident is more than five times higher than countywide. In Pleasanton and Berkeley, the number of jobs per resident is significantly higher than countywide. In bedroom communities such as Albany, Piedmont and Union City, and in the unincorporated areas, there are relatively few jobs per resident.

Measurement

In order to compare indicators like long-term debt across jurisdictions, one needs to adjust the indicator in proportion to the size of the community. A common approach is to divide the indicator by the number of residents, yielding a per capita indicator. Unfortunately, this approach leads to overstating debt levels in a commercial center like Emeryville and understating debt levels in a bedroom community like Piedmont.

In order to draw meaningful comparisons across agencies, this report relies when possible on indicators such as water use which take into account both residential and daytime populations. In some cases, a population metric is needed for drawing comparisons; the 24-hour population metric was developed for each of the communities for this purpose.[20] The metric is based on the number of residents and jobs in a community, but is calculated taking into consideration that workers spend less time in the jurisdiction than do residents. Because the metric is used only as a denominator for purposes of developing comparable per capita indicators, it must be effective only at measuring

[20] The 24-hour population is calculated as the sum of a) 2/3 of the residential population, and b) 1/3 of the product of the commercial population multiplied by the countywide ratio of residents to jobs. For example, the Emeryville 24-hour population of 17,641 was computed as the sum of a) 5,078=2/3 of the residential population (7,616), and b) 12,563 which is 1/3 of the commercial population (19,454) multiplied by the countywide ratio of residents to jobs (1.94=1,516,268/782,657).

differences between communities in the population served. Hence, for convenience, the metric is calculated by normalizing countywide 24-hour population to the countywide residential population.

Table 2-9. Population Measures, 2005

	Residents	Jobs	24-Hour
COUNTYWIDE	1,517,100	747,500	1,517,100
City of Alameda	75,400	27,960	69,182
City of Albany	16,800	4,940	14,542
City of Berkeley	105,300	76,890	122,218
City of Dublin	40,700	19,950	40,630
City of Emeryville	8,000	20,140	18,958
City of Fremont	211,100	96,530	206,038
City of Hayward	146,300	73,670	147,373
City of Livermore	78,000	33,660	74,772
City of Newark	44,400	21,180	43,929
City of Oakland	414,100	207,100	416,174
City of Piedmont	11,100	2,120	8,834
City of Pleasanton	68,200	58,670	85,158
City of San Leandro	82,400	42,790	83,882
City of Union City	71,400	19,920	61,076
Unincorporated	143,900	41,980	124,334
Alameda County RCD	345,176	203,070	367,499
Alameda County Water District	328,793	138,140	312,650
Castro Valley Sanitary District	47,256	12,636	40,053
DSRSD (Alameda)[1]	41,013	21,459	41,859
EBMUD (Alameda)[1]	856,119	414,813	851,376
EBRPD (Alameda)[1]	1,517,100	747,500	1,517,100
Oro Loma Sanitary District	128,014	35,483	109,348
Union Sanitary District	324,484	136,045	308,360
Castlewood CSA	832	187	681
Five Canyons CSA	3,027	339	2,247
Recycling CSA	12,821	4,957	11,901
Sewer Study CSA	4,297	6,964	7,576
Flood Control	1,308,433	635,590	1,302,279
Zone 7	197,942	123,332	215,398

Notes:
(1) Alameda County portion of a multi-county agency.

Table 2-9 provides the three population measures—residents, jobs and 24-hour population. For communities such as Fremont, Livermore and Oakland with a (nearly) average balance of jobs and residents, the metric is not substantially different from the residential population. But for a community like Emeryville, the metric is closer to the daytime population for this community than to the residential population. Similarly, for a bedroom community like Piedmont, the metric is lower than the residential population, reflecting the reality that most working Piedmont residents are not in Piedmont much of the time.

Growth

Due to differences between communities in projected growth in jobs and residents, the number of jobs per resident will change over the coming years. Union City and the unincorporated areas are projected to produce significantly more jobs per resident, evolving from bedroom communities into more balanced communities. Similarly, Alameda and Livermore are projected to produce significantly more jobs per resident, evolving into more heavily commercial areas. Conversely, growth in Emeryville's residential base is projected to outstrip growth in its jobs, with the future city being somewhat more balanced than it is today.

GROWTH STRATEGIES AND AREAS

This section reviews growth strategies, constraints and areas in sub-regions of the County.

Alameda County: Unincorporated

In November 2000, Alameda County voters adopted an Urban Growth Boundary (Measure D) that revised the urban growth boundary in the East County to reserve less land for urban growth and more land for agriculture and open space, apply similar policies to rural Castro Valley and Palomares Canyonlands. A countywide vote is required to change Measure D policies.

Measure D amended the Alameda County General Plan to establish the UGB, increase minimum parcel sizes, and restrict development envelopes, floor area ratios and maximum floor areas outside the UGB. Measure D restricted the nature and extent of land uses outside the UGB to agriculture, resource management, watershed management, and low-density rural residential uses. It also barred the provision of public facilities and infrastructure in excess of what would be needed to serve the level and type of development that the measure allowed. In addition, Measure D requires that all of the unincorporated County's Regional Housing Needs Allocation has to be accommodated within the voter-approved urban growth boundary.

Tri-Valley: Dublin, Livermore, Pleasanton

The Tri-Valley sub-region continues to experience the most rapid growth in the County, and in this area Dublin is the most rapidly growing city.

The City of Dublin encourages mixed use and higher density development adjacent to current and planned transit stations. The City's plans include comprehensive infrastructure planning for all SOI areas, allowing for mixed uses of land with flexible development standards and promoting affordable housing. Growth outside the western boundary is constrained by UGB policies. The City limits development on steep hillsides, in high elevation areas and in Doolan Canyon. Eastern Dublin is the largest growth area with over 4,000 undeveloped acres. Dublin's 2002 General Plan anticipates that as many as 32,500 additional residents and 28,100 additional jobs may be added in eastern Dublin in the next 30-40 years. In western Dublin, the City anticipates growth of 1,517 residents primarily in the Schaefer Ranch area.

Livermore has implemented infill policies. The City's UGB promotes infill and preservation of open space. The UGB limits growth and any modification must be approved by the electorate. The City prohibits development on slopes of 25 percent or more. Livermore's residential growth areas include southern areas of the City, where 1,600 additional residential units are permitted. Although various land uses are permitted in the southern growth area, the area is primarily designated for low density residential use. Though limited by the City's Urban Growth Boundary (UGB), there remains residential development potential north of North Livermore Park and south of Raymond Road.

Through its growth management program, Pleasanton evaluates its ability to assimilate growth. The City UGB limits growth to the existing urbanized area. The Pleasanton Ridgelands limit urban growth along the City's western boundary. The City has also adopted a "green" ordinance for new

development to ensure that environmental impacts are minimal. Pleasanton's residential growth areas are located on Stoneridge Drive, in the Vineyard Avenue corridor, the Bernal property, and the Ruby Hill area. As of early 2002, Pleasanton had approved 4,505 new housing units, and was expecting commercial growth accommodating 2,200 to 2,800 new employees each year.

County policy promotes urban land use, preserves open space and agricultural lands, and limits available unincorporated land. The Measure D UGB restricts new development to territory near or within existing urban areas. There are development opportunities inside the UGB north of Dublin, three areas south of Pleasanton and various mixed use and industrial lands west of Pleasanton. Around Livermore, there are areas to the west and on the east side south of the Lawrence Livermore National Laboratory.

Southern: Fremont, Newark, Union City

Union City has adopted specific area plans to set specific control measures on development. Union City policy encourages high density and mixed use development. Lands are redeveloped to more intensive uses, transitioning from low density to high density mixed use. A city hillside plan limits development in the eastern hillsides. Union City is concentrating its redevelopment efforts in the vicinity of its BART station, where its recent general plan envisions constructing a transit village with multi-family residential, offices and further development at an industrial park. In addition, the general plan envisions industrial development at the Alvarado Technology Center in northwest Union City. The Union Landing development is expected to continue to attract retail and office investment until it is fully built out (by 2020).

Fremont growth strategies include promoting affordable housing by providing a density bonus of up to 25 percent and growth model analysis in conjunction with strategic plan preparation every five years. Fremont's growth is expected to occur primarily through infill development, redevelopment and conversion and intensification opportunities throughout the community. The City also retains a large supply of industrially designated land, primarily located westerly of I-880 but also between I-880 and I-680 south of Auto Mall Parkway. These industrial areas are expected to accommodate the majority of employment growth over the next 20 years.

Newark promotes infill development primarily in commercial areas. Newark's General Plan identifies commercial development potential at six infill areas including the New Park Mall area and adjacent lands, mixed-use development at Cedar Boulevard and redevelopment in the Historic Newark area.

Central: Alameda, Hayward, San Leandro

The City of Alameda's growth policy is mainly focused on promoting affordable housing and commercial redevelopment. As an island, new development only exists as infill and redevelopment projects such as at Alameda Point. Growth areas include Bay Farm Island, where recent residential development has occurred, and the Harbor Bay Business Park, where a golf complex and 205-acre Marina Village mixed-use project was successfully developed with office space, retail, townhouses and a marina. Future growth is expected to be most significantly affected by redevelopment of Alameda Point, formerly the Alameda Naval Air Station, where as many as 15,000 residents will be added during the next 20 years as well as clean light-industrial and office uses, resort and conference facilities, eco-tourism and historic attractions such as the Hornet, and new small and youth-operated businesses.

Hayward promotes infill and redevelopment concentrated in areas served by transit or close to major employment centers. In Hayward, potential residential growth areas include the Highlands and Glen Eden areas, redevelopment in the Downtown and Burbank areas, and the Mission-Foothills and Mission-Garin areas for redevelopment activity along Mission Boulevard and near the South Hayward BART station. There are 419 vacant acres in southwest Hayward, which is a potential commercial and industrial growth area.

San Leandro studies and implements zoning amendments along thoroughfares to promote infill. The City also promotes infill through various economic assistance programs. There are scattered and relatively small potential residential growth areas in San Leandro. And, formerly industrial sites are available for mixed-use development. As of 2002, only 130 acres of vacant land remained with the potential for residential development of 170 single- family and 230 multi-family units.

In the unincorporated areas of San Lorenzo, Ashland and Cherryland, County policy promotes infill and redevelopment of underutilized or undeveloped areas, and new development in close proximity to existing BART stations. In the Castro Valley and Fairview areas, County policy promotes infill development, redevelopment of commercial areas and redevelopment of large residential lots to meet housing demands. The Measure D UGB restricts new development to territory near or within existing urban areas.

Northern: Albany, Berkeley, Emeryville, Oakland, and Piedmont

Albany growth strategies include upgrading commercial development, promoting a mix of commercial development, protecting residential neighborhoods from adverse impacts of adjacent commercial use, and increasing economic vitality of industrial areas. There is little vacant developable land within the City; most of the City is built out. Albany anticipates residential growth as a result of UC Berkeley housing facilities being built. The UC Village, located at Buchanan and San Pablo Avenues, is a 26-acre redevelopment project including retail, commercial, campus housing, a community center, an infant-toddler day care facility, administrative offices and recreational facilities and open space. The City has changed its zoning ordinance to encourage mixed-use development and affordable housing, primarily on San Pablo Avenue, a state highway and transit corridor. The City is also encouraging commercial redevelopment adjacent to the freeway on the Eastshore Highway.

Berkeley provides a building height bonus of one additional level for affordable housing or cultural use projects. Other practices include transportation demand strategies, such as City subsidized bus passes to reduce downtown congestion and demand for parking. Berkeley growth areas identified by the City's General Plan include the downtown area as well as the Southside redevelopment area located along the west side of the UC Berkeley campus. In the Southside area, growth is projected to include increased housing opportunities for students, development of the two vacant sites left in the area, and redevelopment of under-utilized sites.

Emeryville zoning ordinances and programs encourage infill as well as conversion of industrial use to denser commercial and residential uses. Growth areas in the City of Emeryville include redevelopment housing projects on 36th and San Pablo Avenue and mixed-use redevelopment on the former King Midas Card Club site. Five parcels are being redeveloped on Bay Street into a regional retail center with associated residential development.

Oakland encourages infill development to preserve open space and is implementing a plan to attract 10,000 residents to the downtown area. Redevelopment policy encourages growth in older, blighted neighborhoods, particularly in four redevelopment areas. Oakland is also developing transit villages at BART station locations. Oakland growth areas include Chinatown, the airport area, West Oakland, and the hill areas. The Chinatown area is growing due to mixed-use housing development and various neighborhood improvements. In the airport vicinity, East Oakland is projected to experience high job growth from airport and related jobs. West Oakland is another commercial development growth area. The main residential growth areas are in the North and South Hills areas. Oakland has a plan to attract 10,000 residents to the downtown area, is building a transit village at the Fruitvale BART station, and is exploring the idea of transit villages at other BART stations.

Piedmont is largely built out, does not anticipate significant growth, and did not identify any current or future growth areas.

CHAPTER 3: WATER SERVICES

This chapter reviews water services in Alameda County, including how these services are provided by the special districts, cities and other providers not under LAFCo jurisdiction. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, and financing constraints and opportunities. Policy analysis—including shared facilities, financing, cost avoidance, rate issues, government structure options, evaluation of management efficiencies, and local accountability and governance—is focused primarily on local agencies under LAFCo jurisdiction.

PROVIDER OVERVIEW

This section provides an overview of the water service providers, supply chains and water service areas in Alameda County. For a geographic overview of the water suppliers, please refer to Figure 3-2. For a detailed profile of each individual agency, please refer to Appendix A.

Table 3-1. Water Service Providers

	Wholesale: Production & Treatment					Retail Distribution[1]		
Provider	**Importing**	**Extraction/ Wells**	**Groundwater Management**	**Treatment**	**Recycled Water**	**Potable**	**Raw**	**Recycled**
Limited Purpose Agencies								
ACWD	●	●	●	●		●		
CCWD								
DSRSD					●	●		●
EBMUD	●			●	●	●		●
Zone 7	●	●	●	●			●	
Multipurpose Agencies								
Hayward						●		
Livermore					●	●		●
Pleasanton						●		
Castlewood CSA						●		
Non-LAFCo Providers: Major Systems								
Cal Water						●		
San Francisco PUC	●	●		●		●		
State Water Project	●							
Non-LAFCo Providers: Minor Community Systems								
AC Fair Assoc.		○				○		
Mohrland Mutual		●				●		
Norris Canyon		●				●		
Trailer Haven		●				●		
Self Providers: Transient Non-Community Systems								
EBRPD		○				○		
Washington HCD		○					○	
Mountain House Sch.		○				○		
Rivers End Marina		○				○		
Stivers Academy		○				○		

Note: (1) ● indicates distribution to paying customers, ○ indicates distribution not billed to customers

SERVICE PROVIDERS

This section provides a brief profile of each water service provider. Table 3-1 lists each of the water service providers, along with the type of water services provided in Alameda County. The MSR focuses on significant water utility services provided in the County, but does include basic information on minor systems serving communities or transients.

Limited Purpose Agencies

Five special districts engaged exclusively in utility services are the Alameda County Water District, the Contra Costa Water District, Dublin San Ramon Services District, East Bay Municipal Utility District, and the Zone 7 Water Agency. Although not a utility provider, the Washington Township Health Care District is a limited purpose agency operating a private water well.

The Alameda County Water District (ACWD) provides retail water service, water treatment as well as groundwater management, extraction and recharge services. Its retail service area includes the cities of Fremont, Union City and Newark, and its groundwater management service area also includes the southwest portion of the City of Hayward. The independent special district was formed in 1914 under the County Water District Act of 1913 to protect the Niles Cone groundwater basin, conserve the Alameda Creek watershed and develop supplemental water supplies, primarily for agricultural use. In 1930, the District became a water distributor and has since become an urban service provider. The District's sources of water supply are the State Water Project's (SWP) Delta-Bay, the San Francisco Public Utility Commission (SFPUC) Hetch Hetchy system, local groundwater, and local run-off from Lake Del Valle.

The Contra Costa Water District (CCWD) includes watershed territory in Alameda County, but does not provide water services to Alameda County residents.[21] As part of a Bay Area initiative, the California Bay-Delta Authority (a consortium of state and federal agencies) is studying a potential expansion of Los Vaqueros to provide water quality and drought reliability benefits to Bay Area water agencies. Potential partners in the project include ACWD, the Zone 7 Water Agency, the Santa Clara Valley Water District, as well as state and federal agencies responsible for environmental water uses. The contemplated expansion would not extend water supplies but would provide flexible locations and timing for partners to draw water from the San Francisco Bay/Sacramento-San Joaquin River Delta (Bay-Delta).

The Dublin San Ramon Services District (DSRSD) provides retail water service and recycled water in collaboration with East Bay Municipal Utility District (EBMUD). DSRSD's wastewater services are discussed in Chapter 4. Its water retail service area includes the City of Dublin, a small unincorporated area northeast of Dublin and the Dougherty Valley in Contra Costa County. Although the DSRSD boundary area includes the southern portion of the City of San Ramon, EBMUD is the water provider in that area. The Zone 7 Water Agency provides treated water and regulates groundwater extraction activities.

EBMUD provides comprehensive water services, including production, conveyance, treatment and retail services, as well as water recycling. The District's wastewater services are discussed in Chapter 4. The District's water service area in Alameda County includes the cities of Alameda,

[21] According to CCWD, LAFCo transferred jurisdiction over CCWD boundaries in Alameda County to the Contra Costa LAFCo. Contra Costa LAFCo has already approved an MSR for this agency.

Albany, Berkeley, Emeryville, Oakland, Piedmont, and San Leandro, portions of Hayward, and the unincorporated areas of Ashland, Cherryland, Castro Valley, Fairview, and San Lorenzo. In Contra Costa County, EBMUD serves the cities of Richmond, El Cerrito, Pinole, Hercules, Orinda, Lafayette, Moraga, Walnut Creek, Danville and San Ramon, as well as unincorporated areas. The independent special district was formed in 1923 under the Municipal Utility District Act to provide water services. EBMUD's primary water source is Mokelumne River runoff; minor sources include East Bay runoff and drought supplies from the Central Valley Project.

The Zone 7 Water Agency provides wholesale water, water treatment, groundwater management, extraction and recharge, and retails raw (i.e., untreated) water to agricultural accounts. The Zone's flood control services are discussed in Chapter 5. The Zone's water service area includes the cities of Pleasanton, Dublin and Livermore, as well as unincorporated areas covering the eastern portion of the County. As wholesale water supplier to DSRSD, the Zone indirectly serves the Dougherty Valley in Contra Costa County. Zone 7 was formed in 1957 under special legislation—the Alameda County Flood Control and Water Conservation District Act—to procure a reliable drinking water supply and to provide storm drainage and flood control services. The Zone is unique in that it has features of both a dependent and independent special district.[22] The Zone's sources of water supply are the State Water Project's (SWP) Bay-Delta, local groundwater from the Livermore-Amador Main Basin, Lake Del Valle in the Livermore area, and supplemental SWP water from the Byron Bethany Irrigation District.

The Washington Township Health Care District (WTHCD) receives potable water service from ACWD and relies on a private well for landscape irrigation. The District is not considered a water utility service provider.

Multipurpose Agencies

There are five multipurpose agencies engaged in water services in Alameda County. The cities of Hayward, Pleasanton and Livermore and the Castlewood County Service Area (CSA) are retail water providers. Although not a utility provider, the regional park district is a multipurpose agency relying on well water in several parks.

The City of Hayward provides retail service for potable water. The City's potable water service area includes most of the territory within the City (except for about three percent of the City served by EBMUD)[23] and some unincorporated island areas.[24] The City relies exclusively on the San Francisco Public Utility Commission (SFPUC) Hetch Hetchy system for treated water. In an emergency, the City may extract water from groundwater wells. The southeast portion of the City

[22] As a zone of the Alameda County Flood Control and Water Conservation District (ACFCD), Zone 7 is part of a dependent special district with certain governing decisions overseen by the County Board of Supervisors. Zone 7 differs from all other ACFCD zones in that it was created under special legislation and has an independently elected board with sole authority over all matters that relate only to Zone 7. See Appendix A chapters A-1 and A-16 for further details on the governing structure of ACFCD and Zone 7, respectively.

[23] EBMUD service in Hayward includes several areas. EBMUD serves one area in Hayward delineated by the Hayward Airport to the west, Cannery Park to the east, and north of Longwood Avenue. There are several small northern pockets that include Brenkwitz Continuation High School, Gary Drive, Oak Street, Bridge Court, and Kelly Street. Another area south of the Fairview community includes Hayward High School and the Oaks Drive area and surrounding parks—Hayward Memorial, East Avenue and Green Belt.

[24] Water service in unincorporated island areas is provided to most parcels by the Mohrland Mutual Water Company. The City also provides service to some parcels. If annexed, the areas would eventually be served by the City.

lies within the Niles Cone Groundwater Basin managed by ACWD. EBDA distributes recycled water to the Skywest Golf Course in Hayward.

The City of Livermore provides retail service for potable water and also produces recycled water. The City provides water service directly to northern and eastern portions of the City.[25] Water service outside Livermore's boundaries includes a few properties on Greenville Road east of the city limits as well as three properties in a small area between Marathon Drive and the Union Pacific Railroad north of LLNL.[26] The recycled water service area is limited to one zone (Zone 1) of its potable service area. The City relies exclusively on Zone 7 for potable water. In an emergency, the City may extract groundwater from wells, subject to Zone 7 oversight.

The City of Pleasanton's water service area includes much of the area within the city limits as well as unincorporated areas along Kilkare Road north of the town of Sunol and a few parcels in the unincorporated Castlewood area. Zone 7 is the wholesale water and water treatment provider and is also responsible for groundwater management and recharge. Zone 7 extracts groundwater from wells and provides all water treatment services to the City.

The Castlewood CSA's water service area is an unincorporated community south of Pleasanton. The CSA serves nearly all of the parcels in its territory, specifically those with water rights. A few parcels lack water rights and are served by the City of Pleasanton. The California Water Services Company operates and maintains the potable water system under contract with the CSA. The CSA relies exclusively on SFPUC for treated water.

In most park areas, EBRPD relies on retail water agencies for potable water. In three of its parks, the District provides drinking water directly to park staff and visitors from wells, a spring and surface water sources. The District extracts water from two wells in the Livermore-Amador Valley Main Basin to serve Sunol Regional Wilderness visitors and park staff. The District provides spring water in the Redwood Spring Regional Park to staff, day hikers and overnight youth groups. Treated surface water in Del Valle Regional Park serves staff, boaters, hikers, backpackers, and overnight campers. At other parks, the District relies on municipal water providers.

Non-LAFCo Providers

There are three major water purveyors not under the jurisdiction of Alameda LAFCo: State Water Project, San Francisco Public Utility Commission and the California Water Service Company.

The State Water Project (SWP) is the primary source of water for Zone 7 and is a significant source for ACWD. SWP activities in Alameda County include operation of the South Bay Aqueduct and several reservoirs, as well as a segment of the California Aqueduct. SWP is owned by the State of California and operated by the State Department of Water Resources (DWR). State agencies are not under LAFCo jurisdiction.

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[25] The California Water Services Company provides water service to the southern and downtown areas where about three-quarters of the City's water customers are located.

[26] The area southwest of Springtown is within the City's water service area, although the City does not currently provide water service to existing development along Las Colinas Road. Cal Water provides free water service at present to the existing development—two farms and a church—on Las Colinas Road. The Altamont Creek area south of Frick Lake and north of I-580 lies within the City's water service area and urban growth boundary, but there are no active water connections in this area at present.

San Francisco Public Utility Commission (SFPUC) activities in Alameda County include conveyance of Hetch Hetchy water, water treatment and capture of local runoff. Within Alameda County, SFPUC provides wholesale water to ACWD and Hayward. It provides retail water service to the unincorporated Sunol and Castlewood communities as well as to the Lawrence Livermore National Laboratory. As a component of the City and County of San Francisco, SFPUC is under the jurisdiction of the San Francisco LAFCo.

The California Water Service Company (Cal Water) is an investor-owned (i.e., privately-owned) water utility providing service to approximately three-quarters of Livermore residents (Livermore District) and to numerous other communities throughout California. Zone 7 is the wholesale water and water treatment provider, and is also responsible for groundwater management and recharge. Zone 7 extracts groundwater from wells and provides all water treatment services to Cal Water. As an investor-owned water utility, the Cal Water service area and activities are under the jurisdiction of the California Public Utilities Commission.

Other Providers

There are several private companies and homeowner associations providing water service to members and/or staff.

Private community water systems include the Mohrland Mutual Water System (serving unincorporated islands in Hayward), Trailer Haven Mobile Home Park, the Alameda County Fairgrounds and the Norris Canyon Property Owners Association. These systems are classified as minor for purposes of this study. Mohrland—the largest of these systems—serves 90 households. In addition, several schools and a marina also maintain private wells serving five or more connections. Drinking water quality at private systems serving five or more connections is regulated by the California Department of Health Services. The Alameda County Department of Environmental Health regulates water quality at wells serving 14 or fewer connections.

SUPPLY CHAINS

This section orients the reader to the roles played by the water providers in the water supply chain—water import, conveyance, wholesale distribution, and retail distribution. As shown in Figure 3-2, water from major import and local sources is distributed in some cases directly and in other cases through intermediary agencies in Alameda County.

Major water production activities involve the collection and conveyance of water from its source location. Most of the water consumed in the Bay Area is imported from outside the County.

SWP, EBMUD and SFPUC are the primary importers of water consumed in Alameda County. SWP transports Feather River water released from Oroville Dam and unregulated flows that have traveled through the Bay-Delta. SWP water enters Alameda County near the Bethany Reservoir located about 10 miles northwest of Tracy. EBMUD collects runoff from the Mokelumne River in Calaveras and Amador counties and conveys it through an aqueduct into Alameda County. SFPUC collects runoff from the Tuolumne River in Yosemite National Park and conveys it through tunnels and pipes into Alameda County and the Bay Area.

Zone 7 and ACWD also rely on groundwater; both agencies serve as groundwater manager for the basins within their boundaries. As such, they both conduct groundwater monitoring, recharge, treatment, and distribution.

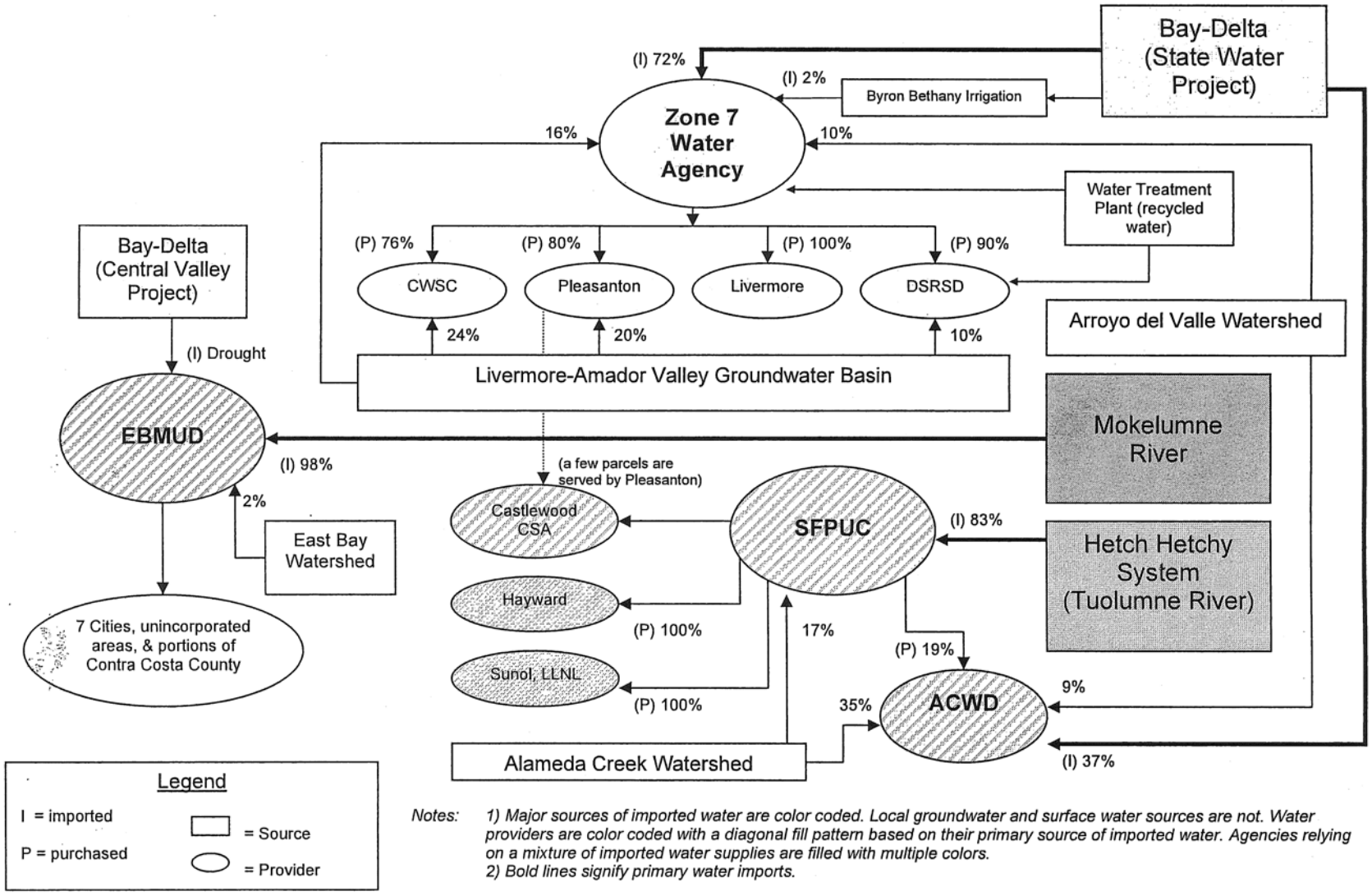
SWP conveys Bay-Delta water from the Bethany Reservoir through the South Bay Aqueduct to Zone 7 and ACWD. Both ACWD and Zone 7 treat and distribute SWP water, in some cases blending the water with other supply sources. ACWD supplies treated water to customers directly. Zone 7 distributes it to four retailers—DSRSD, Cal Water and the cities of Pleasanton and Livermore. The retailers supply the water directly to customers. Zone 7 also provides untreated water directly to agricultural accounts in the County.

EBMUD treats water from the Mokelumne River watershed and distributes it directly to customers throughout its service area.

SFPUC serves as both a wholesaler and retailer within Alameda County. SFPUC treats the Tuolumne River water in Sunol. SFPUC also captures surface water in Alameda and Santa Clara counties. In Alameda County, SFPUC captures surface water from the Alameda Creek watershed on its lands (36,000 acres) in Alameda County. Local groundwater supplies from the Sunol area contribute less than one percent of supply. SFPUC distributes treated water from these sources to the City of Hayward and ACWD. The City of Hayward and ACWD distribute the water directly to customers within their service areas. SFPUC also provides retail water service in several unincorporated areas within the County. Direct SFPUC customers include the LLNL in eastern Livermore, the Sunol area and the Castlewood area. In the Castlewood area, SFPUC sells water to two accounts—the Country Club and the homeowners. The Castlewood CSA operates and maintains the potable water distribution system within the area. [27]

[27] Individual homeowners within the CSA retain water rights supplied by SFPUC. Although the Castlewood Property Owners Association represents the homeowners, the CSA is responsible for water system operation.

igure 3-2. Water Supply Chain Diagram



Notes: *1) Major sources of imported water are color coded. Local groundwater and surface water sources are not. Water providers are color coded with a diagonal fill pattern based on their primary source of imported water. Agencies relying on a mixture of imported water supplies are filled with multiple colors.*
2) Bold lines signify primary water imports.

WATER AVAILABILITY

Potable Water

Potable water service is available in most of the developed areas of the County through the municipal water systems of the providers, discussed above, as shown in Figure 3-3. Areas without municipal water service include Hayward marsh areas, hill areas in eastern Fremont and Union City, ridge areas between and within Pleasanton and Hayward, and sparsely developed areas in eastern Alameda County.

In some cases, the agencies provide water service outside their boundaries. Agencies are required to seek Commission approval before extending service outside their boundaries.[28]

The City of Hayward provides potable water service to unincorporated islands and fringe areas outside its boundaries. The City of Livermore serves six adjacent unincorporated areas outside its boundaries. Pleasanton provides service north of Sunol, in the Castlewood area and fringe areas. SFPUC service areas in Alameda County are outside the agency's boundaries. ACWD serves three areas outside its boundary, the Mayfield Housing property, southern Hayward (14 parcels) and an 11-acre property in Fremont owned by BART.

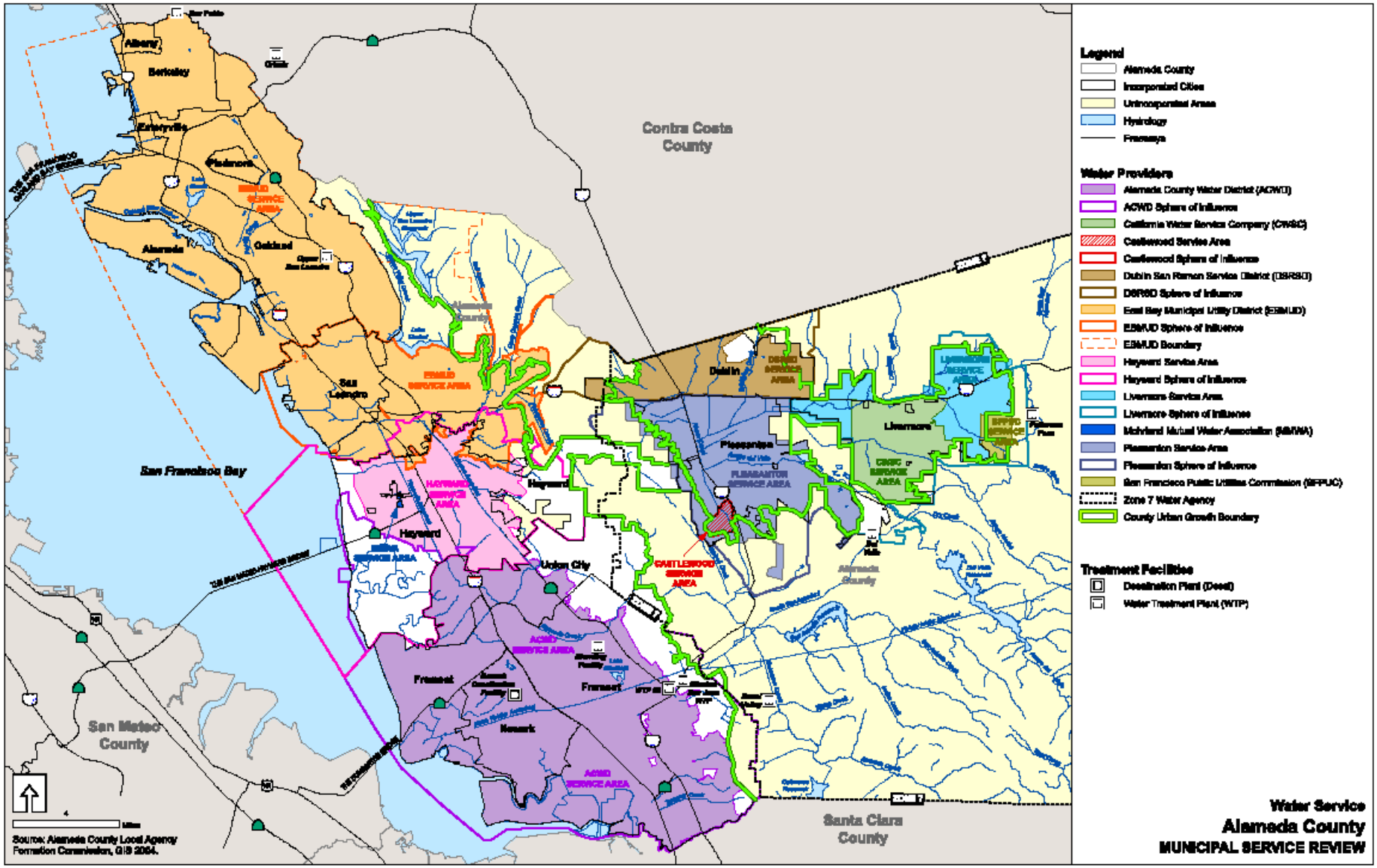
For emergency sharing of potable water, several of the agencies have interties. Emergency water sharing is currently available between the following agency pairings:

- EBMUD and DSRSD
- DSRSD and City of Pleasanton
- City of Livermore and Cal Water
- ACWD and City of Hayward
- EBMUD and City of Hayward
- EBMUD and CCWD
- ACWD and City of Milpitas in Santa Clara County
- SFPUC and Santa Clara Valley Water District

EBMUD and SFPUC are currently developing an emergency intertie in Hayward. As SFPUC customers, both Hayward and ACWD will benefit from this future intertie. There are also several one-way interties. The City of Pleasanton is an emergency backup supply for the Castlewood CSA and for the Alameda County Fair. Hayward is currently able to provide service to portions of the Mohrland Mutual Water Company's service area in unincorporated islands within the City. There is further discussion of emergency water supplies and planning activities later in this chapter.

[28] California Government Code §56133 authorizes the Commission to approve extra-territorial service in areas expected to be annexed in the future and in cases when there is an existing or impending threat to public health or safety. Agencies are not required to seek Commission approval for services extended before 2001. Agencies should consult with the LAFCo Executive Officer to determine if exemptions may apply.

Figure 3-3. Potable Water Service Map



Recycled Water

Through advanced wastewater treatment processes, recycled water is produced and can safely be used for irrigation, industrial applications, groundwater recharge and some commercial activities. Recycled water is currently available in limited areas of the County. California allows distribution of wastewater effluent treated at tertiary levels for irrigation of food crops, school yards, parks, playgrounds, and golf courses with no restricted access. Wastewater treated at secondary levels may be used for irrigation of restricted access golf courses, cemeteries, freeway landscaping, nurseries, and pasture land.

The City of Livermore provides recycled water service for irrigation purposes in the eastern portion of its service area with wastewater effluent treated at tertiary levels. Major customers include the Las Positas College and a golf course. Within its service area, the City anticipates that non-potable recycled water will be used for all new irrigation projects.

DSRSD provides recycled water to irrigation customers in eastern Dublin and Dougherty Valley with wastewater effluent treated at tertiary levels. Through a JPA with EBMUD, DSRSD supplies EBMUD with recycled water for distribution by EBMUD. EBMUD provides recycled water service to various EBMUD facilities, Alameda-Chuck Corica Golf Complex, Harbor Bay Parkway, and Metropolitan Golf Links. EBMUD is expanding recycled water service, and reports significant interest from irrigation and industrial users in the service. New pipelines are being installed to distribute the recycled water to customers. A 4.4-mile long recycled water transmission pipeline along the Eastshore Freeway is mostly in place, and approximately 24 miles of transmission and distribution pipelines in the East Bay are being constructed.

The East Bay Dischargers Authority (EBDA) provides wastewater effluent treated by Oro Loma Sanitary District (OLSD) at secondary levels to the Skywest Golf Course in Hayward. The City of San Leandro supplies wastewater treated to secondary levels for the Monarch Bay Golf Club in San Leandro and to EBMUD for distribution of recycled water to the Alameda-Chuck Corica Golf Complex, Harbor Bay Parkway, Metropolitan Golf Links in Oakland.[29] There is potential future use of recycled water from EBDA and its member agencies by EBMUD and the City of Hayward. Potential future users in Hayward include the Hayward Executive Airport, Chabot Community College and California State University-East Bay.

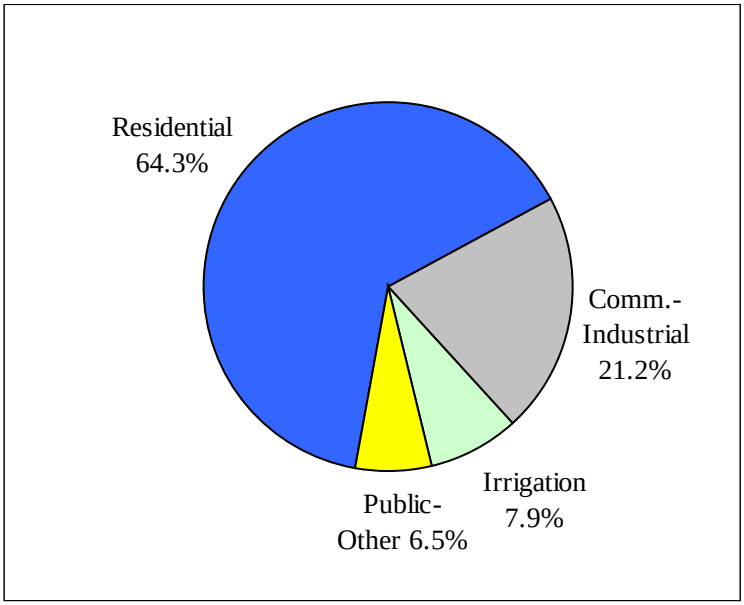
ACWD and USD are jointly considering a collaborative recycled water project.

SERVICE DEMAND

This section provides an overview of water uses, a general discussion of factors affecting water demand, analysis of water demand indicators and conservation efforts, and projections of future needs for water. Chapter 2 provides the residential population and job base in each agency, projected population and job growth rates, and a description of growth strategies and areas.

[29] EBDA was formed in 1974 as a joint powers authority (JPA). The five member agencies are the cities of San Leandro and Hayward, Union Sanitary District, and Oro Loma and Castro Valley Sanitary Districts. See chapters 3 and A-32 for further discussion of this agency and its services.

Figure 3-4. Water Demand by Use, Alameda County 2005



Water is needed for urban, agricultural and environmental purposes. Statewide, agricultural and environmental water uses account for 43 and 46 percent of demand, respectively, and urban uses account for only 11 percent of demand.[30]

Within Alameda County, water demand is predominately urban. Irrigation accounts for only eight percent of demand countywide, as shown in Figure 3-4. Residential water use accounts for 64 percent of demand. Commercial and industrial use accounts for 21 percent. Public, institutional and other uses constitute seven percent of demand.

Domestic water is used for outdoor, toilet flush, shower, cleaning, and kitchen uses. Outdoor uses, such as landscaping, swimming pools and washing cars, are the most significant portion, consuming 44 percent of domestic water statewide.[31] Toilet flushing is the second most important use of water—constituting about 23 percent of use. Showering and bathing consume about 18 percent of domestic water. Dishwashers and clothes washing machines consume 12 percent of domestic water. The remainder of California water consumption relates to cooking and other kitchen uses.

DEMAND DRIVERS

Urban water demand is primarily affected by population and economic growth and by water use efficiency. Clearly, population and economic growth lead to greater water use. As the number of residents and jobs grows, the more showers are taken, toilets flushed and dishes washed. Not only does demographic and economic growth affect water demand, so too does the efficiency of water use.

Over time, water use levels change in response to changes in water prices, improvements in the efficiency of plumbing fixtures and conservation programs aimed at encouraging consumers to upgrade to efficient plumbing fixtures. These effects are interrelated. For example, water price increases can encourage consumers to reduce their water use directly (e.g., fewer showers) or prompt them to upgrade to water-efficient toilets.

New state and federal requirements for the efficiency of plumbing fixtures have been implemented in the last two decades. Particularly in the early 1990s, new state and federal

[30] California Department of Water Resources, 1998, page 4-2.

[31] EPA, 1995. Figures reflect average share of domestic consumption in California.

regulations required high-efficiency showerheads, ultra low-flow toilets and efficient kitchen faucets in new construction. For example, state toilet standards in the 1980s required toilets to consume no more than 3.5 gallons per flush; in 1992, new standards reduced toilet water use to 1.6 gallons per flush. For buildings constructed since 1992, toilet-related water use is less than half the level in buildings built during the 1980s. In buildings constructed prior to 1992, toilets tend to use 4.5-5 gallons per flush.[32] Over time, more efficient plumbing fixtures are becoming prevalent, reducing per capita water use. Although there are no requirements in place for clothes washers, traditional clothes washers use approximately 41 gallons per load while high-efficiency machines use only 23.[33]

Conservation programs help expedite consumers' rate of conversion to more efficient plumbing fixtures. For example, ACWD, Hayward and Zone 7 offer consumer rebates for water-efficient clothes washers and ultra low-flow toilets. Conservation efforts may affect outdoor water use efficiency by providing recycled water for large landscape accounts, auditing these accounts and conducting public information campaigns to encourage the use of water-efficient plants and gardening practices.

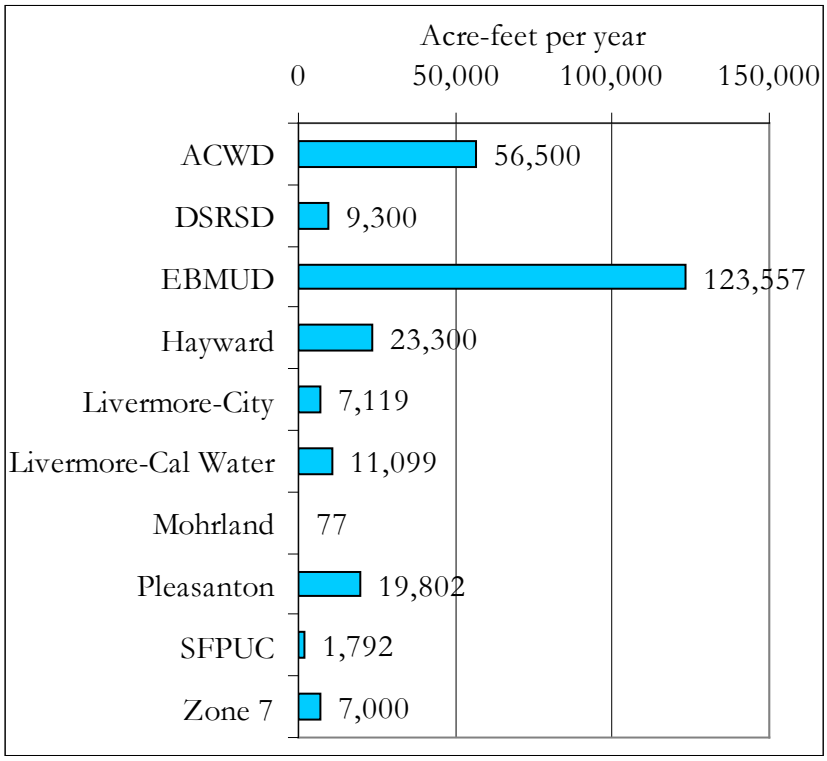
Agricultural water use is generally determined by the extent of irrigated acreage, the relative proportions of types of crops grown, climatic conditions, and irrigation efficiency.

WATER CONSUMPTION

In 2005, an estimated 259,546 acre-feet (af) of water will be consumed by retail water users in Alameda County.[34]

Total water demand reflects metered consumption in each of the direct providers' service areas, as shown in Figure 3-5. EBMUD is the largest provider at 123,557 af. Demand in the ACWD service area totals 56,500 af. Hayward is the third largest: 23,300 af. Pleasanton, Cal Water, DSRSD, Livermore and Zone 7 serve medium-sized demand bases. SFPUC

Figure 3-5. Retail Water Demand (acre-feet), 2005



[32] SFPUC, 2004, pages 3-21 and 3-22.

[33] Mayer et al., 2001.

[34] Water supply information was provided to the LAFCo consultant by the various service providers. An acre-foot is the volume of water needed to cover an acre of land at a depth of one foot. An acre-foot is equivalent to 325,851 gallons and to 43,560 cubic feet.

and Mohrland serve modest amounts of water directly to customers in Alameda County.

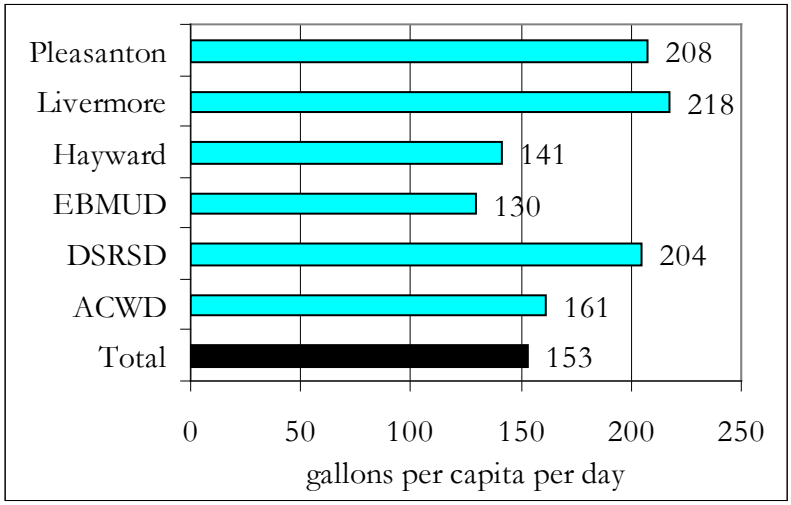
Table 3-6. Retail Water Demand by Use, 2005

	Residential	Commercial-Industrial	Irrigation	Other
Total[1]	64%	21%	8%	7%
ACWD	69%	24%	NP	8%
DSRSD	38%	14%	16%	32%
EBMUD	70%	20%	5%	5%
Hayward	59%	36%	NP	5%
Livermore-City	50%	36%	NP	14%
Livermore-Cal Water	73%	12%	NP	15%
Mohrland	100%	0%	0%	0%
Pleasanton	61%	12%	27%	0%
SFPUC	50%	38%	11%	0%
Zone 7	0%	0%	100%	0%

Note:
(1) Percentages do not add to one, due to rounding.

Water demand in each of the direct providers' service areas varies by type of use. As shown in Table 3-6, residential demand in the Cal Water service area constitutes the highest share of total demand. Commercial and industrial uses are most significant in the City of Livermore, Hayward and SFPUC service areas. Irrigation uses in the Zone 7 area constitute all of the direct retail demand served by this provider.

Figure 3-7. Water Demand per Capita, 2005



In Alameda County, current water demand equates to 153 gallons per capita per day (gpcd).[35]

By comparison, water demand per capita in the State as a whole tends to be higher.[36]

Within Alameda County, water demand per capita tends to be higher in the Tri-Valley area than in the coastal areas, as shown in Figure 3-7. Per capita water demand is highest in the Pleasanton, Livermore and DSRSD service areas.[37] Per capita demand in the ACWD service area is slightly higher than the countywide level. Per capita demand is lowest in the Alameda County portion of the EBMUD service area.

[35] Per capita consumption is measured as gallons per capita per day, using 24-hour population as the population measure to account for both residents and the job base. The 24-hour population metric is discussed in Chapter 2. Per capita consumption based on residential population did not differ significantly from these calculations for any of the water providers other than Pleasanton. Due to the significant commercial population in Pleasanton, the 24-hour population is larger than the residential population.

[36] DWR, 1998, page 4-16. Per capita water consumption in the Bay Area (192 gpcd) was approximately 16 percent lower than the statewide average (229 gpcd) in 1995.

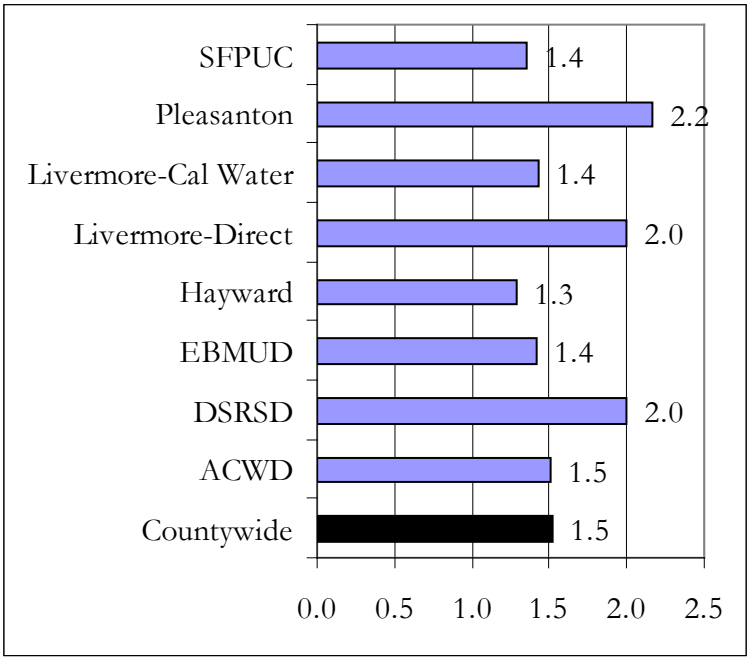
EBMUD observes higher demand in the inland portion of its service area, with per capita water demand in Contra Costa County at 225 gpcd compared with 130 gpcd in the Alameda County service area.

The per capita water demand differences relate in part to differences in rainfall and outdoor water use between communities. There tends to be less rainfall in the Tri-Valley area and ACWD service area than in the EBMUD area. Average annual rainfall in Livermore (14.5 inches) and Newark (14 inches) is significantly lower than in Berkeley (24 inches) and Oakland (20 inches).[38]

Lot size is another factor affecting differences in per capita demand. Owner-occupied housing (which typically means single-family homes with lots) is most prevalent in the Tri-Valley area (71 percent of homes) and less prevalent (47 percent) in the EBMUD service area. In the ACWD service area, 67 percent live in owner-occupied housing, according to 2000 Census data.[39]

Structure age is another factor expected to affect demand differences, as newer buildings tend to have modern, water-efficient plumbing fixtures. However, there is little evidence of this in Alameda County. The areas with relatively new homes tend to have higher per capita water demand. The Tri-Valley area has the highest proportion of new homes (15 percent in the 2000 Census), with lower concentrations in the EBMUD (two percent), Hayward (four percent) and ACWD (eight percent) service areas.

Figure 3-8. Ratio of Peak to Average Daily Demand



Water demand varies over the course of the year, with typically greater use during the summer months. The differences between peak and average water demand largely reflect outdoor water use for landscaping, irrigation and swimming pools. Countywide, peak demand is 52 percent higher than average demand. As shown in Figure 3-8, peak demand in the Tri-Valley area is more than double the level of average demand. Within the Pleasanton service area, the ratio of peak to average demand is the greatest due to greater outdoor water use and a higher prevalence of swimming pools.

The service providers indicated

[37] For this calculation, Livermore water demand includes the City of Livermore and the Cal Water service areas.

[38] Average rainfall reflects the annual average from 1914 through 2005, as measured by the U.S. National Weather Service.

[39] Although the Census does provide information on owner-occupied and renter-occupied housing, it does not provide information on lot size.

that information on peak demand by use type (e.g., residential) was not available.

WATER CONSERVATION

The water providers promote water conservation using demand management strategies and supply-side conservation approaches.

The majority of the water providers in Alameda County have pledged to develop and implement 14 conservation "best management practices" as signatories to the California Urban Water Conservation Council (CUWCC) agreement. Signatories to CUWCC are ACWD, Cal Water, DSRSD, EBMUD, Hayward, and SFPUC.

Four providers—the cities of Livermore and Pleasanton, Zone 7 and the Castlewood CSA—are not CUWCC signatories.[40] The non-signatories nonetheless practice some conservation best management practices.

Table 3-9. Conservation Best Management Practices

1	Survey 15% of residential customers within 10 years.
2	Retrofit 75% of pre-1992 housing with water-efficient fixtures.
3	Audit the distribution system regularly and repair leaks.
4	Install meters in 100% of accounts within 10 years. Bill by volume of water use. Assess feasibility of dedicated landscape meters.
5	Prepare water budgets for 90% of accounts with dedicated meters. Provide irrigation surveys to 15% of mixed-meter customers.
6	Rebates for purchase of water-efficient washing machines.
7	Active public information programs to promote conservation.
8	Active school education programs to promote conservation.
9	Reduce commercial, industrial and institutional use 10% in 10 years.
10	Provide incentives to retail agencies to implement conservation.
11	Eliminate non-conserving pricing policies.
12	Designate a staff member to manage conservation programs.
13	Adopt ordinances to prohibit four specific types of water waste.
14	Replace older residential toilets at rate matching home resale rate.

Of the 14 conservation best management practices (BMPs), 12 are demand management strategies and two promote supplier conservation.

The BMP requirements are listed in Table 3-9. Several of the BMPs aim to provide consumers with financial incentives to monitor their own water use, to conserve and to upgrade to efficient plumbing fixtures. Two of the BMPs require providers to prepare water budgets for large accounts (landscape and non-residential). Individually metered accounts, public information programs and adoption of ordinances preventing water waste are several other BMP goals.

As shown in Table 3-10, ACWD is the retail provider in Alameda County in compliance with the most (12 of the 13 applicable) conservation BMPs.[41] EBMUD is in compliance with nine BMPs and partly compliant with two. Several of the agencies are compliant with approximately half of the BMP requirements: Cal Water, DSRSD, Hayward, and Pleasanton. The wholesalers—SFPUC and Zone 7—comply with some of the relevant BMPs. The City of Livermore's conservation efforts were not provided. The Castlewood CSA conservation practices are minimal. CSA residents have resisted past efforts, such as individual metering of accounts.

[40] Signatories are those agencies listed on the California Urban Water Conservation Council Memorandum of Understanding.

[41] For detail on BMP implementation status for individual agencies, see the agency's chapter in Appendix A.

Table 3-10. Conservation BMP Compliance Status

BMP	ACWD	Cal Water	Castlewood	DSRSD	EBMUD	Hayward	Livermore	Pleasanton	SFPUC	Zone 7
1 - Water Surveys	Yes	No	No	No	Partial	No	NP	No	NA	NA
2 - Residential Retrofits	Yes	No	No	Partial	Yes	Partial	NP	Partial	NA	NA
3 - System Water Audits	Yes	Yes	No	No	No	Yes	NP	Yes	No	NP
4 - Metering	Yes	Yes	No	Yes	Yes	Yes	NP	Yes	Yes	Yes
5 - Large Landscape	Partial	No	Yes	No	Partial	No	NP	Yes	NA	NP
6 - Washer Rebate	Yes	Yes	No	Yes	Yes	Yes	NP	Yes	NA	Yes
7 - Public Information	Yes	Yes	Yes	Yes	Yes	Yes	NP	Partial	No	Yes
8 - School Education	Yes	Yes	No	Yes	Yes	No	NP	No	No	Yes
9 - CII Audits	Yes	Partial	No	Partial	Yes	No	NP	No	NA	NA
10 - Wholesale Assistance	NA	NA	NA	NA	NA	NA	NA	NA	No	NP
11 - Conservation Pricing	Yes	Yes	No	Yes	Yes	Yes	NP	Yes	Yes	No
12 - Conservation Staffing	Yes	Yes	No	Yes	Yes	Yes	NP	No	Yes	Yes
13 - Ordinances	Yes	No	NP	Partial	Yes	Partial	NP	No	NA	NP
14 - Toilet Replacement	Yes	NP	No	NP	NP	Yes	NP	No	NA	Yes
Note: NA: Not Applicable; NP: Not Provided.										

PROJECTED SERVICE DEMAND

The major water service providers, i.e., those with 3,000 or more customers, prepare water demand projections every five years to comply with one of the Urban Water Management Plan (UWMP) required elements. Small providers such as Castlewood CSA and Mohrland Mutual Water with less than 3,000 customers are exempted from the UWMP requirement and do not prepare projections.

There are several approaches used to forecast water demand. The simplest approach is to apply per capita water use rates to projected population and employment levels; a variant on this approach is to project growth in proportion to the growth in developed acres by land use category. More sophisticated approaches account for conservation effects through end-use modeling or for pricing and supply effects through econometric models.

Best practices in projecting service demand in Alameda County are illustrated by the SFPUC approach, which is consistent with both ACWD and Hayward water demand projections. SFPUC in collaboration with Bay Area Water Supply and Conservation Agency (BAWSCA) conducted end-use demand modeling for each of its retailers. The model accounts for specific end uses, such as toilets, faucets and irrigation, and models the effects of requirements for new development to install efficient plumbing fixtures. The feasibility of transitioning landscape uses to recycled water and the potential for water conservation savings were also investigated. Growth projections and end water use were combined to forecast future demand. A consultant team applied the model consistently to each of 28 water retail agencies, including ACWD, the City of Hayward and other agencies outside Alameda County. The demand projections, water conservation potential and purchase projections reports were released in 2004, complete with data and methodology.

The other agencies rely on land use models for projecting water demand.

The EBMUD model projects demand for 17 different land use categories based on weather patterns, population densities and landscaping patterns. In collaboration with the agencies within its service area, EBMUD overlays growth projections and land use plans with aerial photography of the service areas. The District assesses projected savings through conservation and recycled water

programs. The EBMUD model is updated regularly. EBMUD provided its 2005 UWMP projections for purposes of this study.

In addition, DSRSD and Cal Water provided demand projections by major land use category for the MSR.[42] Despite a land use modeling approach, the cities of Livermore and Pleasanton provided total projected demand and did not provide projections by land use category.[43]

SFPUC does not publish demand projections for its relatively small retail areas in Alameda County. Zone 7 projects its irrigation customers' demand to remain unchanged in the coming years.

Table 3-11. Potable Water Demand Projections (acre-feet), 2005-2020

	2005	2010	2015	2020
Total	259,546	262,469	269,830	278,209
ACWD	56,500	59,457	61,413	63,152
DSRSD	9,300	10,600	11,900	13,700
EBMUD	123,557	119,113	120,301	121,489
Hayward	23,300	24,419	25,539	27,331
Livermore Total	18,218	19,618	21,303	23,162
Cal Water	11,099	11,897	12,779	13,750
Livermore City	7,119	7,721	8,524	9,412
Pleasanton	19,802	20,394	20,506	20,506
Mohrland	77	77	77	77
SFPUC	1,792	1,792	1,792	1,792
Zone 7	7,000	7,000	7,000	7,000

Overall, potable water demand is projected to increase from 259,546 acre-feet in 2005 to 278,257 by 2020, as shown in Table 3-11. The table provides projected water demand for water retailers.

EBMUD and Pleasanton and project relatively slow growth in water demand compared with ABAG population projections

EBMUD projects a short-term decline in demand in the next five years within the Alameda County portion of its service area as large landscape accounts convert to recycled water use and customers conserve more. Pleasanton projects short-term demand growth in the next five years at half the population growth rate. From 2010 to 2020, Pleasanton projects less than one percent growth in water demand and ABAG projects 11 percent growth in population.

ACWD projects water demand will grow slightly more slowly than ABAG growth projections as customers conserve more water; in addition, ACWD anticipates slower growth than ABAG because new housing will result from redevelopment of existing developed land.

SFPUC expects rapid growth in City of Hayward water demand based, in part, on a recent trend toward higher water use among new residential properties on larger-than-average lot sizes and among existing homes that are renovated and rehabilitated with improved landscaping. The projections also account for the anticipated establishment of higher-use industrial and commercial businesses in Hayward. SFPUC and Hayward expect water demand growth to proceed much more quickly than projected population growth rates.

[42] Other agencies, including ACWD and Hayward, submitted demand projections by land use category as well. For discussion of ACWD and Hayward demand projection methodologies, please refer to discussion above.

[43] Retail water service providers were asked by the LAFCo consultant to provide water demand for residential, commercial/industrial, irrigation/landscape, and other uses.

Table 3-12. Projected Water, Population and Jobs Growth, 2005-20

	Water	Population	Jobs	24-Hr
Total	7%	13%	28%	13%
ACWD	12%	13%	42%	17%
DSRSD	47%	56%	63%	52%
EBMUD	-2%	10%	20%	9%
Hayward	17%	10%	21%	9%
Livermore Total	27%	23%	64%	30%
Cal Water	24%	*	*	*
Livermore	32%	*	*	*
Pleasanton	4%	18%	25%	15%
Mohrland	0%	*	*	*
SFPUC	0%	*	*	*
Zone 7	0%	*	*	*
* ABAG growth projections not available.				

Projected growth in water demand is compared with projected population and job growth rates in Table 3-12. DSRSD demand projections are approximately proportional to ABAG growth projections in the service area. Cal Water projects demand to grow more slowly than does the City of Livermore. Cal Water serves the more developed areas and the City serves the outskirts. Collectively, Cal Water and the City's growth projections are approximately proportional to ABAG growth projections for the City.

In the SFPUC retail service area, demand in the Castlewood area is expected to increase as the area develops. Demand trends in Sunol and at the LLNL facility are unknown.

Of Mohrland's 90 customers, 25 are located in an area proposed for annexation by the City of Hayward. If the annexation is approved, the City of Hayward would install public infrastructure improvements, allowing properties to receive future city water service. Annexed Mohrland customers would be allowed to continue to receive water from Mohrland until a development change occurs, such as redevelopment, a change in use, or intensification of existing use. Hayward anticipated timely availability of water to annexation areas, and plans to finance infrastructure extension through connection fees. Annexation will reduce Mohrland's customer base over time, likely increasing costs for remaining Mohrland customers.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

In the context of water service, infrastructure needs signify water supply, treatment, conveyance and distribution infrastructure that do not provide adequate capacity to accommodate current or projected demand for service for the region as a whole or for sub-regions within the County.

WATER SUPPLY

This section reviews the available water supply in Alameda County.

Most of the potable water in Alameda County is imported surface water. Imported water constitutes 78 percent of supply.

Table 3-13. Potable Water Sources (acre-feet), Alameda County

Source	Distributor(s)	Supply (af)	Share
Alameda County Total		291,491	100%
Mokelumne River	EBMUD	106,350	36%
Bay-Delta	SWP	90,285	31%
Tuolumne River	SFPUC	31,045	11%
Alameda Creek	SFPUC, ACWD	32,859	11%
Livermore Basin	Zone 7	13,099	4%
Arroyo del Valle	DWR	15,311	5%
East Bay runoff	EBMUD	2,466	1%
East Basin	Mohrland	77	0%
Recycled	DSRSD, EBMUD, Livermore	5,372	

As shown in Table 3-13, the primary sources of potable water in Alameda County are the Mokelumne River (36 percent), the Bay-Delta (31 percent) and the Tuolumne River (11 percent).[44] Local water constitutes 22 percent of supply.

Mokelumne River

The Mokelumne River water originates in Amador and Calaveras counties. EBMUD collects the runoff and conveys it into the East Bay through its Mokelumne Aqueduct. The Mokelumne River supplies a total of 636 to 1,385 mgd on average; in 1977, the lowest year on record, it supplied 115 mgd. The District has rights to 325 mgd annually, subject to prior water rights. On average, 98.7 mgd of the supply is distributed to three Sierra foothill counties—Amador, Calaveras and San Joaquin—with senior water rights to the District. In addition, the State requires the District to release water to protect downstream fisheries.

This supply source is expected to decrease in the future, as consumption by senior water rights increases and increased downstream releases are required to protect fish, wildlife and riparian habitat. EBMUD's Mokelumne River water supply is not sufficient to meet the long-term customer demands during a drought. The conditions that restrict the District's ability to use its Mokelumne River entitlement include upstream water use by prior right holders, downstream water use by riparian and senior appropriators and other downstream obligations, as well as drought conditions for more than a year.

The supply from this source is generally high quality.

Bay-Delta

The State Water Project (SWP) transports Feather River water released from Oroville Dam and unregulated flows that have traveled through the Bay-Delta into Alameda County through the South Bay Aqueduct. Zone 7 and ACWD are two of 29 agencies that have long-term contracts for water service from DWR. The Zone 7 and ACWD contractual amounts under full allocation conditions constitute two and one percent, respectively, of total contractual amounts to all SWP contractors. DWR has been unable to supply each agency's full contractual amount due to hydrologic conditions, requests by other SWP contractors, SWP facility capacity and environmental/regulatory requirements. ACWD and Zone 7 are entitled to 42,000 and 80,619 acre-feet per annum (afa), respectively, from SWP, but receive approximately 28,800 and 61,000 afa, respectively. Zone 7 has purchased additional SWP water supplies from other water agencies.

The supply from this source is generally of variable quality. Over the years, agricultural, industrial and urban runoff has polluted Bay-Delta waters. Contaminant sources include agricultural drainage, wastewater treatment plant discharges and urban runoff. Recreational usage of the water also contributes contaminants to the Bay-Delta. In addition, seawater intrusion contributes salt and bromide to the water supply. Although contaminants are thought to originate upstream, cattle grazing, vineyard and recreation runoff near Bethany Reservoir, open canal segments, and Lake del Valle are other potential contaminant sources.[45]

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[44] Water supply for multi-county providers—EBMUD, SFPUC and Zone 7—was allocated to Alameda County based on the share of 2005 demand originating in the County.

[45] Archibald & Wallberg Consultants, 2004.

The Bay-Delta is used not only as a hub of the State's water distribution system, but is also used for recreational purposes and for shipping cargo through deep water channels to Stockton and Sacramento. Freshwater from the rivers mingles with saltwater from the Pacific Ocean, creating the West Coast's largest estuary. As habitat for more than 500 species of wildlife, the Bay-Delta's unique ecosystem supports 20 endangered species, such as the salt harvest Suisun Marsh mouse and the Delta smelt, and serves as a vital migration path for salmon traveling to and from their home streams and to the Pacific Ocean. Environmental mandates to protect the resident Delta smelt and the migrating salmon limit state and federal water operations.

The State Water Resources Control Board (SWRCB) has established estuary water quality standards, a proposed flow regime for the estuary, and water rights decisions which assign responsibility for implementing water quality objectives to users throughout the system by adjusting their respective water rights. SWP contractors and upstream agricultural water interest groups on both the Sacramento River and the San Joaquin River are developing local projects in the upstream areas to provide water to assist the SWP and CVP in meeting water quality objectives and to alleviate the need for a water rights determination by the SWRCB.

In 2000, the federal government and the State approved the CALFED Bay-Delta Program. CALFED is a collaborative effort among 23 state and federal agencies to improve water supplies in California and the health of the San Francisco Bay-Sacramento/San Joaquin River Delta watershed. The program pledges to restore the Bay-Delta ecosystem, improve water quality, enhance water supply reliability, and assure long-term protection for Bay-Delta levees. It calls for over $8 billion to be invested over the first seven years of the program's 30-year time span. Funding is expected to be provided by state and federal appropriations and contributions from local water users. Funding by the State will be provided under the authority of several general obligation bond propositions[46] and annual general fund expenditures. Legislation to authorize funding of federal expenditures has been enacted. At this time, exact allocation of costs to local users has not been defined.

Tuolumne River

SFPUC collects runoff from the Tuolumne River in Yosemite National Park and conveys it through tunnels and pipes into Alameda County and the Bay Area. SFPUC distributes approximately 13 percent of its water supplies to customers in Alameda County, including ACWD and the City of Hayward.

Spring snowmelt runs down the Tuolumne River, is collected via a dam system and is stored in the SFPUC's Hetch Hetchy Reservoir. The Modesto and Turlock Irrigation Districts have Tuolumne River water rights senior to SFPUC rights. Since 1992, increased water releases at the New Don Pedro Reservoir to support salmon in lower Tuolumne River have been required; the irrigation districts assumed responsibility for the water releases with payment from SFPUC.

The average annual supply credited to SFPUC is 570,000 acre-feet, but actual water supply has varied from 0 to 370 percent of average.[47] This surface water in the Hetch Hetchy Reservoir is

[46] Proposition 204, which passed in 1996, Proposition 13, which passed in March 2000, and Proposition 50, which passed in November 2002.

[47] SFPUC Water System Improvement Program, Feb. 28, 2005. Minimum stream releases required from Hetch Hetchy Reservoir range from 35,000 to 59,000 annually.

treated but not filtered because it is of such high quality. The Hetch Hetchy water travels 160 miles via gravity aqueduct from Yosemite to the Bay Area.

Primary supply constraints include precipitation levels in the Tuolumne River watershed and local runoff.

The supply from this source is generally high quality.

Alameda Creek and Niles Cone Basin

The Alameda Creek watershed and the Niles Cone groundwater basin collectively contribute nine percent of the County water supply. Alameda Creek runoff is distributed both by SFPUC and ACWD.

SFPUC owns one-third (36,000 acres) of the Alameda Creek watershed located in Alameda (23,000 acres) and Santa Clara counties. This watershed contributes surface water supplies captured and stored in two reservoirs: Calaveras and San Antonio. Milpitas and Fremont are to the west, and Pleasanton and Livermore are located to the northeast of the SFPUC watershed lands. Secondary watershed lands also drain into Alameda Creek, but the runoff in this area is not used by SFPUC. SFPUC maximizes the use of local supplies before Hetch Hetchy supply is used.

ACWD uses Alameda Creek runoff to replenish the Niles Cone Basin. Alameda Creek runoff is diverted to percolation ponds using inflatable dams. The water percolates into the groundwater basin through the channel bed and through off-stream recharge pits.

ACWD and SFPUC conduct watershed stewardship activities related to Alameda Creek. ACWD is restoring fish passage in Alameda Creek by removing one rubber dam, installing fish ladders at the other rubber dams blocking fish passage and installing screens at diversion pipelines to prevent fish from being trapped in the water supply system. SFPUC plans to complete by 2012 a water release and recapture facility on Alameda Creek to enhance trout fisheries. The proposed SFPUC facility will allow for recovery of water released from Calaveras Reservoir to support Alameda Creek water levels adequate for sensitive fish species; water releases will be recovered downstream for municipal use.

The Niles Cone Basin is a series of flat-lying gravel aquifers separated by extensive clay layers that do not readily transmit water. The Basin is formed at the western front of the Mission Hills extending west under the San Francisco Bay. The Hayward Fault divides the basin in two. Runoff from the northern region flows to tributaries of Alameda Creek, where it is carried to ACWD facilities.

Sixteen ACWD production wells are used to extract water from the groundwater basin on both sides of the Hayward Fault. Groundwater uses include aquifer recharge, aquifer reclamation from seawater intrusion, private pumping, and natural groundwater outflow. DHS has not detected contaminants in the wells from which drinking water is extracted, but has identified vulnerabilities including known contaminant plumes, leaking underground storage tanks and gas stations.

Saltwater intrusion in the Newark Aquifer has been reversed by pumping out saline water and by raising the water level, but this aquifer is subject to future intrusion if the water level drops more than five feet below sea level. Therefore, ACWD's long-term planning does not provide for extended periods of groundwater basin mining below this level. Brackish water pockets remain in

the Centerville-Fremont and Deep Aquifers. The District has been conducting recharge, pumping, desalination, and other efforts to restore these aquifers to potable use. Water is pumped out from nine Aquifer Reclamation Program wells, a portion of which is treated for potable use at the Newark Desalination Facility with the remainder discharged into the Bay through flood control channels. The SWRCB considers the Niles Cone Basin vulnerable to surface source contamination; total dissolvable solid (TDS) levels meet maximum contaminant standards but are slowly increasing.[48] ACWD currently blends Niles Cone Basin groundwater with SFPUC water.

Arroyo del Valle

Arroyo del Valle runoff is stored in Lake del Valle and made available by DWR through operating agreements with Zone 7 and ACWD. Runoff from much of the southeast portion of the Alameda Creek Watershed is collected in Del Valle Reservoir, some of which is diverted to Zone 7 and ACWD via the South Bay Aqueduct. Through operating agreements with DWR, the Arroyo del Valle watershed provides approximately 15,300 afa of storage which is shared between ACWD and Zone 7. Local supplies from Lake del Valle vary significantly year to year due to hydrologic conditions and quality. In some years, there is no supply available from this source.

Livermore Basin

The Livermore Basin provides five percent of the County water supply. Zone 7 is responsible for Livermore Basin groundwater management, monitoring and recharge; the Zone imposes groundwater pumping quotas on municipal service providers in the area—the cities of Pleasanton and Livermore, DSRSD and Cal Water.

The Livermore-Amador Main Basin is a deep aquifer with high-quality water and 240,000 acre-feet of storage capacity. The safe annual yield from the Basin is 13,400 acre-feet. The Basin collects local runoff from several watersheds including the Arroyo de la Laguna, Arroyo Mocho and the Arroyo las Positas. Zone 7 uses flow from local streams to recharge the basin; rainfall provides natural recharge as well. Zone 7 stores surface water from the Delta or from Lake Del Valle in the groundwater basin.

Seven wells are used to extract water from the groundwater basin. Groundwater uses include aquifer recharge, private pumping, drought contingency, and natural groundwater outflow.

DHS has not detected contaminants in the wells from which drinking water is extracted but has identified vulnerabilities including known contaminant plumes, leaking underground storage tanks and gas stations. The Mocho sub-basin on the eastern side is vulnerable to contamination from surface sources. PCE levels in raw water have exceeded public health goal levels at four wells beneath Livermore.[49] Potential contamination sources include dry cleaners, previously existing businesses and leaky sewer lines. [50] The water is treated and blended with other water sources before delivery to customers. Similarly, contaminants from water treatment plants and/or sewer collection systems have been found by DHS at five wells in the Cal Water service area. Only one of the

[48] California State Water Resources Control Board, July 2002.

[49] California State Water Resources Control Board, July 2002, pages 12, 14-15 and 22.

[50] California State Water Resources Control Board, July 2002, pages 13, 15-16 and 19.

affected Cal Water wells may be operated at any given time and the water must be pumped to storage and mixed with Zone 7 water prior to delivery

There is a relatively high mineral content to the groundwater which serves customers primarily in the western portion of the Zone 7 service area. In response to water quality concerns, Zone 7 has been upgrading treatment processes in this area to include de-mineralization.

Other Potable Sources

EBMUD captures local runoff in its reservoirs with the amount dependent on precipitation and available reservoir capacity in the fall. In some years, the source does not contribute supply on net, because evaporation exceeds runoff supply.

SFPUC extracts groundwater in the Sunol Valley from its Sunol filter galleries. The filter galleries collect Alameda Creek runoff percolating through gravel beds at the upper entrance to Niles Canyon through a 1.5-mile concrete tunnel. This source contributes less than one percent of SFPUC supply, and is primarily served to SFPUC customers in the Sunol area.

The East Bay Regional Park District (EBRPD) serves water from Livermore Basin groundwater wells to hikers, backpackers and park staff in the Sunol Regional Wilderness Park. East of Oakland, Redwood Spring Regional Park visitors are served water from a local spring. Surface water in Del Valle Regional Park located south of Livermore serves staff, boaters, hikers, backpackers, and overnight campers.

The Mohrland Mutual Water Company extracts approximately 77 acre-feet of groundwater from the East Bay Plain basin.

Minor water systems also extract groundwater, but the amount extracted from each individual private well is not gathered for regulatory purposes.

The California Department of Health Services (DHS) monitors drinking water quality at wells serving five or more connections. Minor water systems relying on groundwater wells include the Trailer Haven Mobile Home Park in San Leandro, Alameda County Agricultural Fair Association, Norris Canyon Property Owners Association, several schools, a marina, two gravel quarries and a salt manufacturer, as shown in Table 3-14. For further information, see Appendix A, chapter A-31.

Groundwater wells are used primarily in outlying areas of the County. Local regulations control new well construction, maintenance and destruction. The Alameda County Department of Public Works issues permits for well construction, maintenance and demolition. Wells must meet minimum capacity and flow requirements or maintain a minimum storage volume. The Alameda County Department of Environmental Health regulates drinking water quality in small water systems with 2-14 domestic connections. The department inspects water sources and distribution facilities to prevent water borne illnesses and check for harmful chemicals introduced into the water supply. The program reviews plans for construction and expansion of systems with less than five connections to ensure the quantity and quality of water sources are satisfactory.

Table 3-14. Minor Water Systems, 2005

Water System Name	Area	Population Served	Primary Source	System Type
Mohrland Mutual Water System	Mt. Eden/Hayward	360	Ground water	Community
Trailer Haven Mobilehome Park	San Leandro	240	Ground water	Community
Alameda County Fairgrounds	Pleasanton	100	Ground water	Community
Norris Canyon Property Owners Assn.	Castro Valley	100	Ground water	Community
Mountain House School	Byron	53	Ground water	Seasonal
Stivers Academy	Livermore	44	Ground water	Seasonal
Rivers End Marina	Byron	250	Ground water	Transient
Morton Salt Company	Newark	110	Ground water	Seasonal
RMC-Lonestar Companies Quarry	Pleasanton	70	Ground water	Seasonal
Vulcan Materials Quarry	Livermore-Pleasanton	45	Ground water	Seasonal
Source: California Department of Health Services				

The Washington Township Health Care District relies on a private well for irrigation purposes, but purchases most (19 of 21 million gallons) of its water from ACWD. ACWD supplies all potable water used by hospital patients and staff.

The East Bay Plain watershed extends into the Berkeley area. The California Department of Toxic Substances Control proposed soil and groundwater cleanup plans for the Lawrence Berkeley National Laboratory (LBNL), a research facility managed by the University of California (UC) for the U.S. Department of Energy (DOE). The laboratory is located in the Berkeley/Oakland Hills bordering the northeast side of the UC Berkeley campus. The western three-quarters of LBNL are located in the City of Berkeley and the eastern quarter is located in the City of Oakland. There are four areas of soil contamination and 11 areas of groundwater contamination. DOE has jurisdiction over radioactive contamination and is studying the matter. Groundwater in this area is not used for human consumption. The area is within the EBMUD service area and relies on imported water.

Alameda Point, formerly the Alameda Naval Air Station, relied on two groundwater wells. The wells were overused, causing saltwater intrusion. The area has groundwater contamination from former uses, with contaminants leaking into the groundwater from 17 of 25 remediation sites.[51] EBMUD now serves the area imported water through a JPA, and plans to install recycled water distribution facilities for large industrial and commercial users in the area.

Recycled Water

Recycled water supplies, although not potable, can be safely used for landscape and irrigation uses, industrial applications, groundwater recharge and some commercial activities. The use of recycled water for such purposes frees up more potable water supplies to meet demand. The source of recycled water is treated wastewater.

EBMUD and DSRSD are the largest producers of recycled water in Alameda County. Indeed, the Districts are able to produce more recycled water in excess of current demand levels. DSRSD has the capacity to produce approximately 6,000 af. EBMUD also produces recycled water with a current capacity of approximately 9,000 afa, excluding the DSRSD supplies distributed by EBMUD.

[51] California Regional Water Quality Control Board San Francisco Bay Region, 1999, page 52.

The City of Livermore and the East Bay Dischargers Authority also distribute recycled water. ACWD and Union Sanitary District are considering joint development of a recycled water program.

FACILITY CAPACITY AND CONDITION

In this section, the report reviews the capacity and condition of major water facilities. See Figure 3-2 for a map of the location of these facilities.

Table 3-15. Major Water Facilities

Operator	Facility	Type	Capacity	Condition	Year Built
ACWD	Mission San Jose	WTP	10 mgd	Good	1975
ACWD	Number 2	WTP	21 mgd	Good	1993
ACWD	Newark Desalination Facility	Desalination	5 mgd	Excellent	2003
ACWD	Blending Facility	Water blending	50 mgd	Good	1992
EBMUD	Orinda	WTP	175 mgd	Good	1935
EBMUD	Upper San Leandro	WTP	55 mgd	Good	1927
EBMUD	San Pablo	WTP	25 mgd	Good	1921
EBMUD	Walnut Creek	WTP	94 mgd	Good	1967
EBMUD	Moraga	Pumping plant	58 mgd	Good	1975
EBMUD	Camanche	Reservoir	417,000 af	Good	1964
EBMUD	Pardee	Reservoir	197,950 af	Good	1929
EBMUD	Briones	Reservoir	60,510 af	Good	1964
EBMUD	Upper San Leandro	Reservoir	41,400 af	Good	1926
EBMUD	San Pablo	Reservoir	38,600 af	Fair	1919
EBMUD	Chabot	Reservoir	10,300 af	Fair	1875
SFPUC	Sunol Valley	WTP	160 mgd	Good	1966
SFPUC	Harry W. Tracy	WTP	140 mgd	Fair	1971
SFPUC	Hetch Hetchy	Reservoir	360,000 af	Fair	1920s
SFPUC	Calaveras	Reservoir	97,077 af	Poor	1931
SFPUC	San Antonio	Reservoir	50,629 af	Fair	1965
SFPUC	Crystal Springs	Reservoir	69,477 af	Poor	1877
SFPUC	San Andreas	Reservoir	19,046 af	Fair	1870
SFPUC	Alameda Siphons	Pipeline	NA	Unknown	1920s
SFPUC	Irvington Tunnel	Tunnel	10'6" diam.	Unknown	1920s
Zone 7	Del Valle	WTP	36 mgd	Good	1975
Zone 7	Patterson Pass	WTP	20 mgd	Good	1962
Zone 7	Altamont (planned)	WTP	24 mgd	NA	Future
Zone 7	Chain-of-Lakes (planned)	Storage	40,000 af	NA	Future
Zone 7	Lake Del Valle Reservoir	Reservoir	8,000 af	Good	1968
Zone 7	Patterson Reservoir	Reservoir	100 af	Good	1962

Note: NA: Not Applicable; NP: Not Provided.

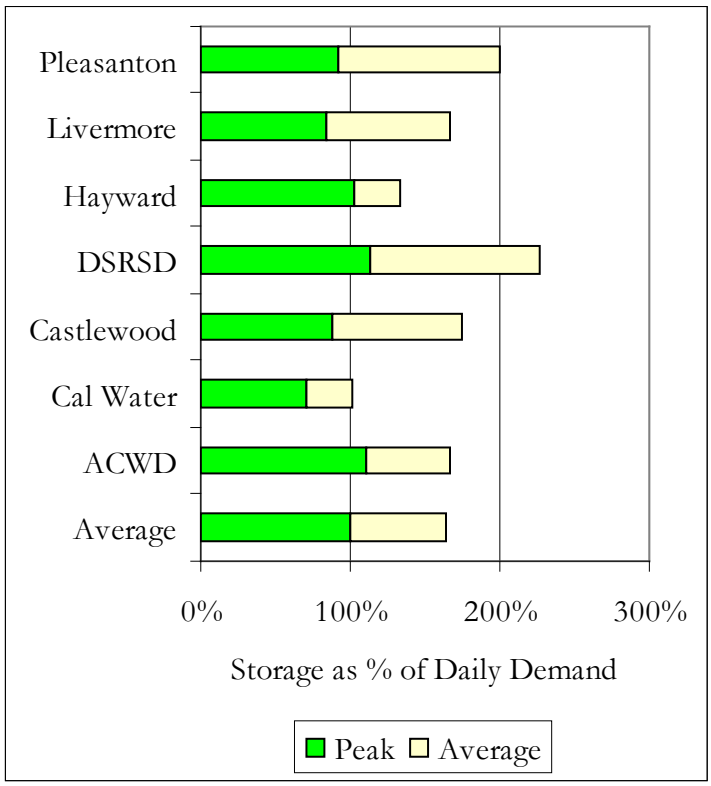
Major water facilities include water treatment plants (WTPs), reservoirs and distribution systems. The major facilities, along with capacity and condition, are listed in Table 3-15. Facility condition ratings are based on review of agency documents and agency self-assessment (see Glossary for definitions).

The primary EBMUD treatment facility serving Alameda County is the Orinda WTP. The plant is the largest in the area with a capacity of 175 million gallons per day (mgd), and was most recently rebuilt in 1998. EBMUD describes the facility as in good condition.

The Sunol Valley WTP is the major SFPUC treatment facility serving Alameda County and other Bay Area water consumers. The plant has a capacity of 160 mgd. It was built in 1966, was recently upgraded and is in good condition. Zone 7 and ACWD operate smaller WTPs serving Alameda County; these facilities are relatively new and are in good to excellent condition.

The wholesale water suppliers store large quantities of untreated water as reserves. Each of the three major wholesale suppliers—EBMUD, SFPUC and Zone 7—has enough storage capacity to accommodate more than one year of water demand. Among these wholesalers, Zone 7 has the greatest storage capacity with enough space to store a four-year supply. EBMUD has enough storage capacity for a three-year supply. SFPUC storage capacity would accommodate a water supply that would last nearly two years.[52] ACWD has local groundwater storage to meet up to six months of demand.

Figure 3-16. Retailer Storage Capacity as Share of Daily Demand



Retail water providers store smaller quantities of potable water as reserves. On average, the water retailers—ACWD, Cal Water, DSRSD, and the cities of Hayward, Livermore and Pleasanton—have enough storage capacity to accommodate the demand needs of a peak use day and as much as 1.6 days at average water use rates.

The retailers vary in storage capacity, as shown in Figure 3-16. Cal Water has the least storage capacity, enough to cover 70 percent of one peak day or one average day. DSRSD has the most, enough to cover one peak day and more than two average days. Each of the retailers has other sources of supply, however, through wholesale pipelines and emergency interties with neighboring agencies.

Table 3-17 presents water-related infrastructure needs and deficiencies. The information in the table is based on review of the water providers' capital improvement plans and master plans, regulatory information and agency self-assessment.

[52] Additionally, the SFPUC Sunol Gravel Quarries conversion project will provide additional water storage reservoirs in Alameda County beginning in 2009.

Table 3-17. Infrastructure Needs or Deficiencies

Agency	Infrastructure Needs or Deficiencies
EBMUD	The District completed in 2005 a 10-year, $110 million seismic improvement upgrade program to all major facilities. San Pablo Dam needs to be replaced due to seismic concerns. The District needs various water treatment upgrades for all treatment plants due to new water quality regulations and associated improvements to the distribution system infrastructure.
SFPUC	Needs and deficiencies relate to seismic vulnerability, system age, lack of system redundancy, and lack of capital improvements in past years. Planned improvements involve Irvington Tunnel, Calaveras Dam replacement, Sunol WTP capacity enhancements, Bay Division pipeline capacity enhancement.
Zone 7	The Patterson WTP needs seismic upgrades. The Del Valle WTP needs a new clarifying basin. Zone 7 is designing and constructing the new Altamont WTP for future demand needs. The Zone is expanding storage capacity by converting gravel quarries between Livermore and Pleasanton into a chain of lakes.
ACWD	One new pump station is needed at the Whitfield Reservoir. The Patterson and/or Whitfield Reservoirs will need expansion for future demand. ACWD completed a major upgrade of its Mission San Jose WTP during 2004. Additionally, ACWD is performing seismic upgrades as it completes major maintenance and upgrade projects.
Castlewood	None. The system was replaced in 1998.
DSRSD	Development in both western and eastern Dublin require additional Zone 7 supplies as well as an additional DSRSD reservoir and two pump stations. Western Dublin development (Schaefer Ranch area) will require two new pump stations and two reservoirs.
Hayward	SFPUC conveyance system, particularly the Irvington Tunnel and Alameda Siphons, is aged, lacks redundancy, cannot be inspected or maintained, and is located on or near three earthquake faults. Additional storage is needed and currently planned by the City to meet build-out demand.
Cal Water	The Company is replacing aging well and panel boards. Any land use changes or intensity of development downtown will likely require upgrades to portions of the water system to meet Fire Department requirements.
Livermore	Enhanced treatment is needed to address taste and odor concerns associated with algae blooms in surface water supplies. Several water mains in Zone 1 (northwestern portion of Livermore) need to be replaced due to new development on the Friesman property and for the Oaks Business Park. A new pump station in Zone 1 is also needed to meet increasing demand due to growth. All zones require additional storage—a total of 15.5 mgd—to meet future demand mainly in northern Livermore.
Mohrland	None reported.
Pleasanton	Enhanced treatment of groundwater is needed to reduce hardness and a salty or bitter taste associated with minerals. Three city pump stations have deficient capacity to meet peak day demands. Increased pump station capacity of up to 8 mgd will be needed by build-out to meet peak day demands. System improvements will be needed on pump stations that serve the Vineyard, Ruby Hill, Longview, and Kottinger Ranch areas. The City has water storage deficiencies in four service zones. Additional water storage will be needed in both the City's lower and upper zones to meet 2020 projected demand. The Santos Ranch pump station needs to be replaced.

OPPORTUNITIES FOR SHARED FACILITIES

Municipal water providers practice extensive facility sharing and regional collaboration. The water systems throughout the region are interconnected. Providers receiving water supplies from a common source share storage and conveyance facilities. Emergency interties connect neighboring providers with backup supplies. Multi-agency cooperation is common practice for planning efforts, emergency preparedness and recycled water provision. Both ACWD and Zone 7 engage in multi-agency groundwater banking for drought contingencies through the Semitropic Water Storage District. Arroyo del Valle runoff is stored in Lake del Valle and made available by DWR through operating agreements with Zone 7 and ACWD. The major water producers—EBMUD, SFPUC, Zone 7 and ACWD—are members of the Bay Area Water Agencies Coalition (BAWAC). SFPUC wholesale customers are members of Bay Area Water Supply and Conservation Agency (BAWSCA).

Table 3-18. Facility Sharing and Regional Collaboration

Agency	Facility-Sharing Practices
EBMUD	EBMUD and the Sacramento County Water Agency are members of the Freeport Regional Water Authority, a JPA formed to promote water reliability, reduce drought rationing and promote conjunctive use in Sacramento by drawing on Sacramento River water south of the City of Sacramento. The District is a participant in the DSRSD/EBMUD Recycled Water Authority formed to increase the amount of recycled water delivered in Dublin and the San Ramon Valley. EBMUD is a member of BAWAC and the Bay Area Regional Water Recycling Program and has emergency interties with DSRSD, Hayward and CCWD.
SFPUC	Emergency intertie with Santa Clara Valley Water District. BAWAC member.
Zone 7	The South Bay Aqueduct is shared with ACWD and Santa Clara Valley Water District. Zone 7 participates in multi-agency groundwater banking of drought supplies through the Semitropic Water Storage District. BAWAC member.
ACWD	The South Bay Aqueduct is shared with Zone 7 and Santa Clara Valley Water District. ACWD shares storage with Zone 7 in DWR's Del Valle Reservoir. ACWD participates in multi-agency groundwater banking of drought supplies through the Semitropic Water Storage District. ACWD has interties with Hayward and Milpitas. Member of BAWAC and BAWSCA.
Castlewood	The CSA relies on SFPUC for water supply and contracts with the California Water Service Company for operations and maintenance. Emergency intertie with the City of Pleasanton.
DSRSD	Emergency interties with EBMUD and Pleasanton. The District is a participant in the DSRSD/EBMUD Recycled Water Authority formed to increase the amount of recycled water delivered in Dublin and the San Ramon Valley. Tri-Valley Water Retailers member.
Hayward	BAWSCA member. Emergency interties with ACWD and EBMUD.
Cal Water	Emergency intertie with Livermore. Tri-Valley Water Retailers member.
Livermore	Emergency interties with Cal Water. Share wholesaler with three other retail agencies. Member of Tri-Valley Water Retailers.
Mohrland	None
Pleasanton	Interconnections with DSRSD. Member of Tri-Valley Water Retailers.

There are further opportunities for shared facilities and regional collaboration, as shown in Table 3-18.

EBMUD and SFPUC are developing an emergency intertie. The $16.5 million project will promote water reliability for SFPUC customers in the City of Hayward and ACWD service areas, as well as elsewhere in the Bay Area. It will also benefit EBMUD customers.

SFPUC is studying desalination alternatives in collaboration with EBMUD, the Santa Clara Valley Water District and the Contra Costa Water District.

There is potential for sharing Contra Costa Water District's Los Vaqueros Reservoir for drought management and reliability. The Los Vaqueros Reservoir is a recently constructed 100,000 acre-foot reservoir. Particularly in the late summer and early fall, high levels of salt creep into the Delta from the San Francisco Bay and cannot be treated. The District blends stored water with the salty Delta water. As part of a Bay Area initiative, the California Bay-Delta Authority (a consortium of state and federal agencies) is studying a potential expansion of Los Vaqueros to provide flexible locations and timing for partners to draw water from the Bay-Delta. Potential partners in the project include ACWD, Zone 7, the Santa Clara Valley Water District, as well as state and federal agencies managing water for the environment.

SERVICE STANDARDS AND ADEQUACY

In order to assess infrastructure deficiencies and needs, it is necessary to analyze the adequacy of the facilities and related services in meeting the needs of the populace. Adequacy can be gauged by such measures as compliance with drinking water standards, drought preparedness, emergency preparedness, response time for water emergencies, adequate water pressure, and system integrity.

Water Quality

There are a number of threats to drinking water: Improperly disposed of chemicals, animal wastes, pesticides, human wastes, wastes injected deep underground, and naturally occurring substances can all contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or which travels through an improperly maintained distribution system, may also pose a health risk.

The Safe Drinking Water Act (SDWA) is the main federal law that ensures the quality of Americans' drinking water. The law requires many actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs and groundwater wells—and applies to public water systems serving 25 or more people. It authorizes the U.S. Environmental Protection Agency (EPA) to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants and to oversee the states, localities and water suppliers that implement the standards.

EPA drinking water standards are developed as a Maximum Contaminant Level (MCL) for each chemical or microbe. The MCL is the concentration that is not anticipated to produce adverse health effects after a lifetime of exposure, based upon toxicity data and risk assessment principles. EPA's goal in setting MCLs is to assure that even small violations for a period of time do not pose significant risk to the public's health over the long run.

The California Department of Health Services (DHS) implements the SDWA in California. DHS requires public water systems to perform routine monitoring for regulated contaminants that

may be present in their drinking water supply. In addition to the federal standards, California also imposes an MCL standard for the fuel additive MTBE and for a rice herbicide breakdown product used in the Sacramento Valley. Health violations occur when the contaminant amount exceeds the safety standard (MCL) or when water is not treated properly. Monitoring violations involve failure to conduct or to report in a timely fashion the results of required monitoring. A significant monitoring violation occurs when the system fails to take a large percentage of the required samples.

Within Alameda County, there were no health or monitoring violations in FY 2003-04. Health and monitoring violations since 1993 for major and minor retail water providers in the County are listed in Table 3-19.

Table 3-19. Water Quality Violations, 1993-2004

	Health Violations		Monitoring Violations		
	#	Description	Total	Significant	Description
Primary Water Retailers					
ACWD	1	A treatment technique violation in April 1996.	0	0	None
Cal Water	0	None	0	0	None
Castlewood CSA	0	None	1	1	From 1993 to 2000, tap sampling for lead and copper was not performed.
DSRSD	0	None	0	0	None
EBMUD	0	None	1	0	An operations report was not filed on time in 1995.
Hayward	0	None	0	0	None
Livermore	0	None	0	0	None
Pleasanton	1	Coliform violation in FY 1995-96.	1	0	Failed to notify State of coliform monitoring in 1995.
SFPUC	0	None	0	0	None
Zone 7	1	A treatment technique (SWTR) violation in June 1995.	0	0	None
Minor Community Systems and Self Providers					
Alameda County Fair	4	Four coliform violations in 1998 during the months of March, April, June, and December.	2	0	A 1996 violation for non-compliance and a 1995 violation for failure to conduct routine monitoring.
EBPRD	0	None	0	0	None
Mohrland	0	None	1	1	From 1993 to 2000, tap sampling for lead and copper was not performed.
Mountain House School	1	Coliform violation in 1995.	2	0	From 1993 to 1994, tap sampling for lead and copper was not performed. Failed to perform coliform monitoring in 1995.
Norris Canyon	0	None	1	1	From 1993 to 2000, tap sampling for lead and copper was not performed.
Rivers End Marina	0	None	0	0	None
Stivers Academy	0	None	29	11	From 1996 to 2001, the school failed to conduct coliform monitoring on a number of occasions.
Trailer Haven	0	None	2	1	From 1993 to 2000, tap sampling for lead and copper was not performed. Failed to perform routine major monitoring in 1995.
Washington Hospital	0	None	2	1	From 1993 to 2000, tap sampling for lead and copper was not performed. Failed to conduct routine coliform monitoring in 1995.

Cal Water, Castlewood CSA, DSRSD, EBMUD, Hayward, Livermore, and SFPUC have had no health violations since 1993. There have been a total of eight health violations in Alameda County since 1993. In 1995, the City of Pleasanton and Mountain House School each exceeded the

coliform MCL. In 1998, the Alameda County Fair exceeded the coliform MCL on four occasions. ACWD and Zone 7 each had a treatment technique violation in 1995 and 1996, respectively.

Among the primary water providers, there has been only one significant monitoring violation since 1993. The Castlewood CSA failed to conduct tap sampling for lead and copper from 1993 to 2000. Many of the minor water providers—Mohrland, Mountain House School, Norris Canyon, Trailer Haven, and Washington Hospital—had the same violation. The Mountain House School, Stivers Academy and Washington Hospital also failed to report coliform monitoring on one or more occasions.

By comparison, 1.3 percent of all systems nationwide reported a treatment technique violation, 5.3 percent of all systems reported an MCL violation, and 18 percent of all systems reported a monitoring violation in FY 2003-04, according to the EPA.

Drought Preparedness

Significant droughts affecting Alameda County water consumers occurred from 1976-77 and 1988-91. In most drought years, rainfall is 30-50 percent less than normal, although in 1976, rainfall was 50-70 percent less than normal. To prepare for droughts, agencies store water during wet years, acquire supplemental drought supplies and conduct planning efforts.

Urban water suppliers are required by the Urban Water Management Planning (UWMP) Act to prepare a water shortage contingency plan that describes and evaluates sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs.[53] They must update their UWMP and submit a complete plan to DWR every five years. An UWMP is required in order for a water supplier to be eligible for DWR-administered state grants and loans and drought assistance. DWR has no regulatory, permitting or other approval authority over the plans.

Each of the major providers must report its water shortage contingency plan in the UWMP, including the expected water supply available during a multi-year drought, the water rationing approach, and stages of action the supplier will take in response to a water supply shortage. Rationing requirements should be reasonable to encourage consumption reductions by customers. A typical rationing sequence would begin with voluntary rationing. In the second or third year of an extended drought, mandatory rationing might be expected. With the exception of Livermore, the water providers in Alameda County comply with the UWMP requirement and prepare a water shortage contingency plan every five years. Livermore prepared an UWMP in 1995 but has not updated the UWMP since.

Drought plans and storage practices for each of the water retailers are listed in Table 3-20.

[53]Urban water systems subject to this requirement include those with over 3,000 municipal service connections for human consumption or over 3,000 acre-feet of municipal supply for human consumption.

Table 3-20. Drought Plans

Agency	Drought Plan Overview	Storage Practices
ACWD	The District will use water stored in local aquifers and the Semitropic groundwater banking program.	The ACWD has secured 150,000 acre-feet of storage capacity with the Semitropic Water Storage District, including available Semitropic
Cal Water	Zone 7 will draw on water stored in the Main Basin and the Semitropic banking program. Cal Water has a four-stage rationing plan.	Zone 7 stores 31,500 acre-feet annually on average in the Main Basin or with the Semitropic Water Storage District.
Castlewood CSA	No plan prepared. In past droughts, the CSA has promoted conservation. SFPUC stores water and has a rationing plan.	SFPUC reservoir is located on Club grounds.
DSRSD	Zone 7 will draw on water stored in the Main Basin and the Semitropic banking program.	Zone 7 stores 31,500 acre-feet annually on average in the Main Basin or with the Semitropic Water Storage District.
EBMUD	With a 15% shortfall, EBMUD will institute water use restrictions and promote conservation. With a 15-25% shortfall, EBMUD will declare a water shortage emergency and procure a supplemental supply. With a 25% or greater shortfall, the effort will be intensified to increase conservation.	EBMUD stores water in reservoirs near the origin, in the San Leandro reservoir, and in other local sites. EBMUD is exploring the use of the Bay Plain and other groundwater basins for long-term groundwater storage.
Hayward	SFPUC institutes rationing in dry years. Hayward has issued resolutions encouraging the SFPUC to diversify its water source to reduce the effect of drought.	Storage is for short-term emergencies only.
Livermore	Zone 7 will draw on water stored in the Main Basin and the Semitropic banking program. Voluntary water use reduction goals will be implemented.	Zone 7 stores 31,500 acre-feet annually on average in the Main Basin or with the Semitropic Water Storage District.
Pleasanton	Zone 7 will draw on water stored in the Main Basin and the Semitropic banking program.	Zone 7 stores 31,500 acre-feet annually on average in the Main Basin or with the Semitropic Water Storage District.
SFPUC	SFPUC will use reserves in local and regional reservoirs and attempt to purchase additional supply. With a 5-10% shortfall, SFPUC will encourage voluntary reductions. With greater shortfalls, SFPUC institutes rationing, excess use charges and conservation.	Spring snowmelt is impounded in the Hetch Hetchy Reservoir and moved into local reservoirs. Local reservoirs are filled by the end of the rainy season.
Zone 7	The Zone will draw groundwater reserves and water stored in the Main Basin and the Semitropic banking program. Zone 7 anticipates meeting demand in an extended drought period. Any rationing will be staggered based on total water demand.	Zone 7 stores 31,500 acre-feet annually on average in the Main Basin or with the Semitropic Water Storage District.

Among the major water suppliers, EBMUD will be the most severely affected by drought according to drought projections in the agencies' UWMPs. By the third year of a multi-year drought, EBMUD expects to have 127,680 acre-feet in addition to a drought supply from Central Valley Project of 21,300 acre-feet.[54] Together, these sources would provide enough water to supply

[54] The EBMUD supplemental drought supply would be drawn from the Sacramento River near the town of Freeport. EBMUD acquired this source through the Freeport Regional Water Authority, a JPA composed of the Sacramento County Water Agency, the City of Sacramento, the U.S. Bureau of Reclamation, and EBMUD.

about 60 percent of current water needs.[55] Zone 7 anticipates having enough water to meet the water needs of Livermore, Pleasanton, DSRSD, and Cal Water during an extended drought. ACWD drought supplies would cover 99 percent of current needs by the third year of a multi-year drought. SFPUC anticipates having enough water to meet 75 percent of current needs systemwide.

In the event of an extended drought, the water suppliers might be required to implement mandatory rationing of water. Rationing plans prioritize human consumption of water before outdoor uses for agriculture, irrigation and landscaping. Zone 7 policy is to impose a 20 percent cut for agricultural accounts before treated water customers receive a cut. SFPUC policy would reduce supply by 90 percent for such irrigation accounts. EBMUD policy is to serve recycled water to irrigation and other nonpotable accounts; recycled water supplies will not be affected by drought. Neither Hayward nor ACWD has a rationing plan for agricultural use due to the urban nature of their service areas.

There are approximately 7,000 acres of cropland in the County, of which about one-third (2,284 acres) are vineyard croplands, according to the Alameda County Community Development Agency. Most vineyards and croplands rely on Zone 7 for surface water supplies or rely on private wells for supplemental supplies, according to ACRCD. As discussed above, Zone 7 would reduce agricultural surface water supplies by up to 20 percent in the event of a drought. In the past, however, Zone 7 has not rationed agricultural water supplies during droughts. Although some vineyards have access to groundwater supplies through private wells, the majority of the vineyards rely on Zone 7 surface water deliveries. The effects of drought-related water rationing on vineyards would depend on the age of the vines, the use of drought-resistant rootstocks, the length of the drought, and availability of alternative water sources (e.g., private wells and recycled water).

Emergency Preparedness

The water suppliers are also required by the UWMP Act to address catastrophic disruptions of water supplies. The plan should look at the vulnerability of each source and delivery and distribution systems to events such as earthquakes, regional power outages and system failures. The plan should include specific supplier actions designed to minimize the impacts of supply interruption on the service area. With the exception of Livermore, the water providers in Alameda County comply with the UWMP requirement and prepare a catastrophic supply interruption plan every five years. Livermore prepared an UWMP in 1995 but has not updated the UWMP since.

In 2002, Title IV of the Public Health Security and Bioterrorism Preparedness and Response Act amended the Safe Drinking Water Act with new vulnerability assessments and emergency response plan requirements. According to the new requirements, each community water system serving a population of greater than 3,000 persons must conduct an assessment of the vulnerability of its system to a terrorist attack or other acts intended to disrupt the ability of the system to provide a safe and reliable supply of drinking water. According to the EPA, all of the water service agencies in Alameda County completed and submitted the required vulnerability assessments.

In the event of a catastrophic interruption of water deliveries from the South Bay Aqueduct (SBA), Zone 7 would be able to meet current water demands during non-summer months. In the event of an SBA outage during summer months, Zone 7 would reduce deliveries to all retailers,

[55] EBMUD, 2000 UWMP.

encourage retailers to operate their facilities to supplement Zone 7 deliveries, and begin emergency water conservation measures.

The SFPUC water supply is vulnerable because segments of the water conveyance system (i.e., Irvington Tunnel, Alameda Siphons) lie on or near three major active earthquake faults. The water supply for two million people passes through these points; there is no backup conveyance or redundancy; and these weak points cannot be shut down for inspection and maintenance. The California Senate found the system to be "at risk of catastrophic failure in a major earthquake" and that water supply interruptions could last 30 to 60 days.[56] Another concern is the flood damage that would follow uncontrolled release of water from pipelines and tunnels; this risk is centered in Alameda County.

A.B. 1823, passed in 2002, requires SFPUC to make capital improvements, conduct seismic upgrades as well as develop an emergency response plan for its wholesale service area. SFPUC has complied by developing an emergency response plan and planning capital improvements to the system. The agency has planned seismic upgrading for pipelines, tunnels, dams, and treatment facilities. Improvements include the development of an alternative tunnel to the Irvington Tunnel, replacement of the seismically vulnerable Calaveras Dam,[57] and a regional emergency intertie connecting SFPUC with EBMUD in Hayward. SFPUC must complete 50 percent of the improvements by 2010. SFPUC has completed an engineering study on the needed capital projects and plans to complete environmental review of the Irvington Tunnel alternative by 2008. Design and construction would occur thereafter.

Response Times

The water providers distribute supplies to customers through conveyance and distribution systems. These systems are subject to breaks and leaks. The providers dispatch maintenance crews to make repairs. There are, however, no legal requirements for quick response times, and no benchmarking studies of response time for emergency water breaks were identified.

LAFCo asked each of the agencies providing retail water service in Alameda County for information detailing its policies or guidelines for maintenance staff on response times for water emergencies—such as water breaks and traffic accidents that knock out fire hydrants. In addition, LAFCo asked the agencies to provide the average response time achieved in the last year, measured as the time from call receipt until the agency has stopped the water flow.

Table 3-21. Water Break Response Times, 2004

Agency	Policy	Average
ACWD	< 45 mins. to site	< 45 mins.
Cal Water	NP	NP
Castlewood	< 1 hr.	< 1 hr.
DSRSD	< 45 mins.	< 45 mins.
EBMUD	NP	NP
Hayward	30 mins.	< 30 mins.
Livermore	< 1 hr.	< 1 hr.
Pleasanton	30 mins. on scene	45 mins.
SFPUC	NP	NP
Zone 7	< 2 hrs.	< 1 hr.

[56] California Water Code §81601(e).

[57] Water levels in the Calaveras Reservoir have been reduced to one-third until completion of seismic capital improvements to alleviate flooding risks.

Generally, the responding agencies provide rapid response to water emergencies and usually manage to stop the water flow within less than one hour from receipt of call, as shown in Table 3-21. Livermore explained that it manages to shut off the water in such cases within less than one hour, but that it may take several days to complete repairs for serious breaks of main lines. In such an event, the City pointed out that it restores water service to the affected area by temporary means.

Several agencies—Cal Water, EBMUD and SFPUC—did not disclose response time policies and practices.

Water Pressure

Water systems must maintain adequate pressure in order to provide adequate fire flow. The County Fire Marshall uses State fire flow requirements included in Appendix III-A of the 2000 Uniform Fire Code, which identifies fire flow requirements based on building area, construction type and occupancy. There are no other requirements for water pressure, although customers expect adequate pressure for typical uses.

Although not a regulatory agency, the Insurance Services Office (ISO) considers fire flow availability in determining ISO ratings for jurisdictions. The ISO utilizes a uniform set of criteria called the Fire Suppression Rating Schedule (FSRS) in the creation of its Public Protection Classification (PPC). The PPC is used to rate a community's ability to suppress fires and is based on a survey of water pumps, storage facilities and filtration systems. Forty percent of the PPC is based on water supply factors including the amount of supply maintained and the water flow available. Water flow requirements include water flow rate (gallons per minute) and duration, and vary throughout a community by building area and construction type. Water flows are assessed through a survey of representative locations within the community.

Table 3-22. Water Pressure

Agency	Water Pressure Adequacy
ACWD	40+ normal day; 20+ psi fire flow
Cal Water	NP
Castlewood CSA	40+ psi peak day; 20+ psi fire flow
DSRSD	50+ psi peak day; 20+ psi fire flow
EBMUD	30+ psi normal day; 20+ psi fire flow
Hayward	35+ psi peak day; 20+ psi fire flow
Livermore	35-100 psi; minimum residual pressure of 20 psi
Pleasanton	40+ psi peak day; 20+ psi fire flow
SFPUC	25+ psi normal day; 20+ psi fire flow
Zone 7	NA

Each agency reported adequate water pressure is maintained systemwide for fire flow purposes. As shown in Table 3-22, the agencies maintain pressure in the range of 25-100 pounds per square inch (psi) in their systems. During periods when heavy volumes of water are being used for firefighting purposes, the agencies maintain water pressure of at least 20 psi. Cal Water did not disclose water pressure information.

System Integrity

The integrity of water distribution systems can be gauged by system losses—the percent of water placed in distribution that does not reach customers—and by the rate at which pipes break and leak. The American Water Works Association (AWWA) conducts an annual benchmarking study, called QualServe, of water and wastewater performance indicators on behalf of subscribers. QualServe

indicators relevant to system integrity include the distribution system water loss rate and integrity rate. These indicators are provided for comparison purposes.

Table 3-23. Distribution System Loss Rate

Agency	Loss Rate
ACWD	8%
Cal Water	<10%
Castlewood CSA	NP
DSRSD	9%
EBMUD	8%
Hayward	9%
Livermore	7%
Pleasanton	9%
SFPUC	6-9%
Zone 7	3%

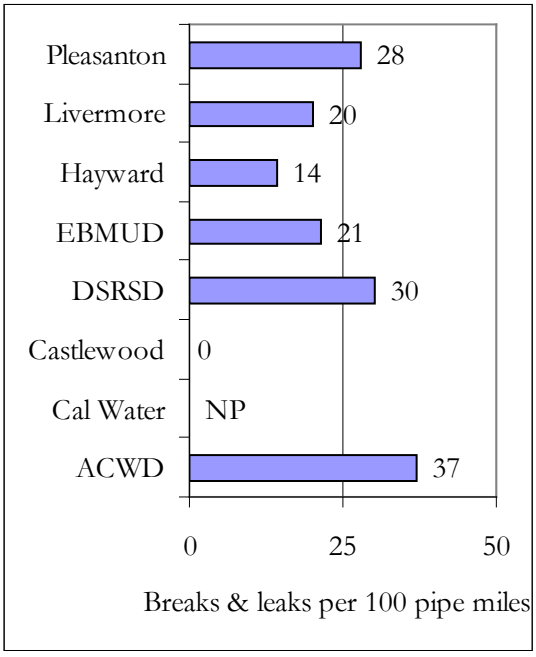
There are no legal requirements on acceptable system losses; however, water conservation best management practices aim for system losses of no more than 10 percent. CUWCC signatories agree to conduct water distribution system audits, to repair leaks and to inform customers of leaks in the privately-owned portion of the distribution system.

In the Bay Area, the average SFPUC wholesale water customer had a system loss rate of 7.5 percent in 2001.[58] The SFPUC study defines unaccounted-for-water as the difference between the amount of water produced and the amount billed to customers. System losses by this definition include approximately 1.8 percent of water used for hydrant flushing and system testing and maintenance purposes.

The water providers in Alameda County all meet the BMP standard of system losses at less than 10 percent, as shown in Table 3-23. Zone 7 has the lowest loss rate, but its distribution system is a wholesale-oriented system with fewer pipe miles and opportunities for system losses. Livermore has a relatively low system loss rate, as would be expected in a newer water system. The 2003 AWWA QualServe subscribers had a median water system loss rate of 10 percent.[59]

The integrity rate is the ratio of the number of breaks and leaks to the collection system size, as measured by pipe miles. Breaks and leaks are included if they cause an abrupt or continuous loss of water, and occur in the portion of the distribution system under the control of the service provider.

Figure 3-24. Distribution System Integrity Rate, 2004



The median distribution integrity rate was 52 breaks and leaks per 100 miles of distribution piping, according to the 2003 AWWA QualServe analysis. Approximately 25 percent of water providers have distribution integrity rates higher than 100.

Within Alameda County, the water providers all have relatively favorable distribution system integrity rates, as shown in Figure 3-24. The Castlewood CSA had no breaks or leaks in 2004; it reconstructed the distribution system in 1998.

The rates for DSRSD, Pleasanton, Livermore, EBMUD, and Hayward are significantly lower than the QualServe median. Although slightly higher, the

[58] SFPUC, 2004, page 3-6.

[59] American Water Works Association, 2003, page 8.

ACWD integrity rate is lower than the QualServe median.

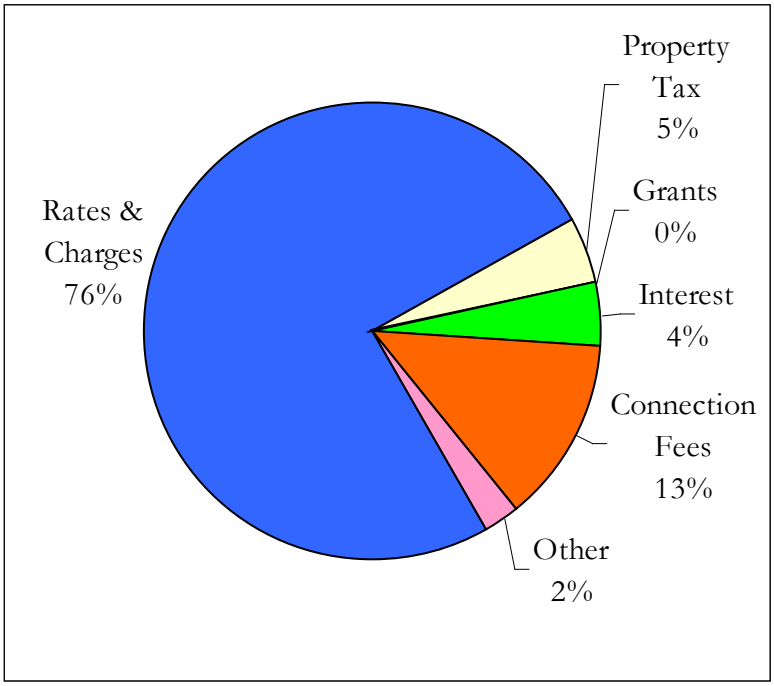
Cal Water did not disclose its system integrity rates. Integrity rates are not relevant for SFPUC and Zone 7, as their distribution activities in Alameda County primarily constitute wholesale conveyance rather than retail distribution.

FINANCING CONSTRAINTS AND OPPORTUNITIES

Service-related financing constraints and opportunities are discussed in this section. The scope includes revenue sources, financing constraints, rates, and connection fees. The section identifies financing, rate restructuring and cost-avoidance opportunities.

FINANCING SOURCES

Figure 3-25. Water Financing Sources, FY 2002-03



Water service charges, connection fees and property tax revenues are significant revenue sources for water enterprises in Alameda County.

Water service charges are the primary source of revenue for water enterprises, constituting on average 76 percent of financing among providers in Alameda County, as shown in Figure 3-25.

Connection fees constitute 13 percent of revenues on average. Connection fees must be spent for purposes of extending or expanding infrastructure to accommodate new development. For DSRSD and Zone 7, connection fees are substantial, constituting 60 and 50 percent, respectively, of the agencies' financing sources in FY 2002-03. By comparison, connection fees constitute 4-5 percent of revenue for ACWD and EBMUD. None of the water providers levies a water-related development impact fee. The cities of Alameda, Berkeley, Pleasanton, and Union City charge general purpose development impact fees.

Property taxes make up five percent of water enterprise financing sources on average. Only ACWD, DSRSD and EBMUD receive property taxes for their water enterprises. Property taxes constitute six percent of EBMUD revenue and nine percent of ACWD revenue. DSRSD property tax revenue is insignificant (one-tenth of one percent).

Other revenue sources include interest income and miscellaneous fees.

Additional infrastructure financing sources include 1) assessments levied through Community Facilities Districts for installing infrastructure for new development and 2) infrastructure constructed and dedicated to local agencies by developers.[60]

FINANCING CONSTRAINTS

The most significant financing constraints affect SFPUC and Cal Water. Property tax limitations and temporary reductions in property tax revenue affect EBMUD and ACWD.

Water providers must maintain an enterprise fund for the water utility separate from other funds, and may not use water utility revenues to finance unrelated governmental activities. Local agencies providing water services are required to maintain separate enterprise funds to ensure that water-related finances are not commingled with the finances of other enterprises, such as wastewater. Furthermore, cities providing water service must account for water enterprise finances separately from their general funds. Cities may not use the water enterprise fund to finance general fund activities.

The boards of each of the public sector water providers are responsible for establishing service charges. Service charges are restricted to the amount needed to recover the costs of providing water service. The water rates and rate structures are not subject to regulation by other agencies. The agencies can and often do increase rates annually. Generally, there is no voter approval requirement for rate increases or for the issuance of water revenue bonds.

Similarly, connection fees for the public sector water providers are established by the respective boards to recover the costs of extending infrastructure and capacity to new development. The fees must be reasonable and may not be used to subsidize operating costs. In the case of Cal Water, the California Public Utilities Commission establishes connection fees.

San Francisco Constraints

SFPUC must receive voter approval for any retail service charge increases prior to 2008 or for the issuance of water revenue bonded debt.

San Francisco voters approved Proposition H in 1998, freezing retail water rates through July 2006. Proposition H allowed for rate increases of up to 18 percent over 1998 rates for voter-approved revenue bond debt service. The San Francisco Board of Supervisors approved rate increases in 2001 and 2002, together comprising the maximum rate increase approved by voters. Proposition H does not affect wholesale water rates paid by SFPUC customers, such as ACWD and the City of Hayward.

SFPUC wholesale water rates are increased annually. Under its master water sales contract with the wholesalers, SFPUC wholesale rate increases are limited to certain expenses. Capital depreciation and any financial returns on the asset base are limited to the portion of the asset base used to provide service to the wholesale customers.

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[60] A Community Facilities District (CFD) is an assessment district used to finance agency-owned infrastructure (e.g., sewer lines, water lines, drainage infrastructure, streets, etc.) and used occasionally to finance certain municipal service costs. CFDs are formed under the Mello-Roos Community Facilities Act of 1982 with formation in inhabited areas subject to two-thirds voter approval. CFDs are commonly formed prior to development of a subdivision or area.

Investor-Owned Utilities

In the case of Cal Water, the California Public Utilities Commission establishes rates; Cal Water must provide detailed justification for rate increases.

Property Tax Constraints

ACWD receives a portion of the one percent property tax for properties within District boundaries. Substantial financing constraints affect property taxes.

Proposition 13, which California voters approved in 1978, limits the ad valorem property tax rate, limits growth of the assessed value of property, and requires voter approval of certain local taxes. Generally, this measure fixes the ad valorem tax at one percent of value, except for taxes to repay certain voter approved bonded indebtedness. In response to Proposition 13, the Legislature enacted Assembly Bill 8 (A.B. 8) in 1979 to establish property tax allocation formulas. Generally, A.B. 8 allocates property tax revenue to the local agencies within each tax rate area (TRA) based on the proportion each agency received relative to other agencies in the TRA during the three fiscal years preceding adoption of Proposition 13. This allocation formula benefits local agencies that had relatively high tax rates at the time Proposition 13 was enacted.

Proposition 98, which California voters approved in 1988, requires the State to maintain a minimum level of school funding. In 1992 and 1993, the Legislature began shifting billions of local property taxes to schools in response to state budget deficits. Local property taxes were diverted from local governments into the Educational Revenue Augmentation Fund (ERAF) and transferred to school districts and community college districts to reduce the amount paid by the State general fund. Local agencies throughout the State lost significant property tax revenue as a result of this shift.

Proposition 218, which California voters approved in 1996, requires voter or property owner approval of increased local taxes, assessments, and property-related fees. Majority voter approval is required for imposing or increasing general municipal taxes, such as business license or utility taxes. Proposition 218 reiterated the Proposition 13 requirement for two-thirds voter approval of special taxes for which revenues are designated for specific purposes, such as stormwater services. In addition, Proposition 218 added new substantive and procedural steps that must be followed to impose a property-related fee or charge. The requirement does not apply to water and sewer service charges, user fees or development impact fees.

Triple Flip

Two measures intended to address the state budget deficit and to implement structural reform were both approved at the March 2, 2004, statewide primary election. The Balanced Budget Amendment (Proposition 58), requires the State to adopt and maintain a balanced budget and establish an additional reserve, and restricts future long-term deficit-related borrowing. The second measure, the California Economic Recovery Bond Act (Proposition 57), authorizes the issuance of up to $15 billion of economic recovery bonds to finance state general fund obligations undertaken prior to June 30, 2004. The Economic Recovery Bonds are secured by a pledge of revenues from an increase in the state's share of the sales and use tax of one-quarter cent beginning July 1, 2004. The share of the tax going to local governments was reduced by the same amount, and, in exchange, local governments receive an increased share of the local property tax during the time the one-

quarter cent is being used to pay off the bonds (estimated to be between 9 and 14 years). This shift in revenues between the state and local governments is known as the "triple flip."

In adopting its FY 2004-05 budget, the State shifted $1.3 billion in local property taxes from counties, cities, independent special districts, and redevelopment agencies to ERAF for two fiscal years—FY 2004-05 and FY 2005-06.[61] Special districts collectively pay $350 million into ERAF III. Enterprise special districts, such as water and sewer districts, lose approximately 40 percent of revenue from this source. Non-enterprise special districts, such as resource conservation districts, lose approximately 10 percent of property tax revenue.[62] The cities pay a $350 million share under a formula that is prorated to consider the VLF, sales tax and property tax revenue that each city would have received under prior law. Most independent special districts are included in the property tax take-aways. The exceptions are public safety agencies such as police protection, fire protection, and healthcare/hospital districts. Other exceptions include library, memorial, and mosquito and vector abatement districts.

Proposition 1A, approved by the voters in November 2004, limits the State's ability to continue the ERAF III property tax shifts after the two-year period. Proposition 1A generally prohibits the State from shifting to schools any share of property tax revenues allocated to local governments under the laws in effect as of November 3, 2004. Beginning in FY 2008-09, the State may shift up to eight percent of local government property tax revenues to schools if the Governor proclaims that the shift is needed due to a severe state financial hardship, the shift is approved by two-thirds of both houses and certain other conditions are met. In this event, the State must repay such shifts with interest within three years.

Due to reliance on the property tax, ACWD has been affected by the state budget crisis. In response to this fiscal challenge, ACWD increased water rates by 6.5 percent on January 1, 2005; the rate increase will remain in effect for two years or until the revenue shortfall has been recouped, whichever comes first.

FINANCING OPPORTUNITIES

Financing opportunities that do not require voter approval include increasing service charges or connection fees, bonded indebtedness, grants, and adjustments in user fees, such as annexation fees.

WATER RATES

There are ample opportunities for most of the service providers to restructure rates. This section discusses rates and rate restructuring opportunities, covering not only traditional service charges, but also connection fees.

Service charges, also known as rates, are intended to recover the costs of providing water service. For most of the providers, there are few financing constraints affecting their ability to restructure rates. Indeed, most agencies update their water service charges annually. As discussed

[61] Redevelopment agencies are paying $250 million based on each agency's total and net tax increment. The counties' payment of $350 million into ERAF III has been codified.

[62] Certain special districts are exempted from the ERAF III property tax shift. The exceptions include public safety agencies, such as police protection, fire protection, and healthcare districts, library, memorial, and mosquito and vector abatement districts.

above, financing constraints limit the ability of Cal Water and SFPUC to restructure retail water rates.

Rate Factors

The primary factor affecting service charges is the cost of providing service. Rates tend to vary between providers due to differing cost structures. Both service costs and rates tend to grow over time due to inflation and employee compensation increases.

Certain water sources are simply more expensive than others. In most cases, it costs less to procure water supplies directly than to pay another provider to produce and convey the water. Pumping groundwater is typically less expensive than importing water. Desalination tends to be the most expensive approach to procuring water. The distance of the water source from the customers affects conveyance costs, with more infrastructure required for greater distances. Similarly, water quality affects costs. Pure snowmelt, such as Mokelumne River water, requires less treatment than do agricultural and urban runoff, such as the Bay-Delta. Groundwater sources vary in quality, with some requiring little to no treatment and others requiring more expensive processes. For example, ACWD conducts desalination and pumping to reverse saltwater intrusion into the aquifer. Another example of treatment cost factors is the demineralization treatment needed for groundwater extracted in the Pleasanton vicinity.

The nature of the service area affects costs and rates. Topography affects water costs and rates in that pump station costs and water system design and maintenance are higher in hilly service areas with multiple pressure zones. Density affects costs and rates in that more sparsely populated areas require more distribution infrastructure, with fewer users to absorb the costs. In smaller service areas, providers may face higher costs due to a lack of economies of scale.

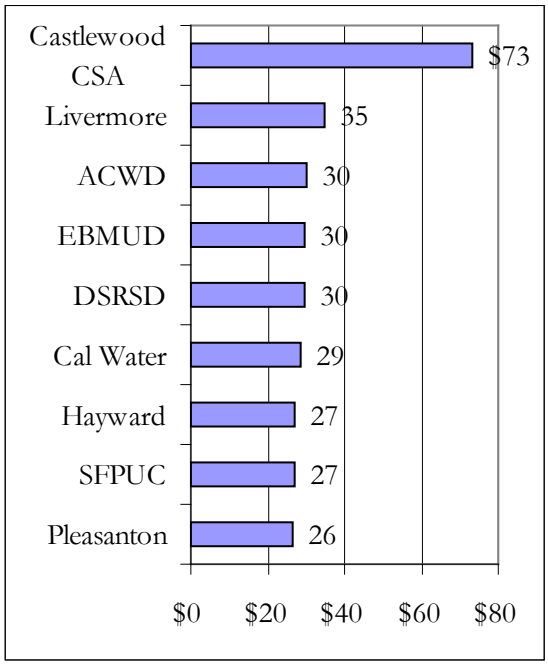
System age and capital financing approaches affect costs and rates as well. Older systems may require greater maintenance costs, but tend to have lower capital costs. In older systems, deferred maintenance can lead to a need to finance a large capital improvement program (e.g., SFPUC) through bonded debt and rate increases. Newer systems tend to face lower maintenance costs, but tend to have higher capital costs associated with the recent or concurrent distribution system development. Capital financing approaches affect costs through the interest expense of borrowing to finance capital improvements, although this approach tends to spread the capital cost over time and allow for less need for rate restructuring. Conversely, pay-as-you-go financing requires current ratepayers to absorb capital costs; the Castlewood CSA ratepayers are paying relatively high rates to finance the recent replacement of the potable water distribution system.

Rate Comparison

This section compares the water rates charged by the various providers for the average homeowner and for the average retail and industrial customer in the County.

Water rate structures differ across providers. In order to draw comparisons, consistent and reasonable assumptions were applied in calculating rates. The rate comparison is based on the charges in place in May 2005, including any temporary surcharges in place at that time. The comparison includes water meter charges, service charges, water use charges, seismic improvement surcharges, and backflow charges.

Figure 3-26. Single-Family Home Monthly Water Charges, FY 2004-05



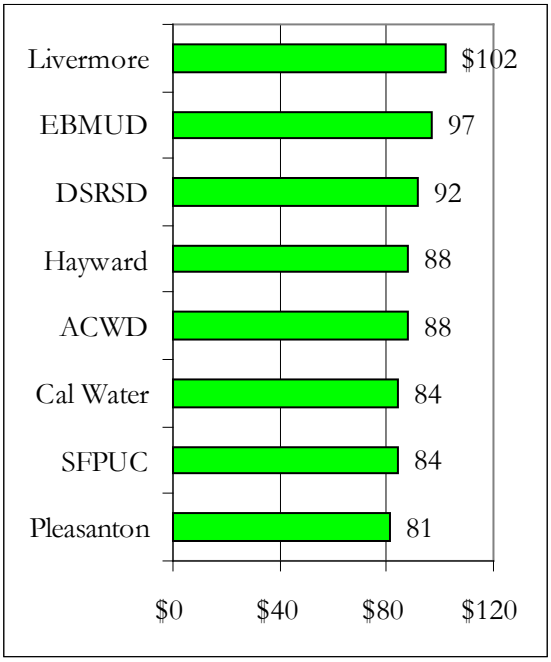
Residential rates are compared for a single-family home consuming 12 hundred cubic feet (ccf) monthly in Figure 3-26.[63] The median provider charges $30 monthly for such service.

Residential rates are highest in the Castlewood CSA, where the average homeowner pays $73 monthly. The CSA recently replaced the potable water distribution system, and uses a pay-as-you-go capital financing approach. Livermore rates are 16 percent higher than the median; Livermore's higher costs may be caused by a lack of economies of scale.

Hayward, ACWD, EBMUD, DSRSD, and Cal Water residential rates are comparable to the median.

Pleasanton and SFPUC residential rates are lower than the median. Pleasanton's rates are 12 percent lower than the median. SFPUC rates for customers in Alameda County are 10 percent lower than the median due in part to voter-initiated rate limitations.

Figure 3-27. Average Retail Monthly Water Charges, FY 2004-05



Commercial rates are compared for a retail business customer consuming 38 ccf monthly in Figure 3-27.[64] The median provider charges $88 monthly for such service.

Retail rates are highest in Livermore with rates 17 percent higher than the median. EBMUD retail rates are 11 percent higher than the median due to higher costs of maintaining an older system.

DSRSD, Hayward and ACWD charge retail rates comparable to the median.

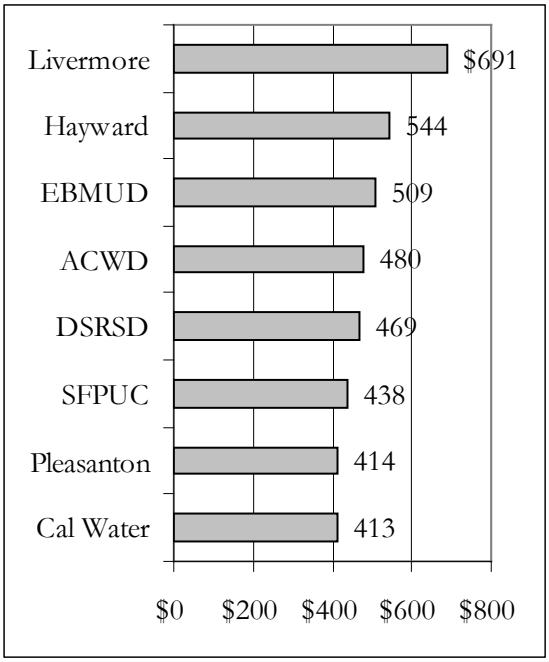
Pleasanton's rates are eight percent lower than the median due to lower costs. Cal Water and SFPUC charge retail rates four percent lower than the median.

[63] Average consumption of 12 ccf equates to approximately 295 gallons per household per day. One hundred cubic feet (ccf) of water is equal to 748 gallons of water. Average single family residential consumption in the largest service provider's (EBMUD) service area is 12 ccf.

[64] The average size for each business prototype was calculated from 1997 Economic Census data for Alameda County. The average retailer has 13.6 employees, occupies 3,750 square feet, and consumes 37.6 ccf of water monthly through a one-inch meter.

Service charges for retail water use are comparable to service charges paid by other businesses in office and commercial space. Rate comparison was conducted for an average-sized restaurant and professional office. Commercial rates are lowest in the Pleasanton, Cal Water and SFPUC service areas, and highest in the Hayward, Livermore and EBMUD service areas. DSRSD and ACWD commercial rates are comparable to the median.

Figure 3-28. Average Industrial Monthly Water Charges, FY 2004-05



Industrial rates are compared for an industrial business consuming 215 ccf monthly in Figure 3-28.[65] The median provider charges $474 monthly for such service. The agencies charge a higher flat meter fee to industrial customers than to other businesses, because industrial customers tend to use larger meters.

Livermore, Hayward and EBMUD have the highest service charges for industrial customers. Industrial rates are highest in the Livermore service area with charges 46 percent higher than the median due to cost factors as well as Livermore's non-residential inclined block rate structure. EBMUD and Hayward industrial rates are, respectively, seven and 15 percent higher than the median due to higher costs.

DSRSD and ACWD industrial rates are comparable to the median.

Pleasanton, Cal Water and SFPUC have the lowest service charges for industrial customers. Pleasanton and Cal Water charge industrial rates 13 percent lower than the median. SFPUC charges industrial rates eight percent lower than the median.

The rate comparison is based on the predominant customer situation for unique charges. For example, for all providers except SFPUC, the customer is assumed to be located inside the providers' boundaries and not paying outside-boundary service premiums. Similarly, elevation charges and pressure zone charges are based on a customer located in the primary pressure zone at the primary elevation level.

Special Rates

Customers located outside the boundaries of the service providers pay a premium for service from EBMUD, Hayward, ACWD and SFPUC. EBMUD charges a 100 percent premium for service outside its boundaries. Hayward and ACWD charge 50 percent and 15 percent premiums for service outside their respective boundaries. SFPUC charges a 25 percent premium on water services outside San Francisco boundaries. Livermore and Pleasanton provide service outside their

[65] The average industrial business has 37.4 employees and consumes 215 ccf of water monthly through a two-inch meter.

boundaries, but do not charge a premium to such customers. DSRSD, Cal Water and the Castlewood CSA do not provide potable water service outside their respective boundaries.

Customers at high elevations pay extra charges in the ACWD and EBMUD service areas. EBMUD charges a 29 percent premium for customers more than 600 feet above sea level and a 14 percent premium for customers 200-600 feet above sea level. ACWD charges a three percent premium for customers in areas more than 390 feet above sea level.

Conservation-oriented rate structures provide incentives to customers to reduce use. Inclined block rate structures promote conservation by charging higher rates for higher monthly use levels. As shown in Table 3-29, EBMUD and Livermore have the most conservation-oriented rate structures for residents with second-tier rates triggered by below-average use levels. Hayward, Livermore, Pleasanton, EBMUD, and DSRSD charge a premium for residents using more than 15-16 ccf monthly.[66] EBMUD charges a 55 percent premium for water in excess of 16 ccf monthly. DSRSD, Livermore and Pleasanton charge moderate (20-32 percent) premiums for similar use levels.

DSRSD, Hayward and Livermore promote nonresidential conservation through inclined rate structures charging higher rates for consumers with relatively high water use levels.

Table 3-29. Water Use Rate Structure

Provider	Residential	Nonresidential
ACWD	Flat	Flat
Cal Water	Flat	Flat
Castlewood CSA	Fixed amount	Flat
DSRSD	Two-tier inclined block rate with 31% premium for >30 ccf bimonthly.	Two-tier inclined block rate with 31% premium for >30 ccf bimonthly.
EBMUD	Three-tier inclined block rate with 25% premium for >7 ccf and 52% premium for >16 ccf monthly.	Flat
Hayward	Three-tier inclined block rate with 9% premium for >10 ccf and 26% premium for >30 ccf monthly.	Three-tier inclined block rate with 9% premium for >10 ccf and 26% premium for >30 ccf monthly.
Livermore	Three-tier inclined block rate with 20% premium for >5 ccf and 55% premium for >35 ccf monthly.	Two-tier inclined block rate with 55% premium for >50 ccf monthly.
Pleasanton	Three-tier inclined block rate with 32% premium for >30 ccf and 45% premium for >75 ccf bimonthly.	Flat
SFPUC	Flat	Flat
Zone 7	NA	Flat (untreated water)

Non-conserving rate structures provide no incentives to customers to reduce use. Charging a fixed amount per billing cycle regardless of the quantity used provides no incentive for customers to

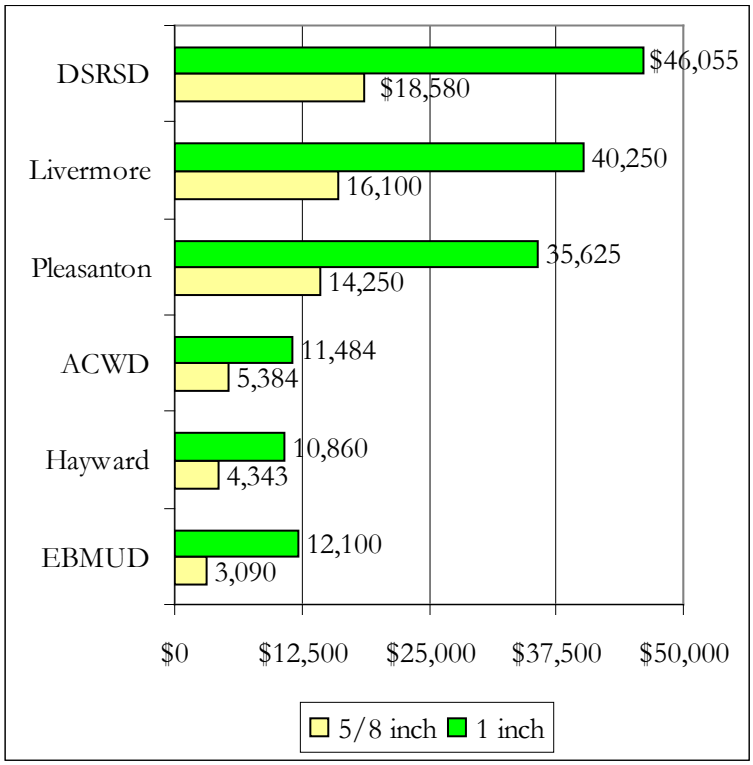
[66] By comparison, the average resident uses 12 ccf of water monthly.

conserve. Only the Castlewood CSA follows this approach. The CSA would have to meter individual users to convert to a rate structure based on water use. Declined block rate structures—structures with lower rates for high-volume water users—encourage greater use by discounting rates for large users. None of the water providers in Alameda County has such a rate structure.

Hayward, Pleasanton and SFPUC provide reduced service charges for low-income families. EBMUD offers reduced rates for qualifying low-income families and for homeless shelters. Pleasanton also provides a discount to senior citizens, aged 62 or older.

Connection Fees

Figure 3-30. Water Connection Fees, FY 2004-05



Connection fees are charged to cover costs of adding new customers to the water system, dealing with new loads on the system, adding capacity and expanding the water system.

Zone 7 connection fees apply to DSRSD, Livermore and Pleasanton and are included in the connection fee calculation.

Residential single-family homes mainly use ⅝ inch meters for water connections. Typically, retail, professional, and restaurant businesses use one-inch meter connections.

The median provider charges $9,817 in connection fees for ⅝ inch connections.

As shown in Figure 3-30, DSRSD, Livermore and Pleasanton charge higher ⅝ inch connection fees than the median provider. ACWD, Hayward and EBMUD charge lower ⅝ inch connection fees than the median provider.[67]

The median provider charges $23,863 for one-inch connection fees. DSRSD, Livermore and Pleasanton charge higher connection fees for one-inch meters than the median provider. ACWD, Hayward and EBMUD charge lower one-inch meter connection fees than the median provider.

DSRSD, Livermore and Pleasanton charge the most for ⅝ inch and one-inch meter connection fees. EBMUD, Hayward and ACWD charge the least for ⅝ inch and one-inch connections.

[67] Connection fee charges are shown for comparison purposes. For connection fees specific to individual properties, consult with the service provider to determine if additional fees or pressure zone charges may apply.

Differences in development patterns—with larger projects in the Tri-Valley area and more infill projects in the ACWD, Hayward and EBMUD service areas—and related differences in infrastructure costs are a significant factor. DSRSD, Livermore and Pleasanton are located in areas where there is much new development; water connections are more costly than in inland areas due to a greater amount of distribution pipe needed per customer and the need to expand both treatment and distribution capacity. Other factors include the cost of securing additional water supplies.

Rate Restructuring Opportunities

Rate restructuring opportunities include opportunities to promote conservation, increase various service charges and impose unique charges to encourage water conservation.

- The Castlewood CSA should follow conservation pricing best management practices by metering individual users and charging rates based on water use;[68]
- ACWD, Cal Water and SFPUC could encourage conservation by implementing inclined block rate structures for residents, as other providers—DSRSD, EBMUD, Hayward, Livermore, and Pleasanton—have done;
- Livermore, Pleasanton and Hayward could encourage residential conservation by adjusting their inclined rate structures through reduction of water use triggers for third-tier rates (i.e., the highest rate category);
- DSRSD, Hayward and Livermore should consider rate structures that recognize variability in size of commercial and industrial users in attempting to achieve water conservation.
- Seasonal rates may be imposed during the summer to discourage excessive use when water resources are scarce;
- Excess use surcharges may be imposed to encourage conservation for larger industrial and commercial users;
- There may be opportunities to restructure fees to include credits or rebates for water reduction efforts. Credits may be given for the installation of water waste management devices and drought-tolerant landscaping;
- Water connection fees can be structured in a two-tier system to adjust for the costs of providing service to infill versus greenfield projects. This type of rate restructuring requires the agency to conduct a nexus study to establish fees proportionate to costs.

COST AVOIDANCE OPPORTUNITIES

Generally, the water service providers in Alameda County have pursued cost avoidance through facility-sharing and joint projects, as discussed earlier in the chapter.

Livermore and EBMUD have relatively high water rates compared with ACWD, Cal Water, DSRSD, Hayward, Pleasanton, and SFPUC. Because rates are determined by service costs, relatively high rates may indicate underlying cost avoidance opportunities. However, relatively high costs are

[68] The CSA reported that Castlewood residents oppose metering of individual homes.

not necessarily avoidable if related to constituent preferences, wholesale supply costs or topography, among other factors. No specific cost avoidance opportunities were identified.

POLICY ANALYSIS

This section provides policy analysis that is focused on the agencies under LAFCo's purview. The policy analysis includes assessment of local accountability and governance, evaluation of management efficiencies, as well as identifying government structure options that may be considered by LAFCo.

LOCAL ACCOUNTABILITY AND GOVERNANCE

The section discusses local accountability and governance for the limited purpose agencies, and provides an overview of indicators of local accountability and governance for the multipurpose agencies.

Limited Purpose Agencies

The special districts providing water service are governed by boards elected by the public and their meetings are open. They therefore have greater accountability to the public than private water providers. Table 3-31 summarizes various indicators of local accountability.

Table 3-31. Accountability Indicators, Limited Purpose Agencies

	ACWD	DSRSD	EBMUD	Zone 7
Direct service provider	Yes	Yes	Yes	Yes
Service recipients are constituents	Yes	>99%	Yes	Yes
Uncontested elections since 1994	None	None	None	None
Latest contested election	Nov 02	Nov 04	Nov 02	Mar 02
Latest voter turnout rate	50%	81%	24%	33%
Countywide turnout rate	53%	77%	53%	35%
Efforts to broadcast meetings	No	No	No	No
Constituents updated via outreach	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Yes

ACWD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2002 was slightly lower than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board meeting minutes on its website. The District reported that it updates constituents by posting public documents on its website. In addition, all customers are updated on District projects and activities through a bimonthly newsletter included with their water bill and through press releases. The District solicits constituent input via surveys and community meetings.

DSRSD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2004 was slightly higher than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board meeting minutes on its website. The District reported that it updates constituents by publishing a customer newsletter twice a year and posting news releases and public documents on its website.

EBMUD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2002 was significantly lower than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board agenda and meeting summaries on its website. The District reported that it updates constituents by participating in community events, distributing a newsletter, fact sheets, and reports, and maintaining a website with updates on current projects and press releases. The District also discloses public documents via the Internet. The District solicits constituent input via community meetings.

Zone 7 Water Agency is different than the other water service providers in several ways. It is a direct service provider of mainly wholesale water service. The Zone is governed by an independently elected governing board; however, approval by the County Board of Supervisors is also required on matters affecting both Zone 7 and other portions of ACFCD. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2002 was comparable to the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post its latest board agenda on its website.

Multipurpose Agencies

Table 3-32. Accountability Indicators, Multipurpose Agencies

	Castlewood CSA	Hayward	Livermore	Pleasanton	WTHCD	EBPRD
Direct service provider	No	Yes	Yes	Yes	Self-Service	Self-Service
Service recipients are constituents	Yes	Yes	>99%	>99%	84%	76%
Uncontested elections since 1994	None	None	None	None	None	None
Latest contested election	Nov 02	Mar 04	Nov 03	Nov 04	Nov 04	Nov 02
Latest voter turnout rate	52%	41%	36%	84%	94%	53%
Countywide turnout rate	53%	44%	22%	77%	77%	53%
Efforts to broadcast meetings	Yes	Yes	Yes	Yes	Yes	Yes
Constituents updated via outreach	Yes	Yes	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	Yes	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Yes	Yes	Yes

Assessment of each multipurpose agency's accountability, except WTHCD, will be finalized in the third volume of this MSR series, as multipurpose agencies will be covered in that report. The assessment of local accountability and governance at the multipurpose agencies is generally an agency-wide assessment.

All agencies hold open elections for their governing bodies, prepare meeting agendas and minutes and make accessible their staff and local officials. Table 3-32 provides accountability

indicators for each of the multipurpose agencies. Additional details on the local accountability and governance of the multipurpose agency water providers can be found in Appendix A.

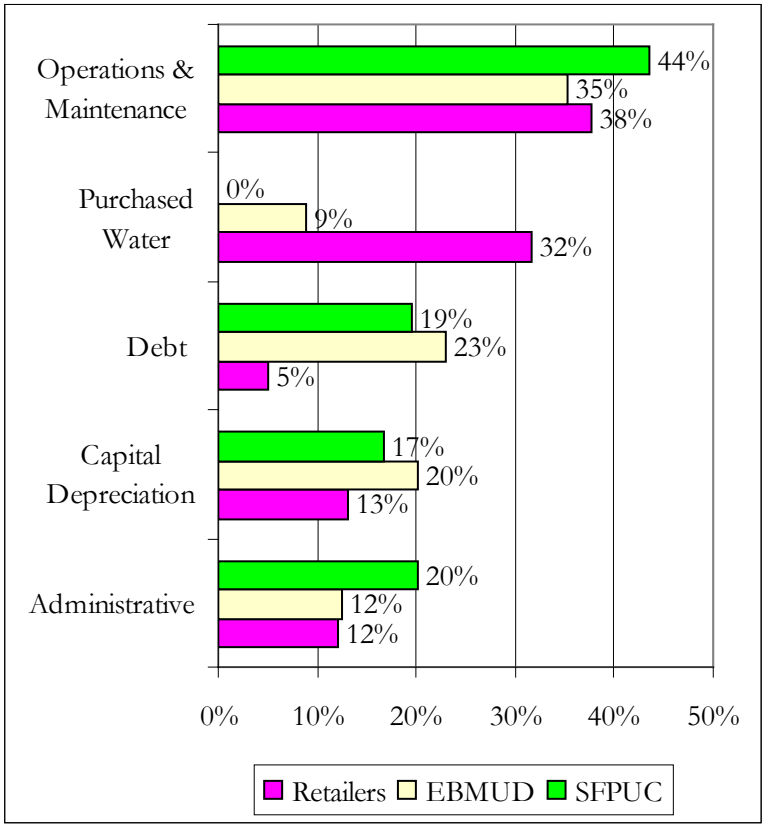
EVALUATION OF MANAGEMENT EFFICIENCIES

This section provides an evaluation of management efficiencies at the water agencies. This section considers the effectiveness of each agency in providing efficient, quality public services. Efficiently managed agencies are deemed those that consistently implement plans to improve service delivery, reduce waste, eliminate duplications of effort, contain costs, maintain qualified employees, and build and maintain adequate contingency reserves.

Service Costs

Water service costs vary between providers due to different service configurations, water sources, pre-treated water quality, service areas, infrastructure age, and capital financing approaches. These cost differences are discussed above in the section explaining rate differences.

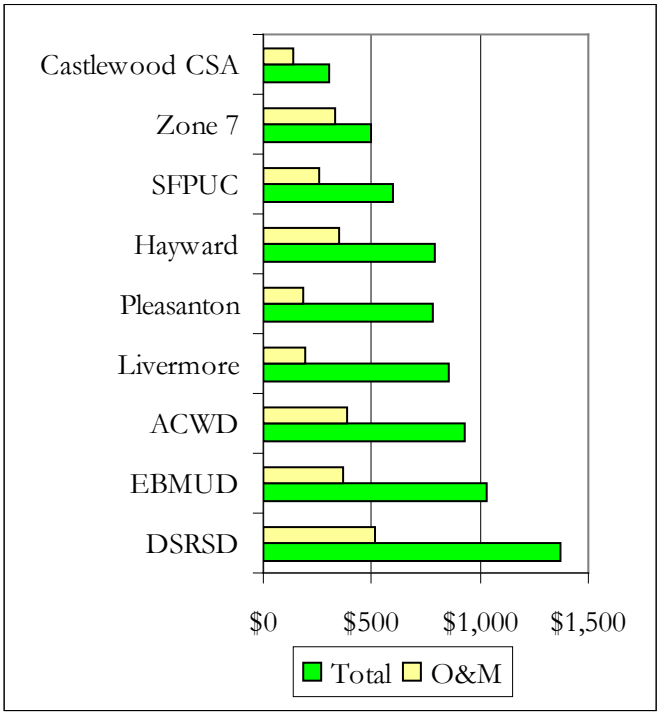
Figure 3-33. Water Costs by Type, FY 2002-03



Generally, water enterprise costs have been categorized as purchased water costs, operations and maintenance, administrative, capital depreciation, debt, and other. Average costs for retailers and full-service enterprises differ. The full-service enterprises tend to have higher capital depreciation and financing (debt) costs. Retailers tend to have higher purchased water costs.

Both for retailers and wholesalers, operations and maintenance (O&M) is the most significant of these cost categories. As shown in Figure 3-33, O&M costs account for 38 percent of water enterprise expenditures among retailers and 35-44 percent among full-service water operations. Among retailers, purchased water is the second most important cost category, accounting for 32 percent of expenditures. Among wholesalers, administrative, capital depreciation, and debt expenses were nearly equal in importance.

Figure 3-34. Water Costs per Acre-Foot, FY 2002-03

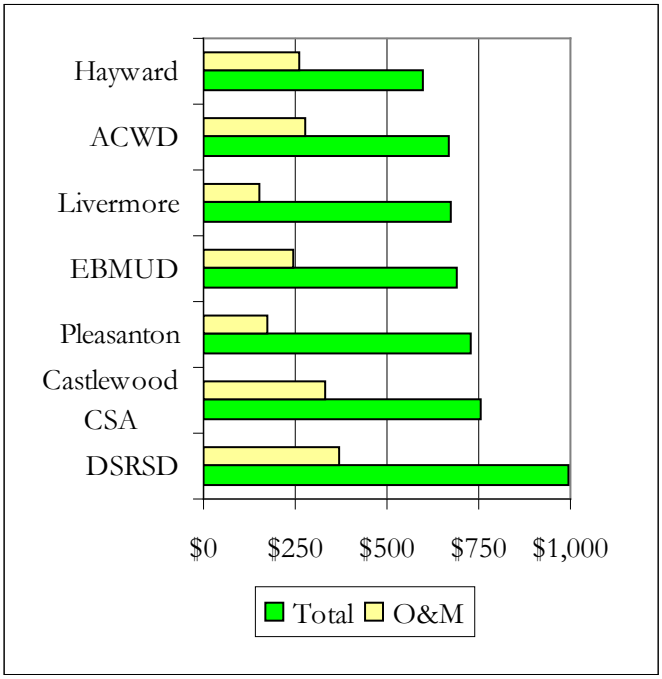


The median provider's total costs per acre-foot in demand were $796 in FY 2002-03.[69] Median O&M costs were $328 per acre-foot.

Total costs were highest in the DSRSD, EBMUD, ACWD, and Livermore water enterprises, as shown in Figure 3-34. The DSRSD enterprise had relatively high expenses related to its rapid development of new infrastructure to accommodate growth and recycled water demand. Total costs were lowest for the Castlewood CSA, Zone 7 and SFPUC. Zone 7 and SFPUC activities are predominately wholesale and exclude certain distribution and billing costs.

O&M costs per acre-foot were highest in the DSRSD, ACWD and EBMUD enterprises. The Castlewood CSA, Pleasanton and Livermore had relatively low O&M costs per acre-foot.

Figure 3-35. Water Costs per Account, FY 2002-03



The median provider's service costs per account were $690 in FY 2002-03. Median O&M costs were $259 per account.

Total costs per account were highest in the DSRSD and Castlewood CSA enterprises, as shown in Figure 3-35. By comparison, costs were relatively low in the Livermore and Hayward enterprises.

O&M costs per account were higher than the median in the DSRSD, Castlewood CSA and ACWD enterprises. O&M costs were lower than the median in the Livermore, Pleasanton and Hayward enterprises.

[69] Total costs include operating and non-operating expenditures in FY 2002-03. Costs per acre-foot reflect FY 2002-03 costs divided by the average of annual demand in 2000 and 2005.

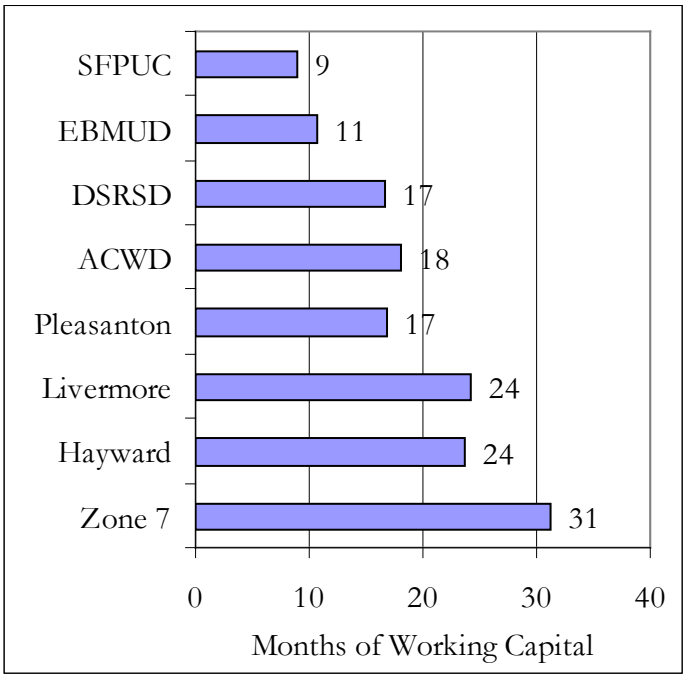
Reserves

Local agencies maintain reserves to cover costs during economic downturns, unexpected expenses, and sometimes cash flow shortages. The reserve ratio provides a strong indicator of an agency's financial health; however, there are other factors such as capital project needs and financing approaches that are not necessarily reflected in the reserve ratio.

There are no official guidelines or widely accepted standards to guide independent special districts in the accumulation and use of reserves. The issue of special district reserves was raised in May 2000 by the Little Hoover Commission in its report entitled, *Special Districts: Relics of the Past or Resources for the Future?* The report characterized special district reserves at some enterprise districts as "unreasonably large," pointing to the significant number of districts with reserves more than three times higher than annual revenue. The report also characterized special district reserves as obscure and not integrated into regional infrastructure planning.

Each water provider's reserves were calculated as unrestricted net assets in the water enterprise. Removed from reserves are capital assets net of related debt as well as reserves restricted for debt repayment or construction. Capital assets net of related debt represent fixed assets and do not represent available resources.[70] Similarly, reserves restricted for debt repayment do not represent available resources. Reserves were compared with water enterprise expenditures—operating and non-operating expenditures—to determine how many months of working capital each provider had.

Figure 3-36. Water Enterprise Reserves, FY 2002-03



The median provider had 17 months of working capital in its water enterprise reserves at the end of FY 2002-03. By comparison, the California State Auditor reviewed reserves at eight water districts with an average of 20 months of working reserves.

SFPUC and EBMUD had relatively low reserve levels compared with the other providers, as shown in Figure 3-36. As large agencies, these two providers may not require as much in reserves as do more modest-sized enterprises. ACWD, DSRSD and Pleasanton reserve levels were comparable to the median.

Livermore, Hayward and Zone 7 had water enterprise reserves greater than the median. Zone 7 relies on pay-as-you-go financing for capital projects; reserves are being used, in part, to finance a new water treatment plant and the Chain-of-Lakes water storage project. Livermore has been spending reserves on recycled water infrastructure projects.

[70] California State Auditor, 2004, pages 13-19.

Management Practices

There are various management practices used by water service providers in Alameda County which include implementing benchmarking and monitoring performance to improve service delivery, planning efforts, and emergency planning. Water planning among significant water service providers in the County is presented in Table 3-37.

Alameda County Water District

ACWD management practices include benchmarking, financial audits and performance evaluation. Routine evaluations of District operations include annual performance plans tailored toward each department's responsibilities. There are also level-of-service standards where performance is evaluated throughout each department. Annually, goals and objectives are developed by each department and presented to the Board of Directors. The Board reviews a summary of the year's performance as compared to the goals and objectives previously set. Productivity is also monitored and reported to the Board on a monthly basis by the various District departments. The District does not conduct performance-based budgeting.

The District's Integrated Resources Plan (IRP) serves as its strategic planning and water master plan document. The ACWD IRP was adopted in 1995 and has a planning horizon of 35 years. ACWD conducts capital improvement planning over a 35-year planning horizon; its most recent plan was prepared in 1995. The District prepared its year 2000 Urban Water Management Plan, and has released its year 2005 Draft Urban Water Management Plan.

In the event of emergencies such as earthquakes, ACWD will rely on water sharing through emergency interties with SFPUC, Hayward and Milpitas. The District has groundwater and reservoir storage for emergency use. ACWD has the water storage capacity to meet average daily demand for up to two days.[71]

Castlewood CSA

Castlewood CSA management practices include performance evaluation through annual service reviews on site at the CSA facilities and in the service area with interested property owners and residents. To monitor productivity, monthly and quarterly reports are provided to the Alameda County Public Works Agency management regarding work plans and performance. Additional management practice conducted by the agency includes performance-based budgeting and annual financial audits. The CSA did not identify benchmarking practices.

The CSA does not have a strategic plan. The CSA's water master plan was last updated in 2004 and has a one-year time horizon. Capital improvement planning for the CSA is incorporated into countywide planning efforts. The CSA is not required to prepare an UWMP.

The CSA does not have a formalized emergency response plan. In the event of emergency, the CSA could access water stored in the SFPUC reservoir located on Country Club grounds or receive supplemental water from the City of Pleasanton through an intertie.

[71] According to the Bay Area Water Users Association, Annual Survey, FY 2001-02.

Table 3-37. Water Planning

Service Provider	UWMP Date	Water Master Plan Date/Version	Water Master Plan Planning Horizon	Capital Improvement Plan Date/Version	Capital Improvement Plan Planning Horizon	Emergency Response Plan	Other Plans
ACWD	2005	Integrated Resources Plan (IRP) 1995	35 years	FY 02-03	25 years	In IRP	SFPUC Water Demand Study (2004)
Cal Water	2004	NP		NP		Master Disaster Plan	As required by the California Public Utilities Commission.
Castlewood CSA	NA	2004	1 year	County FY 01-02	7 years	None formalized.	None identified.
DSRSD	2005	2000. 2005 plan in progress.	10 years	FY 03-04	10 years	In UWMP	Water Service Analysis for Eastern Dublin (2001)
EBMUD	2005	1999	10 years	FY 06-07	5 years	In UWMP and Budget	Water Conservation Master Plan (FY 03-04); Watershed Master Plan (1999); Water Supply Engineering Statistical Report (2003)
Hayward	2000	2002	20 years	FY 04-05	5 years	2003	SFPUC Water Demand Study (2004)
Livermore	1995	2004	20 years	FY 02-03	20 years	In UWMP	Recycled Water for Agricultural Reuse Feasibility Study (2003), Recycled Water System Master Plan (2004)
Pleasanton	2002	2004	10 years	FY 00-01	5 years	None	None
SFPUC	2001	2000	30 years	2002	14 years	In UWMP	Water System Improvement Program (2005), Alameda Watershed Management Plan (2001), Water Demand Study (2004)
Zone 7	2005	Treated Water Facilities 2000 and Well Master Plan 2003	20 years	FY 02-03	10 years	In UWMP	Water Supply Planning Study (1999), Water Conservation Program Eval (2003)

City of Hayward

The City's management practices include department evaluations which are integrated into the City's budget process. Each department has performance objectives and goals adopted in the annual budget. The City does not conduct performance-based budgeting or benchmarking.

The City does not have an adopted strategic plan, mission statement or vision. The City General Plan was last updated in 2002 and has a planning time horizon of 20 years. The City water master plan was last updated in 2002 and has a planning time horizon of 20 years. Hayward conducts capital improvement planning over a five-year planning horizon; its most recent plan was prepared in FY 2000-01. The City prepared its year 2000 Urban Water Management Plan.

To prepare for a seismic event or other emergencies, the City has established agreements with EBMUD and ACWD to exchange emergency water supplies. The City has five emergency wells certified for emergency use only (i.e., for a period of one week or less). In case of an emergency, the City has the water storage capacity to meet average daily demand for up to one day.[72] The City also has agreements with EBMUD and ACWD to provide up to 15 mgd in the event of an emergency.

City of Livermore

The City's management practices include workload monitoring by department heads. Individual departments establish internal annual goals and assign goals to individual employees. The City does not conduct performance-based budgeting or benchmarking.

The City establishes goals in its budget, but does not have a strategic planning document. Each City department has a mission statement. The General Plan was last updated in 2003 and has a planning horizon of 27 years. The water master plan was last updated in 2004 and has a planning horizon of 20 years. Livermore conducts capital improvement planning over a 20-year planning horizon; its most recent plan was prepared in FY 2002-03. The City did not prepare its year 2000 Urban Water Management Plan.[73]

The City has participated in the development of a valley-wide plan for potable water distribution during emergencies. The Tri-Valley providers have identified water-critical customers and possible potable water distribution sites. In the event of emergencies such as earthquakes, Zone 7, the City's wholesale provider, will rely on groundwater reserves and Lake del Valle water and would be able to make deliveries to its retailers for nearly a full year even without the South Bay Aqueduct (SBA). In case of total disconnection of water supply from Zone 7, the City could obtain water from California Water Service groundwater wells. The City has the water storage capacity to meet average daily demand for up to one day.

[72] According to the Bay Area Water Users Association, Annual Survey, FY 2001-02.

[73] The Department of Water Resources does not determine whether a specific UWMP complies with the requirements of the Act, but reviews the plans for completeness. Except as provided in Water Code §10631.5 "DWR consideration of Demand Management Measures (DMMs) for specific financial assistance programs," Water Code §10644 "Plans must be filed with DWR," Water Code §10656 "supplier that does not prepare, adopt and submit a Plan to DWR is ineligible to receive drought assistance," and Water Code §10657 "submission of an updated Plan necessary for financial assistance from DWR," the Department of Water Resources has no regulatory, permitting or other approval authority over Plans.

City of Pleasanton

City of Pleasanton management practices include workload monitoring and annual Council adoption of service and policy priorities. The City does not conduct performance-based budgeting or benchmarking.

The City does not have a strategic planning document, mission statement or vision statement. The City General Plan was last updated in 1996 and has a planning horizon of 15 years. Pleasanton's water master plan was last updated in 2004 and has a planning horizon of 10 years. Pleasanton conducts capital improvement planning over a five-year planning horizon; its most recent plan was prepared in FY 2000-01. The City prepared its year 2000 Urban Water Management Plan.

The City has participated in the development of a valley-wide plan for potable water distribution during emergencies. The Tri-Valley providers have identified water-critical customers and possible potable water distribution sites. In the event of emergencies such as earthquakes, Zone 7, the City's wholesale provider, will rely on groundwater reserves and Lake del Valle water and would be able to make deliveries to its retailers for nearly a full year even without the SBA. In case of total disconnection of water supply from Zone 7, the City would rely on groundwater. Groundwater wells can provide up to 75 percent of the City's maximum daily demand. Emergency water storage would meet one-half day of peak demand and could accommodate demand for up to a week during winter months.

Dublin San Ramon Services District

DSRSD management practices include performance-based budgeting and benchmarking. The District routinely evaluates performance in achieving strategic and financial goals. The District monitors performance on a monthly basis in comparison with cost targets set by the Board. DSRSD also participates in a peer review process (QualServe) that helps utility service providers improve performance. The District uses several methods to track workload: monitoring the unit cost of providing service on a monthly basis, setting productivity goals based on budget expenditures, maintaining daily logs of information used to ensure proper staffing levels, and conducting analysis of billing costs.

The District's current strategic plan spans FY 2003-04 to 2008-09 and includes a mission statement and a statement of core values. The strategic plan is prepared with a six-year planning horizon and is updated every two years. The District's water master plan was last updated in 2000 and has a planning horizon of ten years; the plan is updated every five years. DSRSD conducts capital improvement planning over a 10-year planning horizon; its most recent plan was prepared in FY 2003-04. The District prepared its year 2005 Urban Water Management Plan.

In the event of emergencies such as earthquakes, Zone 7 will rely on groundwater reserves and Lake del Valle water and would be able to make deliveries to its retailers for nearly a full year even without the SBA. In case of total disconnection of water supply from Zone 7, the District plans to use groundwater to meet customer demand. Local groundwater will accommodate up to 75 percent of peak water demand. For emergencies of significant duration, the District will rely on EBMUD or the City of Pleasanton for supplemental water.

East Bay Municipal Utility District

EBMUD management practices include benchmarking, annual personnel performance evaluations, annual financial audits, and financial trend and budget performance reports. The

District's service operations are also routinely evaluated. The District has developed performance indicators to monitor workload for specific areas as well as district-wide planning and goal setting. The performance indicators track productivity and error rates for the various types of work performed. EBMUD participates in a peer review process (QualServe) that helps utility service providers improve performance. The District does not conduct performance-based budgeting.

The District has adopted a strategic plan. EBMUD's water master plan was last updated in 1999 and has a planning horizon of 10 years. The District prepares a water conservation master plan, watershed master plan and a water supply engineering statistical report. EBMUD conducts capital improvement planning over a five-year planning horizon; its most recent plan was prepared in FY 2005-06. The District prepared its year 2005 Urban Water Management Plan.

In the event of emergencies such as earthquakes, EBMUD will rely on reserves stored locally (Upper San Leandro and Chabot Reservoirs) and the Southern Loop Pipeline, an 11-mile emergency transmission pipeline which provides for an alternate water supply route in case of a major earthquake. There are existing emergency interties with DSRSD, Hayward, and CCWD and plans for a regional intertie with SFPUC. An emergency preparedness program has been designed to develop response priorities. In addition, the District has developed a seismic improvement program with objectives to strengthen, reinforce and upgrade water treatment and distribution systems, as well as maintain aqueduct security. EBMUD maintains emergency reserves to accommodate at least one peak day of demand in each of its pressure zones.

Zone 7 Water Agency

Zone 7 management practices include performance and program audits conducted by outside consultants; most recently completed was a review of the Zone's water resource department in 2000. Zone 7 tracks workload through individual personnel performance evaluation and task planning and monitoring for its engineering, water resources and maintenance departments. Additional management practices conducted by the Zone include performance-based budgeting and annual financial audits. The District did not identify the use of benchmark practices.

Zone 7 has developed a mission statement as well as master plans to address stream management, well drilling and salt management. The Zone's water master plan was last updated in 2000 and has a planning horizon of 20 years.

To maintain needed groundwater during emergencies, the Zone has additional groundwater storage. The Zone also has emergency water through water transfer agreements, wells and reservoir storage. In accordance with State law, the Zone has developed a water shortage contingency plan. Zone 7 works closely with its water retailers on the implementation of the water shortage plan and is contractually obligated to reduce water delivery equally among all retail customers served. As a water wholesale agency, Zone 7 relies on the water retailers to implement the necessary water use requirements. In a critical condition, Zone 7 would first cut untreated water deliveries by 20 percent.

In the event of an interruption of deliveries from the South Bay Aqueduct, Zone 7 would be able to meet demand during non-summer months and would reduce deliveries to retailers during summer months. In addition, Zone 7 would encourage the retailers to operate their facilities to supplement Zone 7 deliveries and to begin emergency water conservation measures.

Employees

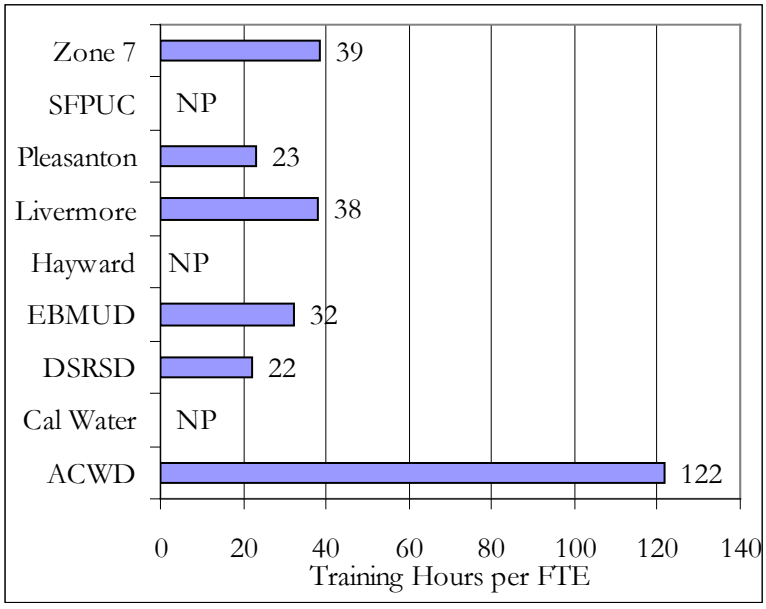
This section discusses employee certification requirements. It provides information on training and on employee injury, turnover and vacancy rates.

California law requires certification for water treatment plant operators and for distribution system decision-makers (i.e., chief and shift operators) involved in water main installation or maintenance, pump operations, and water quality investigation activities.[74] DHS administers operator certification, with five grades of certification based on the size and complexity of the treatment facility or distribution system.

DHS certification requires passing an exam and meeting experience requirements. Certification must be renewed every five years, with renewal subject to fulfillment of continuing education requirements. Treatment plant operators at Grade IV facilities must complete specialized training courses in water treatment and have at least three years experience.[75] Similarly, distribution operators at Grade IV systems must complete specialized training in water supply principles and have at least three years experience.[76]

The employees at each of the Alameda County water providers meet certification requirements.

Figure 3-38. Formal Training Hours per Employee, 2004



Although not required by law, certification is also available for other water utility workers through the American Waterworks Association (AWWA). AWWA offers voluntary certification for six occupations: backflow prevention assembly tester, water conservation, cross-connection control program specialist, and laboratory analyst, as well as for water distribution and treatment operators and trainees. AWWA certification requirements vary by occupation, but include education, experience, written examination, and continuing

[74] California Health and Safety Code §106885 requires certification of water treatment operators at public water systems and of water distribution operators for all community and non-transient, non-community public water systems. Operator certification requirements are established in the California Code of Regulations, Title 22, Division 4, Chapter 13.

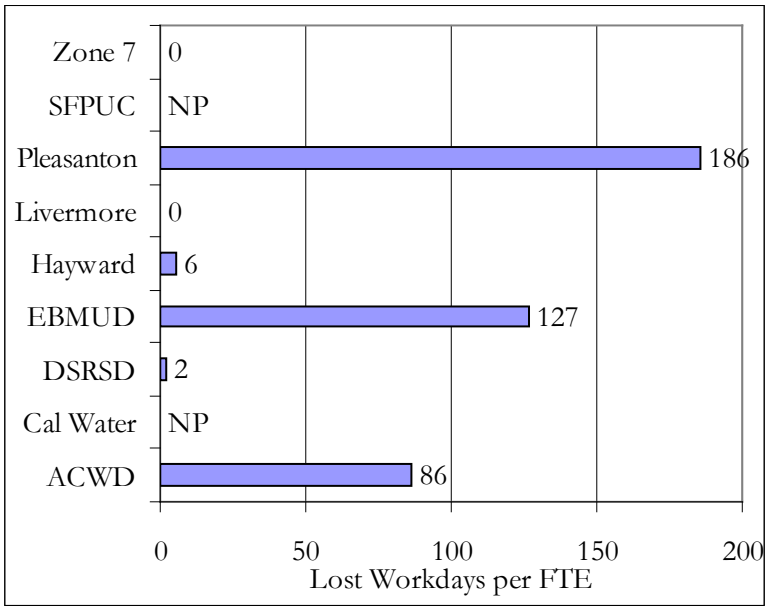
[75] The required experience depends on the treatment operator's education level. An operator with an M.S. degree in chemical engineering is required to have at least three years of experience; whereas, an operator without a college degree must have at least five years of experience.

[76] The required experience depends on the distribution operator's education level. An operator with an M.S. degree in chemical engineering is required to have at least three years of experience; whereas, an operator without a college degree must have at least five years of experience.

education components.

The median water utility provided 26 hours of formal training per full-time equivalent (FTE) employee, according to the 2003 AWWA QualServe analysis. ACWD has the most formal training per employee among the providers in Alameda County, as shown in Figure 3-38. Zone 7, Livermore and EBMUD offer more training than the QualServe median. Pleasanton and DSRSD offer slightly less than the QualServe median. Cal Water, Hayward and SFPUC did not disclose formal training hours per employee. The Castlewood CSA has no direct employees; Cal Water contract staff maintains CSA facilities.

Figure 3-39. Employee Health and Safety Severity Rate, 2004



The median water utility had 71 workdays lost due to **work-related** injuries and illnesses per full-time equivalent (FTE) employee, according to the 2003 AWWA QualServe analysis.[77] This indicator is the employee health and safety severity rate. The City of Pleasanton, EBMUD and ACWD had higher employee health and safety severity rates than the QualServe median, as shown in Figure 3-39. The 2004 DSRSD employee health and safety severity rate was very low; however, the 2003 rate was substantially higher (247). Livermore and Zone 7 had no workdays lost due to work-related injuries and illnesses in 2004. Hayward and DSRSD had minimal workdays lost due to work-related injuries or illnesses. Cal Water and SFPUC did not disclose employee health and safety severity rates.

Table 3-40. Water Employee Indicators

Agency	Employees (FTEs)	Turnover Rate	Vacancy Rate
ACWD	217	1%	2%
Cal Water	NP	NP	NP
DSRSD	22	4%	12%
EBMUD	1,779	8%	8%
Hayward	57	7%	0%
Livermore	10	20%	0%
Pleasanton	15	4%	5%
SFPUC	1,800	NP	NP
Zone 7	102	5%	3%

Staffing levels at the various water service providers vary based on size and scope of their responsibilities. Staffing as well as turnover and vacancy rates are presented in Table 3-40. EBMUD and SFPUC water enterprises are the largest employers. Several of the providers reported employee turnover rates. Employee turnover rates ranged from one percent at ACWD to 20 percent at the City of Livermore. Position vacancy rates varied from zero percent

[77] American Water Works Association, 2003, page 10.

at Hayward and Livermore to 12 percent at DSRSD. The Castlewood CSA contracts with Cal Water and has no direct employees. Cal Water and SFPUC did not disclose employee turnover and vacancy rates.

GOVERNMENT STRUCTURE OPTIONS

The MSR identifies government structure options, advantages and disadvantages, and evaluation issues, but does not make recommendations about these options. The Commission or the affected agencies may or may not initiate studies on these options in the future, although LAFCo is required to update the agencies' SOIs by January 1, 2008.

ACWD and USD Consolidation Option

ACWD and the Union Sanitary District provide water and wastewater services, respectively, to similar service areas, including the cities of Fremont, Newark and Union City. In 1995, the districts retained consultant Ralph Andersen & Associates to study consolidation of the two agencies as a special district, as well as consolidation through a JPA comprised of representatives of the respective cities.

Table 3-41. Advantages and Disadvantages of Consolidation

	Advantages	Disadvantages
Purpose	Single provider of water and sewer services.	Unnecessary because providers are already collaborating on recycled water development.
Electorate	Fewer board seats.	Disruption of governance during transition.
Facilities	Potential for consolidated facilities, one-stop permitting	Facility consolidation would be costly.
Oversight	No significant impact.	No significant impact.
Accountability	Centralized customer service functions would increase service levels.	No significant impact.
Cost Avoidance	Potential for operational cost savings of 1.6 to 2.3 percent through management streamlining and a shared long-range planning unit.	Operational savings are partially offset by transition costs for facilities consolidation and by compensation costs from reconciling salary structures.

Advantages and disadvantages of consolidation are listed in Table 3-41. Potential advantages of consolidation include improved customer service through a one-stop permitting center and the potential for modest cost savings. Potential disadvantages of consolidation include high transition costs for facility consolidation, increased costs associated with reconciling two disparate compensation schemes and no expected benefit in terms of reduced costs or increased service levels.

The 1995 study recommended against consolidation for several reasons:

1) The Districts operate efficiently and effectively. No major concerns over service levels or financing were identified.

2) The Districts' respective operations would be run as separate enterprises if consolidated, minimizing cost avoidance opportunities; and

3) High transition costs and increased personnel costs would partly offset savings from eliminating some management positions.

The study concluded that consolidation was unnecessary and potentially disruptive.[78] Further, the study recommended that the districts jointly review enhanced cooperation through streamlined permitting, strategic planning, legislative advocacy, joint public information programs, joint management training programs, and GIS system collaboration.[79]

Since the 1995 study, ACWD and USD have initiated several joint programs including annexations, emergency response, development and use of GIS data, evaluation of options for consolidating permitting, development of a Recycled Water Master Plan, implementation of a water conservation plan, and integrated planning and grant funding.

Standard Annexation Options

Government structure options include annexation of adjacent unincorporated areas within urban water service areas. The water service areas for the cities of Pleasanton, Hayward and Livermore include adjacent unincorporated areas.

The City of Hayward's water service area extends into the unincorporated Mission-Garin Hills area located south of CSU-Hayward and west of Garin Regional Park. Most of the potential annexation area is undeveloped.

The City of Livermore's water service area extends into four unincorporated areas:

- the Rancho Las Positas development at the intersection of Vasco and Tesla Roads,
- the partly developed Las Colinas Road area,
- an undeveloped area south of the Livermore Municipal Airport, and
- an undeveloped area north of Altamont Pass Road.

The City of Pleasanton's water service area extends into five unincorporated areas:

- the partly developed Santos Ranch Road and Eastwood Way area along the City's western boundary,
- the developed Castlewood and Happy Valley Road areas,[80]
- the developed Little Valley Road area near Highway 84,
- a small undeveloped area north of Busch Road along the City's eastern boundary, and
- the undeveloped Santa Rita area that extends out to El Charro Road (at the Livermore boundary).

[78] The study conclusions were endorsed by the study's technical review committee, which included LAFCo staff, a representative of then-Senator Lockyer,and the City Managers of Fremont, Newark and Union City.

[79] Ralph Andersen & Associates, 1995, pages 121-124.

[80] Pleasanton annexed most of the Happy Valley area in August 2002.

Annexations may be initiated by landowner petition, voter petition or by resolution of the governing body of the annexing agency. Most city annexations in Alameda County are City-initiated. In these cases, the annexing city is responsible for preparation of a service plan and environmental documentation as well as public outreach in the affected area. In all cases, the City is responsible for prezoning actions and environmental documentation. Depending on the number of written protests received from landowners and/or registered voters, the Commission orders the annexation, orders the annexation subject to an election or terminates the annexation. Typically, the Commission receives written protests from less than 25 percent of registered voters or landowners and approves the annexation without an election.

Advantages of annexation include control over land use planning and development requirements in these areas, logical boundaries and service efficiencies.

After annexation, property tax, sales tax and most other revenue streams accrue to the annexing city, providing a financing mechanism for service provision to the newly annexed area. However, there are financial and infrastructure disadvantages related to annexation of developed areas. The property tax in lieu of vehicle license fees (i.e., VLF backfill) does not credit the annexing city with the assessed value of properties annexed to the city, although it does credit the annexing city with growth in value subsequent to annexation.[81] State law provides that the taxes, benefit assessments, fees, and charges of an agency apply to newly annexed areas.[82] There are also infrastructure considerations for annexation of developed island areas. Annexation of developed areas may require the annexing agency to install or to rehabilitate water, sewer, street, and sidewalk improvements without development impact fees to finance infrastructure extension. Although water and sewer infrastructure extension may be financed by connection fees and/or supplemental service charges, financing street and sidewalk improvements in such areas would require voter-approved assessments.

The City of Hayward's approach to financing capital improvements in potential developed annexation areas is to require properties outside City boundaries to sign pre-annexation agreements when they connect to the City's water or wastewater system. When the area is annexed, the pre-annexation agreement requires the property owner to make various infrastructure improvements, including street rehabilitation and sidewalk, curb, and gutter installation.[83] The improvements may be financed by formation of a Community Facilities District or directly by the property owner. The approach gives property owners an incentive to support formation of a Community Facilities District in the event of annexation.

Island Annexation Options

Government structure options include annexation of unincorporated island areas. The water service areas for the cities of Pleasanton and Hayward include unincorporated islands surrounded by

[81] Although the League of California Cities has proposed that annexing cities receive full credit for assessed value in annexed territory, the Legislature has not remedied this problem to date. This revenue stream constitutes approximately 10 percent of general fund revenue in the median California city. Annexing cities receive property, sales and other relevant tax revenues

[82] Government Code §57330.

[83] In the event that the City of Hayward considers annexation of Arbutus Court or similar semi-rural areas in the future, the Council would consider relaxing the infrastructure improvement requirements to semi-rural standards.

the respective cities. The City of Livermore also contains islands, but these receive water service from Cal Water.

The City of Hayward's water service area extends into some unincorporated island areas. The City has proposed to annex the islands in the Mt. Eden area. Most of the islands in the Mt. Eden project area are developed. The City plans to provide water service to the annexation area. The City has not yet proposed annexation of the Mohr Drive and Chabot College island areas. The Mohrland Mutual Water Company provides water service to the Mohr Drive island.

The City of Pleasanton provides water service to the developed island areas located in the eastern portion of the City. The City of Pleasanton has also been studying annexation, but has not formally proposed annexation of its islands.

LAFCo has informed the cities that unincorporated islands may be annexed under streamlined procedures. The city and LAFCO must each conduct a public hearing. LAFCO waives protest proceedings, including election, and approves the annexation under the following conditions:

1) the island is less than 150 acres in size;

2) the island is an unincorporated area substantially surrounded by the city boundary or by a combination of the city and County boundaries;

3) the City Council of the annexing city adopts a resolution proposing annexation;

4) the area is substantially developed or developing, as reflected by the availability of public utility services and physical and public improvements;

5) the area is not prime agricultural land; and

6) the area will benefit from the annexation or is receiving benefits from the annexing city.

Advantages of island annexation include control over land use planning and development requirements in these areas, logical boundaries and service efficiencies.

From the perspective of the affected cities, there are financial and infrastructure disadvantages related to annexation of the areas. In addition to considerations for standard annexations, extension of certain taxes to such areas may be vulnerable to legal challenge. The California Attorney General has opined that Prop. 218 voter and landowner approval requirements do not apply to standard annexations.[84]

District Annexation Options

Government structure options also include annexation to special districts. There are potential annexation areas within the SOIs of ACWD, DSRSD and EBMUD.

[84] Opinion No. 99-602, published at 82 Ops. Cal. Atty. Gen. 180.

All three districts have excluded "islands," or in other words areas excluded from district boundaries that are totally surrounded by territory within district boundaries. These "islands" are generally undeveloped or do not require utility services at present.

In addition, there are potential annexation areas along the fringes of ACWD and DSRSD.

The districts generally initiate annexation when adjacent areas within their SOIs need water service.

District annexations may be initiated by landowner petition, voter petition or by resolution of the governing body of the annexing district. If initiated by the district, the annexing district is responsible for preparation of a service plan and environmental documentation. Depending on the number of written protests received from landowners and/or registered voters, the Commission orders the annexation, orders the annexation subject to an election or terminates the annexation. Typically, the Commission receives written protests from less than 25 percent of registered voters or landowners and approves the annexation without an election.

Annexation may be advantageous when it is cost-effective to extend water (or sewer) services to planned or new development within a district's SOI.

CHAPTER 4: WASTEWATER SERVICES

This chapter reviews wastewater services in Alameda County including how these services are provided by the special districts, cities and other providers not under LAFCo jurisdiction. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, and financing constraints and opportunities. Policy analysis—including shared facilities, financing, cost avoidance, rate issues, government structure options, evaluation of management efficiencies, and local accountability and governance—is focused primarily on local agencies under LAFCo jurisdiction.

Wastewater is the water that drains from sinks, showers, washers, and toilets. Wastewater also includes water used for some outdoor purposes, such as draining chlorinated pool water, commercial car washes and industrial processes. Underground sanitary sewer pipelines carry sewage to a wastewater treatment plant, where it is treated, sanitized and discharged.

The chapter focuses on those agencies collecting, treating and disposing wastewater originating in Alameda County. Private septic systems are not the focus, but are included to provide comprehensive coverage of service areas and local policies.

SERVICE OVERVIEW

This section provides an overview of wastewater service providers, service areas and unserved areas where septic systems are used in Alameda County.

SERVICE PROVIDERS

The section provides a brief profile of each wastewater service provider. Table 4-1 provides an overview of the providers and specific services each provides. For a detailed profile of each individual agency, please refer to Appendix A.

Limited Purpose Agencies

Five special districts engaged exclusively in utility services are the Castro Valley Sanitary District, the Dublin San Ramon Services District, the East Bay Municipal Utility District, the Oro Loma Sanitary District, and the Union Sanitary District. There is also a county service area (Livermore-Amador Valley Sewer Study CSA) that is currently not active.

Table 4-1. Wastewater Service Providers

Provider	Collection	Treatment	Disposal
Limited Purpose Agencies			
CVSD	●		
DSRSD	●	●	
EBMUD		●	●
OLSD	●	●	
USD	●	●	
Multipurpose Agencies			
Alameda	●		
Albany	●		
Berkeley	●		
Emeryville	●		
Hayward	●	●	
Livermore	●	●	
Oakland	●		
Piedmont	●		
Pleasanton	●		
San Leandro	●	●	
Castlewood CSA	●		
Other Providers			
EBDA		●	●
LAVWMA			●

The Castro Valley Sanitary District (CVSD) provides wastewater collection services. CVSD's solid waste services are discussed in Chapter 6. Wastewater treatment is provided at the Oro Loma Sanitary District treatment plant in which CVSD has part ownership. The East Bay Dischargers Authority (EBDA) provides wastewater disposal services for the District. Its wastewater service area includes the unincorporated community of Castro Valley. The independent special district was formed in 1939 under the Sanitary District Act of 1923 to provide sewer services to the growing Castro Valley residential community.

The Dublin San Ramon Services District (DSRSD) provides wastewater collection and treatment services. DSRSD's water services are discussed in Chapter 3. The Livermore-Amador Valley Waste Management Authority (LAVWMA) and EBDA provide wastewater disposal services for the District; DSRSD staffs LAVWMA. Its wastewater service area includes the City of Dublin, the portion of Camp Parks Reserve Forces Training Area in Contra Costa County, and the southern portion of the City of San Ramon in Contra Costa County. Although the DSRSD boundary area includes the Dougherty Valley in Contra Costa County, Dougherty Valley is outside DSRSD's wastewater service area.

The East Bay Municipal Utility District (EBMUD) provides wastewater treatment and disposal services, and distributes recycled water for landscaping purposes. The District's water services are discussed in Chapter 3. The cities in the EBMUD service area are responsible for wastewater collection services. The District's wastewater service area in Alameda County includes the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont. In Contra Costa County, EBMUD serves the cities of San Pablo and El Cerrito, parts of Richmond Annex, and the community of Kensington. The independent special district was formed in 1923 under the Municipal Utility District Act to provide water services and subsequently began providing wastewater treatment in 1951.

The Oro Loma Sanitary District (OLSD) provides wastewater collection and treatment services. The District's solid waste services are discussed in Chapter 6. EBDA provides wastewater disposal services. The OLSD wastewater service area includes southern San Leandro (approximately one-third of the City), northern Hayward (approximately five percent of the City), and the unincorporated areas of San Lorenzo, Cherryland, Ashland, and Fairview. The independent special district was formed in 1911 and reorganized under the Sanitary District Act of 1923 to provide sewer and solid waste services in the San Lorenzo community and surrounding areas.

The Union Sanitary District (USD) provides wastewater collection and treatment services. EBDA provides disposal services, and the District and EBDA provide limited disposal of treated effluent to a wetland area. Its wastewater service area includes the developed areas of the cities of Fremont, Newark and Union City. The District was formed in 1918 as an independent special district and reorganized under the Sanitary District Act of 1923 to provide services to areas that are now the cities of Newark and Fremont. Between 1949 and 1962, four other sanitary districts joined USD, adding Union City and portions of Fremont to the District's boundaries.

The Livermore-Amador Valley Sewer Study CSA has been inactive since 1987 and provides no services. The CSA was formed in 1984 under County Service Area Law to finance feasibility and planning studies, including an Environmental Impact Report (EIR), to determine the need for additional sewer capacity and facilities in the Livermore-Amador Valley. The CSA encompasses the unincorporated portions of the Livermore-Amador Valley. The CSA commissioned a feasibility study, which was performed by CH2M Hill and identified six feasible wastewater disposal

alternatives for the Livermore-Amador Valley. An Environmental Impact Report (EIR) was also prepared.

Multipurpose Agencies

There are 12 multipurpose agencies engaged in wastewater services in Alameda County. Three cities provide comprehensive wastewater services. Eight of the multipurpose agencies provide only wastewater collection services. The regional park district provides limited wastewater service through onsite septic systems in several parks.

The City of Hayward provides wastewater treatment, billing and collection services. EBDA provides the disposal of wastewater in the City. The City's wastewater service area includes all of the territory in the City except a small portion along its northern border that is serviced by OLSD.

The City of Livermore provides wastewater treatment, billing and collection services. LAVWMA and EBDA provide the disposal of wastewater in the City. The City's wastewater service area includes all of Livermore except agricultural areas.

The City of San Leandro provides wastewater treatment, billing and collection services. EBDA provides the disposal of wastewater in the City. The City's wastewater service area includes northern and central portions of the City, approximately two-thirds of the City's territory.

The City of Pleasanton provides wastewater collection and billing and contracts with DSRSD for wastewater treatment. LAVWMA and EBDA provide wastewater disposal in the City. The City's wastewater service area includes all of the territory in the City except a small area in a southern portion where the Castlewood CSA provides collection services.

The Castlewood CSA provides wastewater billing and oversight, serving the unincorporated Castlewood community southwest of Pleasanton. The CSA contracts with the City of Pleasanton for sewer collection system maintenance and for conveyance of the wastewater for treatment at DSRSD. LAVWMA and EBDA provide wastewater disposal in the CSA. The CSA's wastewater service area includes an unincorporated area adjacent to the City of Pleasanton's southern boundary.

The cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont operate wastewater collection systems, and rely on EBMUD for wastewater treatment and disposal. All of these cities' service areas are coterminous with their bounds, except Berkeley serves areas outside its bounds as discussed below.

Other Providers

East Bay Dischargers Authority (EBDA) was formed in 1974 as a joint powers authority (JPA).[85] EBDA provides wastewater disposal services to San Leandro, Hayward, Union Sanitary District, Oro Loma and Castro Valley Sanitary Districts. Through a separate agreement, EBDA also provides disposal services to the Livermore-Amador Valley Water Management Agency (LAVWMA).

[85] The five member agencies are the cities of San Leandro and Hayward, Union Sanitary District, and Oro Loma and Castro Valley Sanitary Districts.

LAVWMA is a JPA comprised of the cities of Livermore and Pleasanton and DSRSD. LAVWMA was created in 1974 to transport treated wastewater from its member agencies to the San Francisco Bay. Since 1979, LAVWMA has owned and operated facilities (operated by DSRSD per contract) that convey treated wastewater from the member agencies' treatment plants west to a disposal facility operated by EBDA.

Self Providers

There are as many as 5,000 private onsite septic systems in use countywide. Septic systems are discussed later in this section. However, septic systems are not included in the meaning of public wastewater utilities and are otherwise not the focus of this chapter on wastewater services.

The East Bay Regional Parks District (EBRPD) provides onsite septic systems in the regional parks, but does not provide public wastewater services. The District's septic service areas include several regional parks in both Alameda and Contra Costa counties. Although EBRPD owns and manages Hayward Shoreline Regional Park, USD is responsible for sewer discharge and regulatory requirements related to the man-made marsh at the park used for wastewater reclamation purposes.

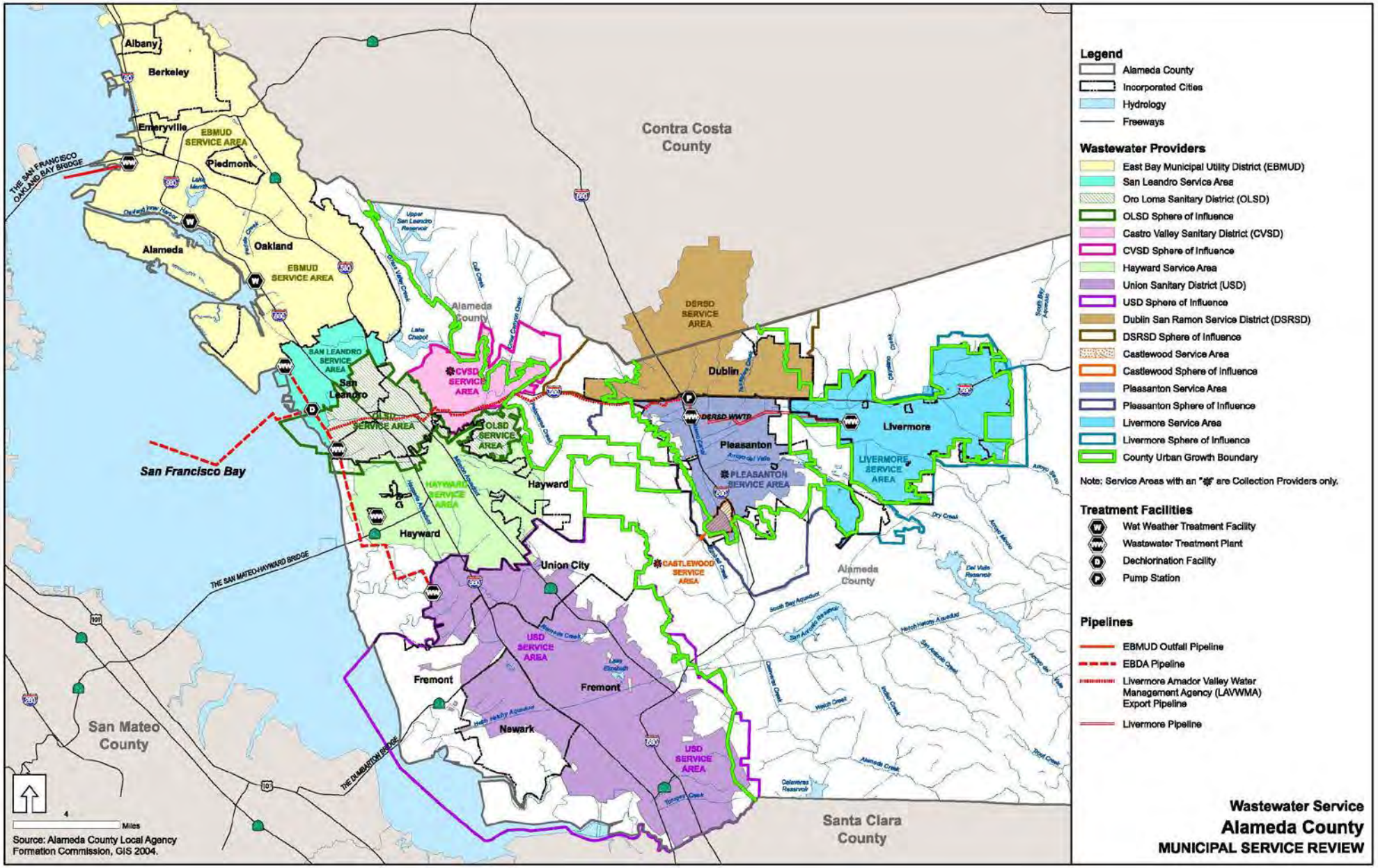
Service Matrix

Wastewater service is handled by at least two service providers in all areas of the County, as shown in Table 4-2. Wastewater is conveyed by collection providers to treatment facilities. The treatment facilities are in some cases directly responsible for discharge, and in other cases discharge the effluent through another entity.

Table 4-2. Wastewater Service Providers by Area, 2005

Area	Collection	Treatment	Disposal
Alameda	Direct	EBMUD	EBMUD
Albany	Direct	EBMUD	EBMUD
Berkeley	Direct	EBMUD	EBMUD
Dublin	DSRSD	DSRSD	LAVWMA & EBDA
Emeryville	Direct & Private	EBMUD	EBMUD
Fremont	USD	USD	EBDA & USD
Hayward	Direct & OLSD	Direct & OLSD	EBDA
Livermore	Direct	Direct	LAVWMA & EBDA
Newark	USD	USD	EBDA & USD
Oakland	Direct	EBMUD	EBMUD
Piedmont	Direct	EBMUD	EBMUD
Pleasanton	Direct	DSRSD & Livermore	LAVWMA & EBDA
San Leandro	Direct & OLSD	Direct & OLSD	EBDA
Union City	USD	USD	EBDA & USD
Castlewood CSA	Pleasanton & Direct	DSRSD	LAVWMA & EBDA
Castro Valley	CVSD	OLSD	EBDA
Cherryland/Ashland	OLSD	OLSD	EBDA
Fairview	OLSD	OLSD	EBDA
San Lorenzo	OLSD	OLSD	EBDA

Figure 4-3. Wastewater Service Map



SERVICE AREA

Wastewater collection service is available in most of the developed areas of the County through the municipal wastewater systems of the providers discussed above, as shown in Figure 4-3. Areas without municipal wastewater service include Sunol, Hayward marsh areas, hill areas in eastern Fremont and Union City, ridge areas between and within Pleasanton and Hayward, canyons north of Castro Valley, and sparsely developed areas in eastern Alameda County.

In some cases, the agencies provide wastewater service outside their boundaries. Agencies are required to seek Commission approval before extending service to territory outside their boundaries.[86]

The following agencies provide wastewater service directly or indirectly outside their boundaries:

- Berkeley to 1,100 perimeter connections in Oakland and Albany;
- Castlewood CSA allows wastewater flows from a small tract south of the CSA to pass through the CSA;
- CVSD to a nursing facility south of bounds, as well as regional park and golf course connections adjacent to Lake Chabot north of bounds;
- DSRSD provides wastewater treatment services to the City of Pleasanton and the Castlewood CSA;
- Hayward to limited portions of adjacent unincorporated territory, including the unincorporated islands west of Hesperian Blvd., a portion of Hayward Hills and several properties north of West A Street,
- Livermore to Ruby Hill subdivision in Pleasanton, adjacent unincorporated areas, LLNL, Sandia National Laboratories and a property on Greenville Road east of city limits.
- OLSD provides treatment services to the Floresta Gardens neighborhood in San Leandro, the Castro Valley Sanitary District and hundreds of parcels along the fringes of Hayward;
- Pleasanton provides wastewater collection system operations and maintenance, and conveyance to treatment facilities by contract to the Castlewood CSA;
- USD inspection and cleaning of large mains to Hayward under a contractual service arrangement.

SEPTIC SYSTEMS

Septic systems are allowed in most areas of the County only if there is no nearby public sewer system. Generally, a public sewer system is considered available if a sewer system or a building connection to a sewer system is within 200 feet of the building, in accordance with Section 713.4 of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials.

[86] California Government Code §56133 authorizes the Commission to approve extra-territorial service in areas expected to be annexed in the future and in cases when there is an existing or impending threat to public health or safety. Agencies are not required to seek Commission approval for out-of-area services extended before 2001. Agencies should consult with the LAFCo Executive Officer to determine if exemptions apply.

The wastewater collection providers were aware of few cases of septic systems within city limits. There are known septic systems in Dublin, Oakland, Livermore, and San Leandro. The cities of Alameda, Albany, Berkeley, Emeryville, and Piedmont reported that there are no septic users within their service areas. OLSD reported septic use as extremely limited. CVSD did not provide specifics on septic use within its jurisdiction.

Septic systems are prohibited outright in the City of Albany and in the unincorporated areas of Happy Valley, Sycamore, Alisal, and the Lomitas Vineyard area. The Alameda County Department of Environmental Health (ACEH) prohibits septic systems in these areas due to special environmental concerns, such as high groundwater levels or compromised groundwater quality. Otherwise, ACEH permits septic systems in areas without public sewers.

Table 4-4. Septic System Areas

Provider	Agency 2005	1990 Census
Alameda	None	83 households
Albany	None	None
Berkeley	None	95 households
Emeryville	None	5 households
Hayward	None within city limits, but portions of adjacent unincorporated territory are on septic systems.	183 households
Livermore	68 septic systems, generally located on outskirts in formerly unincorporated areas.	136 households
Oakland	250 septic systems, mostly in the Oakland Hills.	709 households
Piedmont	None	None
Pleasanton	None in city limits. 15 septic systems in adjacent Castlewood and Remen.	110 households
San Leandro	1904-1906 Williams St., Monarch Bay Golf Course bathroom.	64 households
Unincorporated	There are still septic systems prevalent in some unincorporated islands in Hayward, parts of Zone 7 and areas of heavy agricultural use.	2,570 households
Castlewood CSA	Some parcels use septic tanks.	Not available
CVSD	In unspecified unincorporated areas.	271 households
DSRSD	In eastern Dublin, eight known properties use septic tanks in areas where sewer lines have not yet been extended. One horse ranch in eastern Dublin is on septic by preference.	None
OLSD	Septic use is extremely limited within District bounds.	262 households
USD	NP	309 households

Most septic systems are located in outlying unincorporated areas, as shown in Table 4-4. The 1990 Census found 4,264 households—less than one percent—used septic systems in the County.[87] In unincorporated areas, six percent of households used septic systems. Relatively little septic usage was identified in the cities and in the unincorporated areas of Ashland, Cherryland and San Lorenzo.

[87] More recent data are unavailable. The question was excluded from the 2000 Census. ACEH estimates 3,000-5,000 septic systems are in use countywide, is presently compiling a septic database, and expects to have more complete information for the 2010 MSR round.

Six percent were using septic systems in the Fairview area, and just over one percent in Castro Valley. In the remaining unincorporated areas, 41 percent of households were using septic systems.

Table 4-5. Public Sewer Connection Policies

Alameda	Every property with a house or apartment building must connect if it fronts on a street with a public sewer.
Albany	Every building in which plumbing fixtures are installed and all premises having water discharge piping shall have a connection to the public sewer.
Berkeley	Every house and building shall have an independent connection to a city sewer main in the street or on the city sewer easement on private property.
Emeryville	Every inhabited property must connect to the sewer line if the property abuts a street with a current or planned sewer.
Hayward	Connection to the sewer system is generally required when a property is developed for occupancy, provided that a sewer line is within 200 feet of property line. A 10-year grace period for Mt. Eden annexation area is provided in Hayward Municipal Code §11-3.201.
Livermore	As long as the septic system works properly, there is no requirement to connect to the central system.
Oakland	Properties with septic systems must connect to central system when main is within 200 feet of property line. Certain septic systems are exempt, as they predate this policy.
Piedmont	NP
Pleasanton	New and replacement septic systems require City Council approval. Sewer connections are required of all buildings within 250 feet of a sewer main.
San Leandro	Per Cal. Plumbing Code §713, connection to public sewer is required if within 200 feet of the property.
Unincorporated	All properties within 200 ft. of a sewer line must connect to that line. In the event a sewer connection becomes available through the extension of sewer lines, all properties must connect to the line and abandon their septic system. In the Happy Valley, Sycamore, Alisal and Lomitas Vineyard areas, septic systems are prohibited.
Castlewood CSA	In unincorporated areas, all properties within 200 ft. of a sewer line must connect to that line. In the event a sewer connection becomes available through the extension of sewer lines, all properties must connect to the line and abandon their septic system.
CVSD	In unincorporated areas, all properties within 200 ft. of a sewer line must connect to that line. In the event a sewer connection becomes available through the extension of sewer lines, all properties must connect to the line and abandon their septic system.
DSRSD	Properties with septic systems must connect to central system when main is within 200 feet of property line.
OLSD	In District boundaries, any building on a parcel with a building drain must be connected. In the event a sewer connection becomes available through the extension of sewer lines, all properties with buildings must connect to the line and abandon their septic system.
USD	In unincorporated areas, all properties within 200 ft. of a sewer line must connect to that line. In the event a sewer connection becomes available through the extension of sewer lines, all properties must connect to the line and abandon their septic system.

The wastewater collection providers identified policies regarding the connection of private properties on septic to their sewer systems, as shown in Table 4-5. With the exception of Livermore, the providers require properties to abandon their septic system and connect to the public sewer if it is within a reasonable distance of the property. In Oakland, properties with septic systems that pre-date the City's policy may continue to rely on septic systems.

SERVICE DEMAND

This section provides various indicators of service demand, such as water demand, and projected service demand. Please refer to Chapter 2 for the residential population and job base in each agency, projected population and job growth rates, and a description of growth areas.

DEMAND DRIVERS

Wastewater demand is primarily affected by population and economic growth, water use efficiency, infiltration and inflow, and loading factors.

Many of the water demand drivers discussed in Chapter 3 are also wastewater demand drivers during dry periods. During dry weather, wastewater flows are less than potable water consumed. Water used for outdoor purposes, such as landscape, irrigation, firefighting, street cleaning, and residential car washing, does not flow into the wastewater system.[88]

The increased use of water-efficient plumbing fixtures reduces the amount of wastewater. Ultra-low flush toilets (ULFTs) use only about one-quarter as much water as older models, and the latest versions of these toilets work much better than models made in the early 1990s. Washing machine replacement is also effective in reducing wastewater flows. Conventional top-loading washers discharge about 42 gallons of water per load. New, frontloading washers, although more expensive, discharge only about 26 gallons per load.

Wastewater flow includes not only discharges from residences, businesses, institutions, and industrial establishments, but also infiltration and inflow. Infiltration refers to groundwater that seeps into sewer pipes through cracks, pipe joints and other system leaks. Inflow refers to rainwater that enters the sewer system from sources such as yard and patio drains, roof gutter downspouts, uncapped cleanouts, pond or pool overflow drains, footing drains, cross-connections with storm drains, and even holes in manhole covers.[89] Infiltration and inflow tend to affect older sewer systems to a greater degree and are highest during or right after heavy rain. They are the primary factors driving peak flows through the wastewater system and a major consideration in capacity planning and costs.

Organic loading levels affect the wastewater treatment process. Organic loading originates from toilets and kitchen sink disposals and is the amount of organic matter in the wastewater.

In addition to organic pollutants, wastewater entering a treatment plant may contain metals, nutrients, sediment, bacteria, and viruses. Toxic substances used in the home—motor oil, paint, household cleaners, and pesticides—or substances released by industries also make their way into sanitary sewers. Industries and commercial enterprises may produce high-strength wastewater or wastewater containing pollutants that could upset treatment processes.

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[88] Although some drains in outdoor stairwells and yards connect to the wastewater system, most water used for outdoor purposes flows into the stormwater system. See Chapter 6 for discussion of stormwater services.

[89] A sewer cleanout is a pipe rising from the underground sewer line to the ground surface with a removable cap; it is used to access the sewer line to clear blockages.

SERVICE CONNECTIONS

There were over 450,000 separate sewer connections in Alameda County in 2004, as shown in Table 4-6.[90] Of these, 94 percent are residential; commercial and institutional users account for five percent of sewer connections. Industrial users constitute less than one percent of all accounts.

Table 4-6. Sewer Connections by Type, 2004

	Total	Residential	Commercial-Institutional	Industrial
Countywide	455,435	429,355	22,450	3,630
Alameda	29,945	29,226	674	45
Albany	6,603	6,334	255	14
Berkeley	32,940	30,100	2,740	100
Castlewood CSA	242	240	2	-
Emeryville	3,718	3,217	212	289
Hayward	33,000	29,579	2,231	1,190
Livermore	24,527	23,586	938	3
Oakland	103,024	92,892	9,531	601
Piedmont	3,907	3,818	89	-
Pleasanton	19,689	18,775	910	4
San Leandro	18,500	17,100	1,200	200
CVSD	16,001	15,500	500	1
DSRSD[1]	12,108	11,631	477	-
OLSD	46,172	45,005	1,161	6
USD	105,059	102,352	1,530	1,177

Note:
(1) DSRSD service connections include the southern portion of San Ramon.

USD and Oakland serve the most sewer connections. Commercial and institutional accounts are concentrated in Oakland, Berkeley and Hayward. Industrial accounts are concentrated in Hayward (four percent) and Emeryville (eight percent).

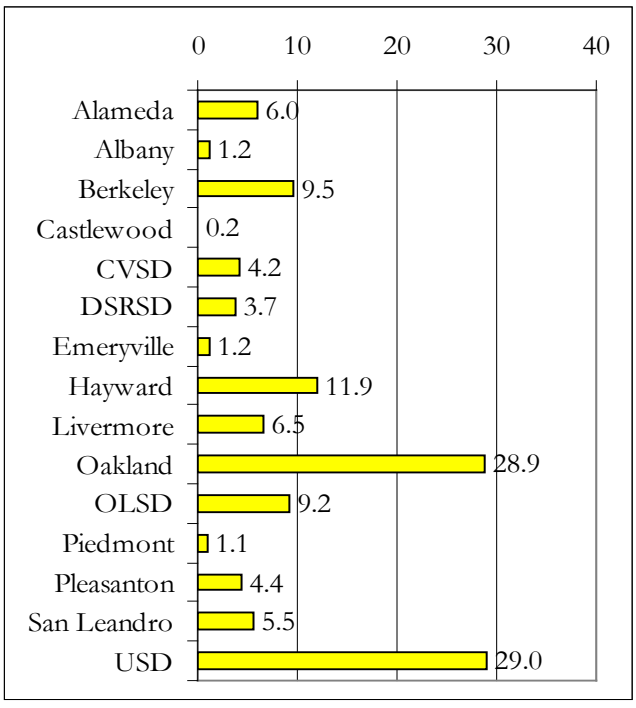
WASTEWATER FLOWS

Alameda County generates 125 million gallons per day (mgd) of wastewater as average dry weather flow (ADWF).

USD and Oakland have the largest average dry flows at 29 mgd each, as shown in Figure 4-7. Hayward, Berkeley and OLSD have moderate average dry weather flows at 12, 10 and 9 mgd, respectively.

San Leandro, Livermore and Alameda flows are approximately six mgd. Average dry weather flows in the Pleasanton and CVSD service areas are about 4 mgd. The smaller service areas—Albany, Emeryville,

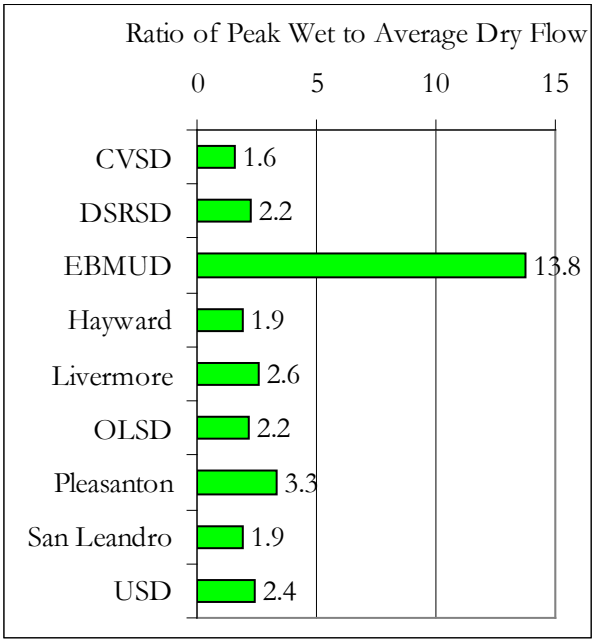
Figure 4-7. Average Dry Weather Flow (mgd), 2004



[90] The source for sewer connections by type is wastewater collection providers' responses to LAFCo information requests. EBMUD is not listed because it does not provide wastewater collection services.

Piedmont, and Castlewood CSA—generate relatively small average flows.

Figure 4-8. Wastewater Peaking Factors



Peak wet weather flows (PWWF) are substantially higher due to infiltration and inflow. The median peaking factor is 2.2, meaning that peak month flow is 2.2 times larger than dry flow for the median collection system.

Peaking factors are the highest in the EBMUD service area, as shown in Figure 4-8. The sewer collection providers in the EBMUD service area—Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont—are under Regional Water Quality Control Board (RWQCB) orders to upgrade their sewer systems to reduce infiltration and inflow. Albany's peaking factor is 18. Peaking factors for the other collection providers in the EBMUD service area were not provided.[91]

After the EBMUD service area, Pleasanton has the second highest peaking factor at 3.3. Livermore and USD have a peaking factor of 2.6 and 2.4. The other wastewater collection providers have peaking factors at or below the median.

PROJECTED SERVICE DEMAND

Wastewater flow will increase over time with population and economic growth. The County's population is projected to grow four percent over the next five years and 13 percent over the next 15 years.

Table 4-9. Current and Buildout Wastewater Flow (mgd)

	Current Flow		Buildout Flow	
Treatment Plant	**ADWF**	**PWWF**	**ADWF**	**PWWF**
Hayward	11.9	21.5	17.2	43.2
Livermore	6.5	17.3	8.1	26.1
San Leandro[1]	5.5	10.7	6.1	11.8
DSRSD	10.2	27.6	15.0	37.0
EBMUD[1]	80.0	1,100.0	88.3	NP
OLSD[1]	14.3	26.4	15.4	28.4
USD[1]	29.0	42.9	32.7	48.3

Note:
(1) Projected flow was calculated from population growth rate.

Generally, the EPA and RWQCB encourage wastewater treatment providers using 75 percent or more of capacity to review development plans and to plan capacity upgrades.

As shown in Table 4-9, projected growth in the DSRSD sewer treatment service area is the most rapid among the wastewater treatment providers. The population is projected to grow by 32 percent over the next 15 years. DSRSD projects that dry weather flow at

[91] Flows from each of the collection providers into EBMUD interceptors are not metered. The Albany estimate is based on a monitoring study conducted for infiltration and inflow.

buildout will be 15 mgd, 50 percent higher than current flow. DSRSD growth projections indicate that treatment capacity may require expansion in the future. Peak flows exceed treatment capacity and are stored for subsequent discharge. DSRSD plans to expand storage capacity by 2010 at its treatment plant in Pleasanton to accommodate peak flows.

The Livermore population is projected to grow by 23 percent over the next 15 years. Livermore expects dry weather wastewater flow to grow by 47 percent through buildout, and peak wet weather flow to grow by 17 percent. The Livermore treatment plant is using 76 percent of capacity during dry weather flows, and lacks adequate capacity for its peak wet weather flows. Peak flows exceed treatment capacity and are stored for subsequent discharge. Livermore voters approved in November 2005 a plan to expand pipeline and disposal capacity to accommodate peak flows.

The population in the USD service area is projected to grow by 13 percent over the next 15 years. Average dry weather flows use 88 percent of its current treatment capacity. Peak flows exceed treatment capacity and are stored for subsequent discharge. USD plans to expand storage capacity to accommodate peak flows.

Population growth in the EBMUD, Hayward and San Leandro service areas is projected at 10 percent over the next 15 years. EBMUD and San Leandro have adequate dry weather capacity to accommodate projected growth; Hayward will need to expand capacity in the future to accommodate projected growth. EBMUD has substantial excess treatment and disposal capacity. Projected growth will not eliminate the excess capacity.

Population growth in the OLSD treatment service area is projected at seven percent over the next 15 years. OLSD dry weather flows are using most of existing capacity. OLSD is restoring treatment capacity (from 15) to 20 mgd. The capacity restoration will accommodate projected growth in dry weather demand.

Demand Management Strategies

Demand management strategies include sewer infiltration and inflow control, industrial pretreatment and recycling, and water conservation.

Service providers can reduce infiltration and inflow with capital improvements, such as pipeline rehabilitation, manhole cover replacement, and root eradication. They can also address sources on private property, such as broken service lines, uncapped cleanouts and exterior drains, through public education, incentives and regulatory strategies.

Communities use various techniques to prohibit discharge of unwanted pollutants or to reduce the quantity and strength of wastewater discharged to sewers. These techniques include 1) permit limitations on the strength and contaminant levels of industrial and commercial wastewater; 2) increased rates or surcharges on high-strength wastes; and 3) incentives or requirements for water recycling and reuse within the industrial or commercial operation.

Water conservation measures are effective for reducing average wastewater flows, but have less impact on peak flows, which are usually strongly influenced by infiltration and inflow contributions. Water conservation has little or no impact on organic loading to the treatment plant.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

In the context of wastewater service, infrastructure needs signify facilities that do not provide adequate capacity to accommodate current or projected demand for service for the region as a whole or for specific areas within the County.

REGIONAL FACILITIES

Regional wastewater facilities include treatment facilities, outfalls and major export pipelines. As shown in Table 4-10, the regional facilities are in fair to excellent condition.

The principal regional wastewater infrastructure needs involve treatment and disposal capacity. To the extent that service needs increase as the population grows, there will be an increased need for treatment and disposal services.

Table 4-10. Regional Wastewater Facilities

Operator	Facility	Capacity	Condition	Year Built
EBDA	EBDA Marina Dechlorination Facility	189.1 mgd	Good	1978
EBDA	EBDA Joint Outfall	189.1 mgd	Good	1978
LAVWMA	LAVWMA Export Pipeline (New)	20.2 mgd	Excellent	2004
LAVWMA	LAVWMA Export Pipeline (Old)	21 mgd	Good	1979
DSRSD	Wastewater Treatment Plant	17 mgd	Excellent	2003
EBMUD	EBMUD Main WWTP	320 mgd	Fair	1950s
EBMUD	San Antonio Creek Wet Weather Facility	51 mgd	Good	1997
EBMUD	Oakport Wet Weather Facility	158 mgd	Good	1988
EBMUD	Point Isabel Wet Weather Facility	100 mgd	Good	1993
OLSD	Oro Loma WWTP	15 mgd [1]	Fair	1969
USD	Alvarado WWTP	33 mgd	Good	1981
Hayward	Hayward WPCF	16.5 mgd	Fair	1954
Livermore	Livermore Water Reclamation Plant	8.5 mgd	Fair	1958
San Leandro	San Leandro WPCP	7.9 mgd	Fair	1939

Note:
(1) Permitted treatment is 15 mgd ADWF. By 2008, the plant will be restored to its 20 mgd design capacity.

EBDA

EBDA was formed in 1974 as a joint powers authority. The five member agencies are the cities of San Leandro and Hayward, Union Sanitary District, and Oro Loma and Castro Valley Sanitary Districts. Each member agency is allowed to discharge to the EBDA system an amount of wastewater based on its capacity allocation.

The Joint Outfall was built in 1978 and has a design capacity of 189.1 mgd. At the Marina Dechlorination Facility, located near the San Leandro Marina, the flows from all EBDA and LAVWMA facilities are combined and dechlorinated using sodium bisulfite solution. The combined effluent flows approximately seven miles through the outfall pipeline into the Bay. The last 2,000

feet of the outfall is a diffuser section designed to ensure maximum dilution and mixing with Bay waters.

EBDA is conducting an electrical engineering audit and plans upgrades in its monitoring equipment at the San Leandro pump station to determine whether power irregularities have internal or external (PG&E) origins and to ensure optimum performance in the future.

LAVWMA

LAVWMA is a JPA comprised of the cities of Livermore and Pleasanton and DSRSD. LAVWMA was created in 1974 to transport treated wastewater from its member agencies to the San Francisco Bay. Key infrastructure includes the 16-mile export pipeline, dechlorination facility, and wet weather outfall. In addition, LAVWMA owns a pump station in Pleasanton, which receives wastewater from DSRSD and Livermore treatment facilities via gravity.

Current design capacity for the system is 21 million gallons a day (mgd) of treated wastewater. The wastewater is conveyed via a new 16-mile pipeline from Pleasanton to San Leandro and enters the East Bay Dischargers Authority (EBDA) system for dechlorination and discharge through a deepwater outfall to the San Francisco Bay.

The LAVWMA effluent is discharged through the EBDA Marina Dechlorination Facility and the Joint Outfall. At the Marina Dechlorination Facility, the flows from all EBDA and LAVWMA facilities are combined and dechlorinated using sodium bisulfite solution. The combined effluent flows approximately seven miles through the outfall pipeline into the Bay. The last 2,000 feet of the outfall is a diffuser section designed to ensure maximum dilution and mixing with Bay waters. Currently, LAVWMA is permitted to discharge up to 19.72 mgd through the EBDA system. Pursuant to a 1998 agreement between EBDA and LAVWMA, LAVWMA may discharge up to 41.2 mgd subject to availability. During dry weather, LAVWMA is expected to able to discharge all of its flow, with the ability to use up to 41.2 mgd, as the combined flow of LAVWMA and EBDA agencies should be well below the EBDA outfall capacity of 189.1 mgd, according to EBDA.

During wet weather, the EBDA agencies may require all of their capacity and LAVWMA will be required to store flows or temporarily discharge to San Lorenzo Creek. LAVWMA has a separate NPDES permit issued by the RWQCB, which allows discharge of up to 21.5 mgd of dechlorinated effluent into the San Lorenzo Creek. According to the NPDES permit, discharge into the creek is not expected to occur more than once every four to five years.

LAVWMA's old pipeline lacked adequate peak wet weather flow capacity, with 30 mg of effluent overflowing during El Nino (1998) rainfall. Pipeline reconstruction was completed in 2005.

DSRSD

The DSRSD Treatment Plant has a design capacity of 17 mgd (secondary) and 3 mgd for recycled water. Average dry weather flow is 10.2 mgd and peak wet weather flow is 32 mgd. The facility provides secondary treatment for its average dry weather flow. Secondary treatment consists of grinding and screening, grit removal, primary clarification, activated sludge, secondary clarification and disinfection. Most of the treated effluent is transported to the LAVWMA and EBDA systems for dechlorination and disposal. The remaining effluent (up to 3.5 mgd) receives tertiary treatment; the recycled water is used for landscape irrigation. A new recycled water treatment facility with a capacity of 9.7 mgd is near completion; the new facility processes include influent pumping,

chemical addition, sand infiltration, ultraviolet disinfection, and recycled water pumping. Sludge is anaerobically digested, stabilized and stored in facultative lagoons, and is disposed at a District-owned site.

As a member of LAVWMA, the District has 12.3 mgd in disposal capacity rights (of a total 21 mgd capacity). With the recent completion of the LAVWMA pipeline repair project, the District's disposal capacity is 28.8 mgd.

Peak wet weather flows exceeded capacity during the 1998 El Nino storm events. The District has expanded wet weather treatment capacity to 60.7 mgd to service new developments in eastern Dublin. Disposal capacity is inadequate for peak wet weather flow, but DSRSD disposal capacity has been expanded through the LAVWMA project to 28.8 mgd (including Pleasanton). If DSRSD expands recycled water use, peak flows will be accommodated through 2023.

EBMUD

The EBMUD Wastewater Treatment Plant (WWTP) has a design capacity of 168 mgd for secondary treatment and can provide partial treatment for up to 325 mgd of wet weather flows. The plant treats an average flow of 80 mgd and peak wet weather flow of 194 mgd. The facility provides secondary treatment for its average dry weather flow. Treatment consists of odor control, grit removal, primary clarification, activated sludge, secondary clarification, disinfection, and dechlorination. The treated effluent is discharged through a submerged diffuser adjacent to the San Francisco-Oakland Bay Bridge more than one mile offshore at a depth of 45 feet. Sludge is anaerobically digested, dewatered and reused as land application or alternative daily cover at a landfill.

The District has three wet weather treatment facilities to provide wet weather storage and blending of primary and secondary effluent during wet weather periods when the secondary treatment capacity at the main plant is exceeded. The facilities were used on six days in FY 2003-04.

- The San Antonio Creek wet weather facility treats overflow diverted from an interceptor in the central portion of the service area. This facility has a design capacity of 51 mgd. The treated effluent is discharged into Oakland Inner Harbor.
- The Oakport wet weather facility treats overflow diverted from an interceptor in the southern portion of the service area. This facility has a design capacity of 158 mgd. The treated effluent is discharged into East Creek Slough.
- The Point Isabel wet weather facility treats overflow diverted from an interceptor in the northern portion of the service area. This facility has a design capacity of 100 mgd. The treated effluent is discharged into the Bay through a submerged diffuser 300 feet offshore at a depth of eight feet.

The WWTP needs seismic improvements which the District is addressing with planned system upgrades; a portion of the seismic upgrades have been completed and EBMUD anticipates completion of the improvements by 2010. The WWTP needs replacement of its dewatering centrifuges, rehabilitation of digesters and concrete at basins and channels, as well as rehabilitation of 16 sedimentation tanks. The wet weather facilities require repairs to address corrosion. The District is currently upgrading the San Antonio Creek facility to control odors. EBMUD plans to study by 2009 the feasibility of providing alternative treatment technologies at its wet weather facilities, increased storage and transport capacity for peak wet weather flows, and additional inflow and infiltration improvements within communities.

OLSD

The Oro Loma Wastewater Treatment Plant has an original design capacity of 20 mgd. The secondary treatment process can reliably treat 15 mgd at Clean Water Act standards, and is currently permitted to treat 15 mgd in average dry weather flow. OLSD is restoring the plant to its 20 mgd design capacity, and anticipates completion by 2008.

OLSD owns 75 percent of the facility; CVSD owns the remainder. Average dry weather flow is 14 to 15 mgd and peak wet weather flow exceeds current treatment capacity. The facility provides secondary treatment for its average dry weather flow. Treatment consists of screening, grit removal, primary sedimentation, activated sludge, secondary clarification, and chlorination. In wet weather conditions, the plant is designed to allow excess flows to be diverted around the secondary treatment process. Treated effluent is transported to the EBDA system for dechlorination and disposal. Sludge is anaerobically digested, dewatered using a belt filter press, dried in open drying beds, and disposed at an authorized site.

As a member of EBDA, the District has disposal capacity rights to 69.2 mgd at the EBDA Marina Dechlorination Facility and the Joint Outfall.

Average dry weather flows use 95 percent of current treatment capacity. The District is currently restoring the treatment plant capacity to 20 mgd consistent with current treatment regulations.

USD

The Alvarado Wastewater Treatment Plant has a design capacity of 33 mgd. Average dry weather flow is 29 mgd and peak wet weather flow is projected to be 95 mgd, although the highest recorded flow to date is 69.7 mgd. The facility provides secondary treatment for its average dry weather flow. Treatment consists of screening, primary sedimentation, activated sludge, secondary clarification, and chlorination. Treated effluent is transported to the EBDA system for dechlorination and disposal. Sludge is anaerobically digested, dewatered using centrifuges, and disposed at an authorized disposal site. Approximately three mgd of reclaimed wastewater from the plant is delivered to the Hayward Marsh, operated by East Bay Regional Parks District.

During wet weather, USD is authorized to discharge treated, dechlorinated effluent to Old Alameda Creek when flow exceeds the capacity of the EBDA pipeline.[92] USD has expanded its storage basin capacity and is considering a recycled water facility to reduce the frequency that it will need to use its wet weather outfall in the future.

As a member of EBDA, the District has capacity rights to 42.9 mgd at the EBDA Marina Dechlorination Facility and the Joint Outfall.

The plant needs increased storage basin capacity for its wet weather flow as well as expansion of secondary clarifiers and sludge digestion facilities. Average dry weather flows use 88 percent of current treatment capacity; projected population growth in the service area will absorb remaining capacity within the next 15 years. The EPA and RWQCB recommend that once a wastewater

[92] USD last discharged wet weather flows to Alameda Creek due to El Niño conditions in 1998. The RWQCB anticipates infrequent wet weather discharges in the future (approximately once every 10 years).

agency is using 75 percent or more of its capacity, it should review development plans in its service area and establish a schedule for necessary plant expansion and/or upgrades.

Hayward

The Hayward treatment plant has a design capacity of 16.5 mgd. Average dry weather flow in 2004 was 11.9 mgd and peak wet weather flow was 21.5 mgd. The facility provides secondary treatment for its average dry weather flow. Treatment consists of grit removal, primary sedimentation, flow equalization, trickling filter, fluid bed reactors, secondary clarification, and chlorination. Treated effluent is transported to the EBDA system for dechlorination and disposal. The City has 240 acres of out-of-service oxidation ponds which can be used for emergency storage of effluent. Sludge is anaerobically digested, air dried, and either used as vegetation cover at an onsite closed landfill or disposed at an authorized site.

As one of five members in EBDA, the City has capacity rights to 35 mgd (of a total 189.1 mgd capacity) at the EBDA Marina Dechlorination Facility and the Joint Outfall.

The plant's treatment reliability and unit process redundancy are being enhanced through major capital improvements scheduled for completion in 2008. To prevent sewer discharge requirements from being exceeded, the City needs to enclose its open effluent channels, which is currently planned after completion of the City's current plant improvement project.

Livermore

The Livermore Water Reclamation Plant has a design capacity of 8.5 mgd (secondary). Average dry weather flow is 6.3 mgd and peak wet weather flow is 16.7 mgd. The facility provides secondary treatment for its average dry weather flow. Treatment consists of grit removal, primary clarification, secondary clarification, and disinfection. Most (approximately 93 percent) of treated effluent is transported to the LAVWMA and EBDA systems for dechlorination and disposal. The remaining effluent (seven percent) receives tertiary treatment; the recycled water is used for golf course irrigation and landscape irrigation at the Livermore Airport. Sludge is anaerobically digested and dewatered using belt filter presses, and is used as alternative landfill cover.

As a member of LAVWMA, the City has 8.7 mgd in disposal capacity rights (of a total 21 mgd capacity).

Wastewater disposal and storage capacity is inadequate to accommodate peak wet weather flow (11 mgd during the 1998 El Nino season) and future growth (9.5 mgd dry flow at build-out). Now that city voters approved participation in LAVWMA expansion in November 2005, the City disposal capacity will be expanded from 8.7 to 12.4 mgd. A new pumping station and interceptor improvements will be required by 2008 to increase interceptor capacity to 12.4 mgd. Peak storage capacity (currently 16.25 mg) is inadequate, but will be enhanced since voters approved the LAVWMA expansion alternative.

San Leandro

The San Leandro Water Pollution Control Plant (WPCP) has a ADWF design capacity of 7.9 mgd and PWWF design capacity of 22.3. Average dry weather flow is 5.5 mgd and peak wet weather flow is 10.7 mgd. The facility provides secondary treatment for its average dry weather flow. Treatment consists of grinding, primary sedimentation, trickling filter, activated sludge,

secondary clarification, and chlorination. Treated effluent is transported to the EBDA system for dechlorination and disposal. Sludge is anaerobically digested, dewatered using a belt filter press, dried in open drying beds, and disposed at an authorized disposal site.

As one of five members in EBDA, the City has disposal capacity rights to 22.3 mgd at the EBDA Marina Dechlorination Facility and the Joint Outfall.

The San Leandro WPCP needs various improvements, including expansion, motor control center replacements, and peak wet weather flow capacity. A recent engineering stress test has been conducted, and related capital improvements are being prioritized for implementation over a 10-year period. Key operational processes at the WPCP are remotely monitored using Supervisory Control and Data Acquisition (SCADA) technology, alerting management to any flow or process irregularities on a 24-hour basis.

COLLECTION SYSTEMS

Table 4-11. Collection Infrastructure

Provider	Pump Stations	Pipe Miles
Alameda	32	220
Albany	0	35
Berkeley	6	400
Castlewood CSA	1	5
CVSD	8	150
DSRSD	2	172
Emeryville	1	15
Hayward	8	375
Livermore	2	280
Oakland	7	1,300
OLSD	14	300
Piedmont	NP	50
Pleasanton	10	239
San Leandro	13	125
USD	3	764

The wastewater collection service providers maintain and extend sewer pipes and pump stations to convey wastewater to treatment facilities. Table 4-11 identifies the number of pump stations and sewer pipe miles for each agency.

The following collection system infrastructure needs and deficiencies were identified:

- The City of Alameda needs rehabilitation of various segments of its deteriorating sanitary sewer throughout the City. Complete rehabilitation is needed to eliminate all instances of infiltration and inflow, according to the City. Alameda also plans to upgrade and retrofit its sewer pump stations.
- Albany has replaced over half of its system, but the remaining portions are old, fragile, and largely in need of replacement. In the coming years, the City plans to construct a bypass sewer on Clay Street and to rehabilitate (slip-line) several backyard sewer lines and much of the system in Albany Hill.
- Although 50 percent of Berkeley's sewer system has been replaced in the last 20 years, upgrade and rehabilitation of the remainder is required. The City has implemented an ongoing infiltration and inflow program in an effort to reduce peak flows and related capacity needs, and has met compliance requirements. Nevertheless, wet weather peak flows during heavy rain events remain very high. Aged private laterals in poor condition contribute a very significant portion of the infiltration and inflow.
- The five miles of sewer lines in the Castlewood CSA were reconstructed in 1997 and are in good working order. No infrastructure needs or deficiencies were identified by the CSA.

- Most of the CVSD sewer lines were built in the 1950s and 1960s. The District's collection system is subject to infiltration and inflow. CVSD needs to invest in the improvement and upgrade of sewer lines where there are structural or capacity deficiencies.
- For DSRSD, the most pressing needs are sewer capacity enhancements and replacement of older pipelines. Infiltration and inflow is a concern throughout the LAVWMA service area due to limited wet weather disposal capacity. Infiltration rates are highest in San Ramon and central Dublin east of I-680.
- Deteriorated Emeryville sewer mains require replacement or rehabilitation to reduce infiltration of rainwater into the sewage system. There is one overflow location identified by RWQCB as a high threat; the City has made required repairs and there have been no subsequent overflows. Other capital improvement priorities include rehabilitation of main lines and a force main on Powell Street and renovation of a 30-year-old lift station.
- Hayward needs various capacity enhancements and a computerized maintenance management system.
- Livermore capital improvement needs include elimination of hydraulic bottlenecks and increased pumping station and pipeline capacity. New systems are needed to accommodate growth in the northeastern portion of the City and north of I-580 in the vicinity of Portola. New Downtown development requires the upsizing or replacing of sewer mains. The 2004 Master Plan recommends that permanent flow monitors be installed.
- Oakland's sewer system dates to the late 1800s. Old, defective sewer lines cause infiltration and inflow of rain water into the sewage system; these lines need replacement. There is one overflow location identified by RWQCB as a high threat; the City plans to remedy the problem. In FY 2004-05, the City borrowed $62 million and increased sewer service charges to finance related capital improvements.
- OLSD needs various pipeline replacement projects. The District plans to spend approximately $20 million over the next five years rehabilitating and replacing portions of its collection system.
- Piedmont has rehabilitated 17 miles of its collection system. The remaining 30 miles have marginal sub-basins and have aged 20 years since the original RWQCB order. Piedmont's 60-year-old sewer mains and feeder lines are made of vitreous clay, as are many older sewer pipes. The old pipes have cracked and the joints have become loose or sections have been separated by tree roots or ground movement. Piedmont is replacing marginal sewer mains gradually, with the project expected to be completed by 2008.
- Pleasanton's needs include replacement of various sewer mains and trunk lines, pump maintenance, and the installation of a new pump station to receive flows from the East Amador sewer.
- Most of San Leandro's sewers are between 30 and 80 years old. Structural defects identified by closed circuit television (CCTV) inspection involve cracks primarily; another common defect is root intrusion. Wet weather infiltration is a service challenge, particularly north of San Leandro Creek and in areas close to the Bay.
- USD has several deficient sections of trunk sewer in need of replacement or rehabilitation. The District is building a lift station at Stevenson Blvd. to replace an old, deficient lift station.

OPPORTUNITIES FOR SHARED FACILITIES

Municipal wastewater providers practice extensive facility sharing.

- EBMUD and the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont are members of the East Bay Communities JPA. The JPA lead agency is EBMUD. The JPA has conducted infiltration and inflow studies to identify problems and plan for needed capital improvements.
- USD, OLSD, CVSD, Hayward, and San Leandro share a wastewater outfall and dechlorination facility through participation in EBDA.
- DSRSD, Livermore and Pleasanton share a wastewater conveyance pipeline through participation in LAVWMA. DSRSD operates and maintains the LAVWMA effluent export pipeline by contract. LAVWMA contracts with EBDA for disposal services.
- OLSD and CVSD jointly own a wastewater treatment plant.
- OLSD provides treatment services to the Floresta Gardens neighborhood in San Leandro under a contractual service arrangement.
- DSRSD provides treatment services to the City of Pleasanton by contract.
- Pleasanton conveys Castlewood CSA wastewater to the DSRSD treatment plant by contract.
- USD provides cleaning and inspection of large collection pipes by contract to Hayward. USD and DSRSD formed a JPA to finance improvements. USD makes available its safety training center to local fire departments and other agencies.
- By contract, San Leandro, Hayward, OLSD and USD provide operation and maintenance services to EBDA.
- By contract, EBMUD provides laboratory analytical services to EBDA and its member agencies.
- San Leandro supplies recycled water to EBMUD for distribution to irrigation accounts.
- DSRSD and EBMUD work collectively through a JPA to develop the infrastructure to supply recycled water to central Dublin, south San Ramon and Dougherty Valley.

There are additional opportunities for sharing facilities in the future. USD and ACWD are conducting feasibility studies of joint water recycling projects. EBMUD has excess capacity at its Main WWTP, and is open to exploring opportunities to provide contract treatment services to other agencies, such as San Leandro. San Leandro evaluated and rejected this option in 2002 because it was not found to be cost-effective. This option may be re-evaluated in the future by EBMUD and neighboring agencies. EBMUD encouraged LAFCo to evaluate contract treatment service options during the next MSR cycle in FY 2010-11.

EBMUD is also studying the feasibility of providing stormwater (i.e., dry weather runoff and "first flush") treatment services with this excess capacity.

SERVICE STANDARDS AND ADEQUACY

To assess infrastructure deficiencies and needs, it is necessary to analyze the adequacy of the facilities and related services in meeting the needs of the populace. Adequacy can be gauged by various factors including regulatory compliance, sewer overflows, treatment effectiveness, collection system integrity, response times, and source control programs.

Regulatory Overview

In 1972, the U.S. Congress passed the Federal Water Control Pollution Act. Referred to as the Clean Water Act, the law established water quality standards to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The law included the mandate for a permit system known as the National Pollutant Discharge Elimination System (NPDES) to regulate the discharge of pollutants into surface waters. The Clean Water Act authorized the EPA to set water quality standards for all contaminants in surface waters. The standards specify maximum contaminant levels (MCLs) for treated wastewater prior to discharge.

That same year, the California Legislature amended the Porter-Cologne Water Quality Control Act of 1969 to allow the State Water Resources Control Board (SWRCB) to assume the responsibilities prescribed in the Clean Water Act. This signified that SWRCB and its nine regional control boards would regulate federal and state water quality standards, as well as operate the federal permit process for discharging pollutants into open waters. NPDES permits establish specific discharge limits, and monitoring and reporting requirements, and may also require facilities to undertake special measures to protect the environment from harmful pollutants.

The Clean Water Act requires that all point source wastewater dischargers obtain and comply with an NPDES permit. NPDES permits regulate discharges from publicly-owned wastewater treatment facilities, other wastewater treatment facilities, industrial facilities, concentrated animal feeding operations, aquiculture, and other "point source" dischargers.

Legislation (A.B. 885) was passed in 2000 requiring SWRCB to adopt regulations for the permitting and operation of septic systems. It stipulates that each regional water quality control board must incorporate SWRCB regulations or standards into the appropriate regional water quality control plans. SWRCB released proposed septic regulations in April 2005 for public comment. The implementation of these regulations would require all septic systems statewide to meet equal permitting and operation standards. The proposed regulations include required system inspections, restrictions on septic systems within proximity to impaired water bodies, and development of performance standards and enforcement actions. The regulations were reviewed at public hearings held in July 2005. Regional water quality control boards are expected to adopt the regulations in 2005. Alameda County is considering new requirements for use of advanced rather than standard septic systems, along with related fee increases; however, the Board of Supervisors has not adopted these new requirements at the time this report was prepared.

The State Water Resources Control Board adopted new policies in December 2004 requiring wastewater collection providers to report sanitary sewer overflows and to prepare and implement Sewer System Management Plans (SSMPs).[93] SSMP requirements are modeled on proposed federal

[93] State Water Resources Control Board, Resolution Number 2004-0080.

capacity, management, operations, and maintenance (CMOM) plans. The SSMP policy requires dischargers to provide adequate capacity in the sewer collection system, take feasible steps to stop sewer overflows, identify and prioritize system deficiencies, and develop a plan for disposal of grease, among other requirements. In addition, wastewater providers must now report sanitary sewer overflows greater than 100 gallons to the RWQCB, must keep internal records of overflows of less than 100 gallons, and must produce an annual report on overflows. Overflows from laterals on private property, if caused by an owner, are not required to be reported. Wastewater collection providers in Alameda County have already begun reporting overflows under the new requirements and are expected to complete SSMPs by August 2008, as required.

Regulatory Compliance Status

RWQCB enforces the Clean Water Act, NPDES permit conditions and other requirements of wastewater providers. The Board may levy fines or order the provider to take specific actions to comply with water quality regulations. The Board posts online actions it has taken since 1999. Two-thirds of the wastewater providers in Alameda County were fined or ordered to take corrective action between 1999 and 2005, as shown in Table 4-12.

The cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont have been ordered to remedy excessive infiltration and inflow into their collection systems. Piedmont has completed the corrective actions outlined in the order. Albany reported that it has been upgrading its system and had no overflows in the last three years. The Board has ordered Oakland on several occasions to make capital improvements to eliminate overflow discharges. Oakland has recently financed its sewer collection system improvement program with bonded indebtedness.

After exceeding effluent limitations from 1999 to 2002, the Board ordered OLSD and CVSD to expand wastewater treatment capacity by 2007. Average dry weather flows use 99 percent of current treatment capacity. OLSD and CVSD are restoring capacity from 15 mgd to 20 mgd.

DSRSD and Livermore have been penalized for exceeding effluent limitations in recent years.

EBMUD has been issued a tentative order to conduct feasibility studies of upgrading wet weather facilities' treatment technologies, expansion of storage capacity for wet weather flows, and inflow improvements by the communities.

Table 4-12. Regulatory Compliance Record

Alameda	The City is under an RWQCB order to upgrade its sewer system to eliminate infiltration and inflow. The City is scheduled to complete its infiltration and inflow compliance program in 2006, but anticipates future sewer deficiencies.
Albany	The City is under an RWQCB order to upgrade its sewer system to eliminate infiltration and inflow.
Berkeley	The City is under an RWQCB order to upgrade its sewer system to eliminate infiltration and inflow.
Castlewood CSA	Compliant
CVSD	TSO imposed in 2003 requires restoration of treatment plant capacity to 20 mgd. TSO resulted from the plant's 33 effluent exceedances from 1999 to mid-2002 (not permit violations because EBDA outfall is the compliance point).
DSRSD	Penalized for exceeding effluent limitations on four occasions in 2002. Exceedances were due to higher than allowed settleability levels due to increased construction activities.
EBMUD	Tentative TSO requires EBMUD to complete by 2009 feasibility studies of upgrading wet weather facilities' treatment technologies, expansion of storage capacity for wet weather flows, and inflow improvements by the communities.
Emeryville	The City is under an RWQCB order to upgrade its sewer system to eliminate infiltration and inflow.
Hayward	Compliant
Livermore	Penalized for exceeding cyanide limitations on five occasions in 2000. The City believes the cyanide was a chlorination by-product that is generally removed during dechlorination, and that the sampling point was at the wrong point in the treatment
Oakland	RWQCB orders issued in 1986, 1993 and 2004 require the City to make sewer improvements to eliminate discharges due to overflows and bypasses during wet weather.
OLSD	TSO imposed in 2003 requires restoration of treatment plant capacity to 20 mgd. TSO resulted from the plant's 33 effluent exceedances from 1999 to mid-2002 (not permit violations because EBDA outfall is the compliance point).
Piedmont	The City is under an RWQCB order to upgrade its sewer system to eliminate infiltration and inflow. Piedmont completed its infiltration and inflow program in 2004.
Pleasanton	Compliant
San Leandro	Compliant
USD	Compliant
EBDA	TSO imposed in 2003 to EBDA, OLSD and CVSD for capacity restoration project.
LAVWMA	Compliant

Treatment Effectiveness

Wastewater treatment providers are required to comply with effluent quality standards under the NPDES permit. The providers were asked how many days in 2004 they were out of compliance with effluent quality requirements.

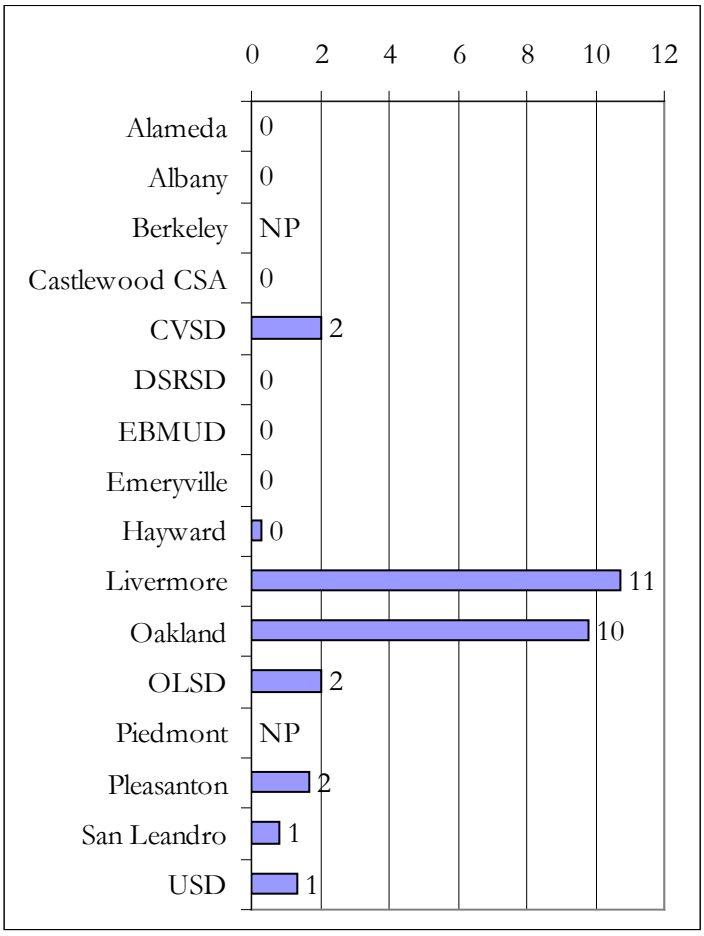
The American Water Works Association (AWWA) conducts an annual benchmarking study, called QualServe, of water and wastewater performance indicators on behalf of subscribers. This measure is included in the benchmarking study. QualServe 2003 subscribers had a median treatment effectiveness rate of 99.5 percent, meaning that treatment did not meet requirements on two of 365 days.

DSRSD and OLSD reported effectiveness rates of 99.5 percent. EBMUD and Livermore reported 100 percent compliance. San Leandro and USD reported 100 percent compliance, but indicated that the point of compliance in the NPDES permit is located at the EBDA outfall rather than at the point of discharge from the WWTP. Because EBDA blends wastewater from the various providers before discharge, the probability of exceedances is much lower than the probability of individual treatment plants exceeding MCL standards.

Sewer Overflows

Sewer overflows are discharges from sewer pipes, pumps and manholes. Reduction, if not prevention, of the size and number of sewer overflows is the key objective of new SWRCB policy.[94].

Figure 4-13. Sewer Overflow Rate, 2004



The agencies were asked to report the number of overflows in 2004 related to limitations or problems with the collection system under the control of the agency, and to exclude overflows caused by limitations/problems with customer-controlled piping/facilities. Thus defined, overflows reflect the capacity and condition of collection system piping and the effectiveness of routine maintenance. The sewer overflow rate is calculated as the number of overflows per 100 miles of collection piping. Overflow rates are displayed in Figure 4-13.

The median provider in Alameda County and in the 2003 QualServe survey had an overflow rate of less than one. Six of the providers—Alameda, Albany, Castlewood CSA, DSRSD, EBMUD, and Emeryville—reported zero sewer overflows in 2004. Other providers reported overflows. Livermore and Oakland and, to a lesser extent, CVSD, OLSD, and Pleasanton had relatively high sewer overflow rates compared to other providers in Alameda County and to 2003 QualServe survey respondents.[95]

Overflow rates in the cities of Berkeley and Piedmont are relatively high, but are not comparable to other agencies due to data availability issues Piedmont reported 27 sewage spills in 2004, but

[94] State Water Resources Control Board, Resolution Number 2004-0080. See related discussion above under "Regulatory Overview."

[95] Oakland reported 127 spills, Livermore reported 30 spills, CVSD reported three spills, OLSD reported six spills, and Pleasanton reported four spills in 2004.

could not provide the number of spills on the City-owned portion of the system. Berkeley reported eight spills of 1,000 gallons or more in 2004. The California Governor's Office of Emergency Services (OES) publishes hazardous spills, including sewage spills.[96] There were six spills in Berkeley and zero spills in Piedmont reported to OES in 2004, excluding those clearly caused by a private party. For more details on sewage spills reported to OES, see the wastewater service profiles of the individual agencies in Appendix A.

Response Times

The wastewater collection systems are subject to failures and overflows. The collection providers dispatch maintenance crews to make repairs. There are, however, no legal requirements for quick response times, and no benchmarking studies of response time for sewer response times were identified.

LAFCo asked each of the agencies providing wastewater collection service for information detailing its policies or guidelines for maintenance staff on response times for clearing blockages. In addition, LAFCo asked the agencies to provide the average response time achieved in the last year, measured as the time from call receipt until the agency has cleared the blockage.

Table 4-14. Sewer Blockage Response Times, 2004

Agency	Policy	Actual
Alameda	< 24 hours	1 hr
Albany	None	Very prompt
Berkeley	<1 hr	1 hr
Castlewood CSA	NP	NP
CVSD	30 mins.	30-60 mins.
DSRSD	30-45 mins.	< 45 mins.
Emeryville	asap	1-2 hrs
Hayward	30 mins.	30 mins.
Livermore	1 hr on scene	1 hr.
Oakland	2.5 hrs maximum	<2.5 hrs
OLSD	immediate	13 mins.
Piedmont	NP	NP
Pleasanton	top priority	1 hr
San Leandro	1 hr on scene	2 hrs to clear
USD	None	29 mins. on scene

Generally, the agencies provided rapid response to sewer blockages and usually managed to resolve the problem within two hours of receipt of call, as shown in Table 4-14.

OLSD and Hayward reported the quickest response times, clearing blockages within 30 minutes of being notified of the blockage. None of the providers reported it taking more than 2.5 hours to clear blockages.

USD tracks response times for arrival on scene, but not through clearance of blockage. So defined, its average response time was 29 minutes.

Castlewood CSA and Piedmont did not disclose response time policies and practices.

[96] Sewage spills reported to OES include overflows related to limitations or problems with the collection system under the control of the agency as well as overflows caused by limitations/problems with customer-controlled piping/facilities. Not all spills are reported to OES.

Collection System Integrity

There are several measures of the integrity of the wastewater collection system: peaking factors (discussed above under service demand), efforts to address infiltration and inflow, and inspection practices.

Based on both peaking factors and RWQCB compliance status, the six northern cities providing collection services have the greatest problems with infiltration and inflow. Alameda, Albany, Berkeley and Piedmont offered concrete indication of improvement. Piedmont has complied with the RWQCB order. Alameda and Berkeley report that their rehabilitation efforts have reduced service calls significantly. Albany and Piedmont reported no overflows in the last three years. Although infiltration and inflow rates are much lower in the Tri-Valley area, the wastewater providers are actively addressing infiltration and inflow due to the limited wet weather treatment and disposal capacity in the area.[97]

Several agencies reported efforts to encourage property owners to address infiltration and inflow on private sewer lines. Alameda and Albany require inspection and upgrade of deficient private sewers when properties transfer. CVSD inspects private lines and offers grant funds for rehabilitation of deficient lines. These practices should be encouraged.

CVSD, USD, Pleasanton, and Emeryville conduct flow monitoring to track infiltration and inflow problem areas.

The EPA recommends closed circuit television (CCTV) inspection of sewer lines as the most cost-efficient and effective inspection approach.[98] Nationwide, the average wastewater provider conducts CCTV inspection of seven percent of its system annually and cleans 30 percent of the system annually, according to a study by the American Society of Civil Engineers. Collection system problems tend to be concentrated in older areas; it is most important to inspect lines more than 20 years old.

All of the collection service providers in Alameda County conduct some level of CCTV inspection of sewer lines. OLSD reported that it completes CCTV inspections of its entire system every 2.5 years. Livermore, San Leandro, CVSD and USD also have aggressive inspection programs, covering one-fifth of their systems annually. Alameda, Berkeley, Oakland and Piedmont reported CCTV inspection of less than seven percent of their systems annually. Pleasanton inspects only new lines and problem areas with CCTV.

FINANCING CONSTRAINTS AND OPPORTUNITIES

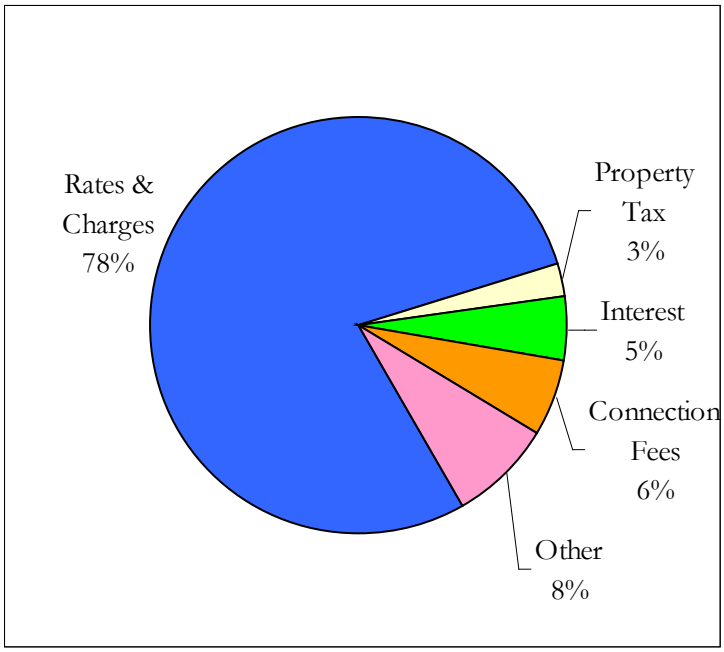
Service-related financing constraints and opportunities are discussed in this section. The scope includes revenue sources, financing constraints, rates and connection fees. The section identifies financing, rate restructuring and cost-avoidance opportunities.

[97] Infiltration and inflow peak during wet weather events.

[98] EPA, 1999, page 5.

FINANCING SOURCES

Figure 4-15. Wastewater Financing Sources, FY 2002-03



Sewer charges and connection fees are the primary financing sources for wastewater enterprises in Alameda County, as shown in Figure 4-15.

Sewer service charges constitute 78 percent of financing among wastewater providers as a whole. Among sewer collection providers, service charges constitute 94 percent of financing sources (not displayed in Figure).

Connection fees constitute six percent of revenue on average. Connection fees must be expended for extending or expanding infrastructure to accommodate new development.[99] For Livermore, Emeryville, CVSD and DSRSD, connection fees are more substantial and constituted 13-21 percent of revenue. By comparison, connection fees constituted only one percent of Pleasanton's revenues.

Piedmont is the only provider not levying sewer service charges. Instead, Piedmont relies on a sewer parcel tax for financing.

CVSD and EBMUD each relied on property taxes for nine percent of revenue in FY 2002-03. EBMUD property tax revenue is a portion of the one percent ad valorem tax. CVSD property tax revenues are not. None of the other providers reported property taxes of any consequence.

Other revenue sources include interest income, agency treatment charges, miscellaneous fees (e.g., plan review fees) and rents.

Additional infrastructure financing sources include 1) assessments levied through Community Facilities Districts for installing infrastructure for new development and 2) infrastructure constructed and dedicated to local agencies by developers.[100]

[99] None of the agencies levies a sewer-related development impact fee. The cities of Alameda, Berkeley, Pleasanton and Union City charge general purpose development impact fees.

[100] A Community Facilities District (CFD) is an assessment district used to finance agency-owned infrastructure (e.g., sewer lines, water lines, drainage infrastructure, streets, etc.) and used occasionally to finance certain municipal service costs. CFDs are formed under the Mello-Roos Community Facilities Act of 1982 with formation in inhabited areas subject to two-thirds voter approval. CFDs are commonly formed prior to development of a subdivision or area.

FINANCING CONSTRAINTS

Compared with other municipal services, there are relatively few financing constraints for wastewater enterprises. Generally, agencies may establish service charges on a cost-of-service basis and are not required to obtain voter approval for rate increases or restructuring. There is no voter approval requirement for connection fees or for the issuance of sewer revenue bonds.

Local agencies providing sewer services are required to maintain separate enterprise funds to ensure that sewer-related finances are not commingled with the finances of other enterprises, such as wastewater. Furthermore, cities providing sewer service must account for sewer enterprise finances separately from their general funds. Cities may not use the sewer enterprise fund to finance general fund activities.

The boards of each of the public sector sewer providers are responsible for establishing service charges. Service charges are restricted to the amount needed to recover the costs of providing sewer service. The sewer rates and rate structures are not subject to regulation by other agencies. The agencies can and often do increase rates annually.

Similarly, connection fees for the public sector sewer providers are established by the respective boards to recover the costs of extending infrastructure and capacity to new development. The fees must be reasonable and may not be used to subsidize operating costs.

Property tax limitations and temporary reductions in property tax revenue affect EBMUD's wastewater enterprise. EBMUD is paying approximately 40 percent of property tax revenues into a school financing fund in FY 2004-05 and FY 2005-06. Thereafter, property tax contributions to Educational Revenue Augmentation Fund (ERAF) must be reimbursed by the State. For further discussion of property tax limitations, see Chapter 3.

FINANCING OPPORTUNITIES

Financing opportunities that do not require voter approval include increasing service charges or connection fees, bonded indebtedness and adjustments in user fees, such as annexation fees. Many opportunities for rate restructuring, discussed below, are also financing opportunities.

OPPORTUNITIES FOR RATE RESTRUCTURING

There are ample opportunities for most of the service providers to restructure rates. This section discusses rates and rate restructuring opportunities, covering not only traditional service charges, but also connection fees.

Service charges, also known as rates, are intended to recover the costs of providing wastewater service. For most of the providers, there are few financing constraints affecting their ability to restructure rates. Indeed, most agencies update their wastewater service charges annually.

Rate Factors

The primary factor affecting service charges is the cost of providing service. Rates tend to vary between providers due to differing cost structures. Both service costs and rates tend to grow over time due to inflation and employee compensation increases.

Treatment methods vary and affect costs. Maintenance efforts affect costs. Some agencies may conduct more preventative maintenance than others, make greater efforts at planning, and implement capital improvements more expeditiously than others.

The nature of the service area affects costs and rates. Density affects costs and rates in that more sparsely populated areas require more collection infrastructure per capita. In smaller service areas, providers may face higher costs due to a lack of economies of scale. The distance between the wastewater treatment plant and the disposal location affects conveyance costs, with more infrastructure required for greater distances.

System age and capital financing approaches affect costs and rates as well. Older systems may require greater maintenance costs, but tend to have lower capital costs. In older systems, deferred maintenance can lead to an eventual need to finance a large capital improvement (e.g., Oakland) through bonded debt and rate increases. Newer systems tend to face lower maintenance costs, but tend to have higher capital costs associated with the recent or concurrent distribution system development. Capital financing approaches affect costs through the interest expense of borrowing to finance capital improvements, although this approach tends to spread the capital cost over time and allow for less need for rate restructuring. Conversely, pay-as-you-go financing requires current ratepayers to absorb capital costs; the Castlewood CSA ratepayers are paying relatively high rates to finance the recent replacement of the wastewater collection system.

Rate Comparison

This section compares the wastewater rates charged by the various providers for the average homeowner and for the average restaurant and industrial customer in the County.

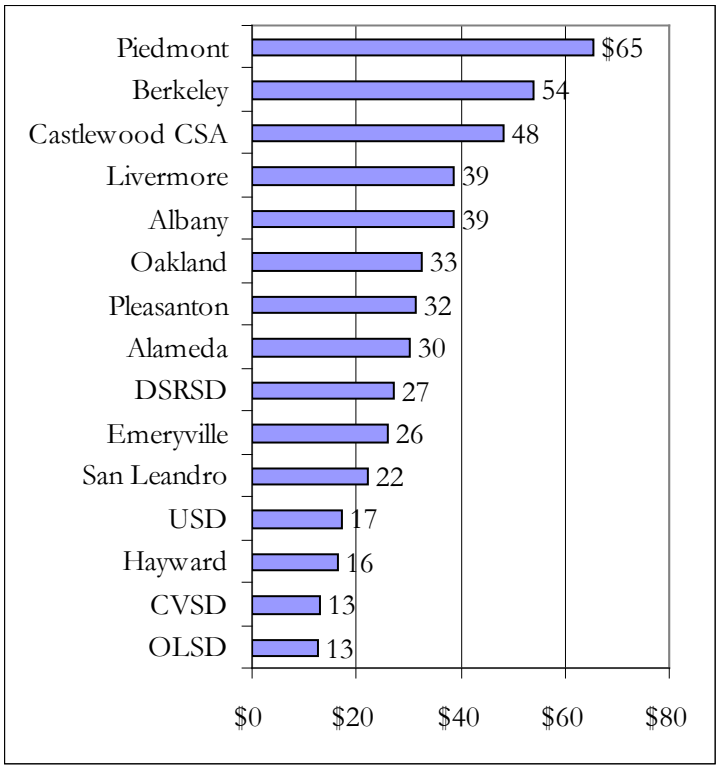
Wastewater rate structures differ across providers. In order to draw comparisons, consistent and reasonable assumptions were applied in calculating rates.[101] The rate comparison is based on the charges in place in May 2005, including any temporary charges in place at that time. The comparison includes service charges, flow charges (measured by water use), strength charges, waste minimization fees, wet weather facilities charges, and sewer parcel taxes. The comparison is based on the predominant customer situation for unique charges. For example, special pumping charges are based on a customer located at the primary elevation level.

Rates include collection, treatment and disposal charges. In the cities served by EBMUD, the cities levy sewer collection charges in addition to EBMUD charges for treatment and disposal. These have been aggregated to reflect the total paid by ratepayers.

Residential rates are compared for a single-family home consuming 12 ccf of water monthly in Figure 4-16. The median provider charges $30 monthly for such service. Residential rates for single-family homes are highest in Piedmont, Berkeley and the Castlewood CSA. Piedmont levies an annual sewer parcel tax; voters increased the tax in 2000 to finance rehabilitation of sewer mains in compliance with an RWQCB order.

[101] This section focuses on rates by holding water consumption constant across jurisdictions. Average service charges vary across providers based not only on rates but also on development by land use type and actual water use levels.

Figure 4-16. Single-Family Home Monthly Sewer Rates, FY 2004-05



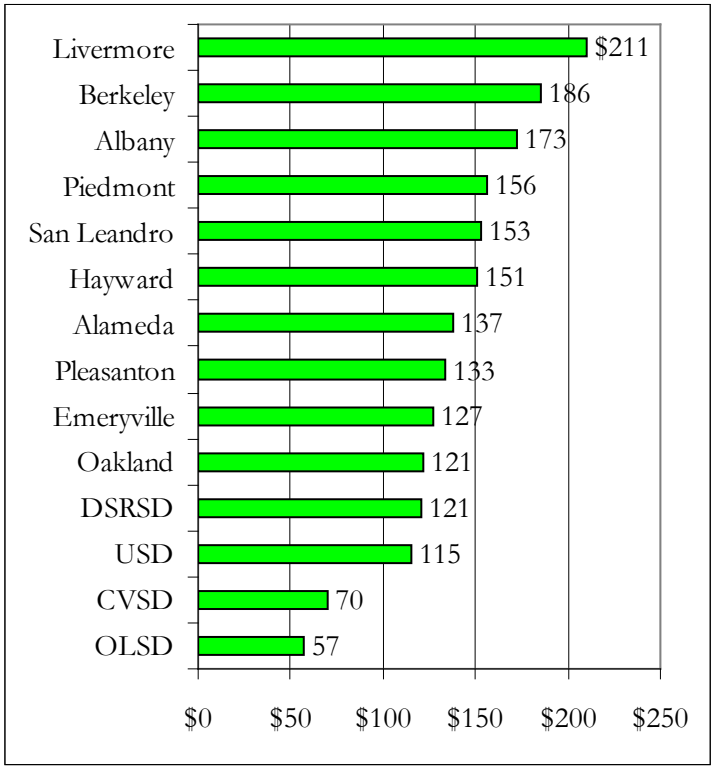
Berkeley is also financing rehabilitation of sewer mains to reduce infiltration and inflow. Castlewood CSA rates reflect capital costs for the recent collection system replacement.

Rates in Livermore are higher than the median, reflecting higher costs. Rates in Albany and Oakland are higher than the median; these jurisdictions are financing improvements to reduce infiltration and inflow.

Pleasanton, Alameda, DSRSD and Emeryville residential sewer rates are comparable to the median.

San Leandro, USD, Hayward, CVSD, and OLSD charge residential wastewater rates substantially lower than the median.

Figure 4-17. Monthly Restaurant Sewer Rates, FY 2004-05



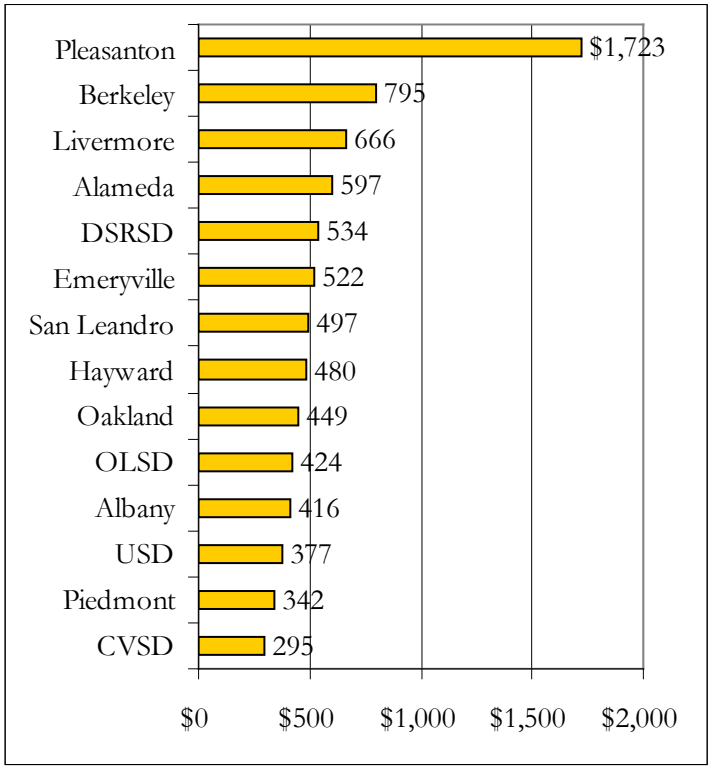
Sewer rates are compared for an average-sized restaurant consuming 29 ccf in water monthly, as shown in Figure 4-17. The median provider charges $135 monthly for such service.

Restaurant rates are highest in Livermore where rates are 56 percent higher than the median. Albany and Berkeley rates are, respectively, 28 and 37 percent higher than the median. Hayward, San Leandro and Piedmont charge rates 12-15 percent higher than the median.

Alameda, Pleasanton, Emeryville and Oakland restaurant sewer rates are comparable to the median.

DSRSD and USD sewer rates are lower than the median. OLSD and CVSD restaurant sewer rates are lowest.

Figure 4-18. Industrial Monthly Sewer Rates, FY 2004-05



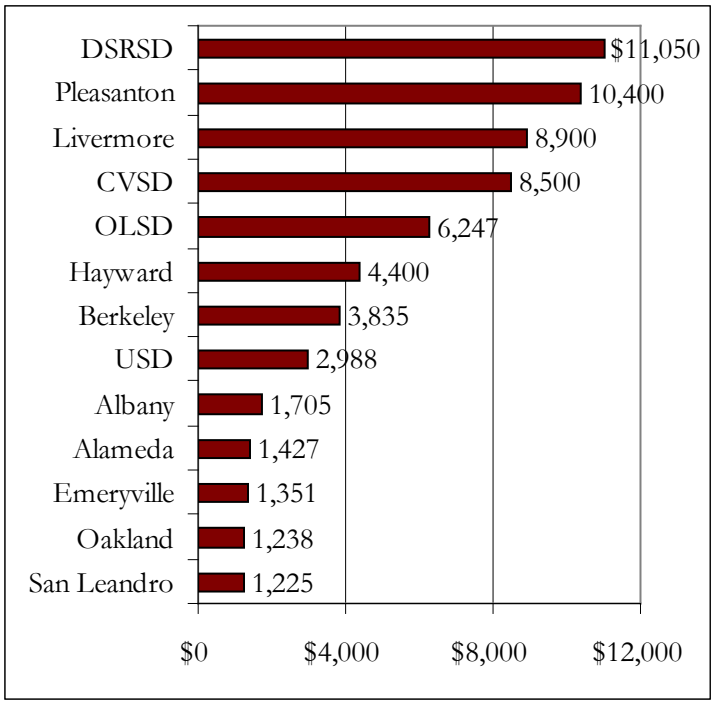
Industrial rates are compared for an average-sized industrial customer using 215 ccf of water monthly, as shown in Figure 4-18. The median provider charges $489 monthly.

Industrial rates are highest in Pleasanton—253 percent higher than the median, although the City's rates for other customers are comparable to the median. Berkeley and Livermore sewer rates are 63 and 36 percent higher than the median, respectively. Alameda industrial rates are 22 percent higher than the median. DSRSD and Emeryville rates are nine and seven percent higher than the median.

Hayward and San Leandro rates are comparable to the median.

Oakland, Albany and OLSD industrial sewer rates are lower than the median. USD, Piedmont and CVSD industrial rates are lowest.

Figure 4-19. Residential Sewer Connection Fees, FY 2004-05



Connection Fees

Connection fees are charged to cover costs of adding new customers to the wastewater system, dealing with new loads on the system, adding capacity and expanding the system.

The median provider charges $3,835 for a residential sewer connection.

The Tri-Valley providers—DSRSD, Pleasanton and Livermore—charge the highest residential connection fees, as shown in Figure 4-19. The Tri-Valley area faces relatively high growth and limited treatment and disposal capacity for peak flows. CVSD residential connection fees are 122 percent higher than the median.

San Leandro, Oakland, Emeryville, Alameda, and Albany charge residential connection fees more than 50 percent lower than the median.

Rate Restructuring Opportunities

Rate restructuring opportunities include prospects to promote conservation, increase various service charges and opportunities to impose unique charges.

- Most of the providers could promote water conservation by charging residential sewer rates on the basis of sewer flow (as measured by water flow). Only EBMUD and Berkeley follow conservation best management practices by charging residential sewer rates based on water use levels. Hayward offers tiered rates for residents based on water use levels. All of the other providers charge flat amounts for residents, regardless of flow.[102]
- Albany, Piedmont and the Castlewood CSA should follow conservation best management practices by implementing nonresidential sewer rates on the basis of sewer flow (as measured by water flow). All of the other providers charge nonresidential rates on the basis of flow.
- Piedmont should consider implementing sewer service charges instead of the current sewer parcel tax approach for financing flexibility and water conservation reasons. EBMUD collects sewer service charges on behalf of other sewer collection service providers in its service area, and is able to levy such charges on the basis of metered water use.
- OLSD should consider implementing rates that recognize the strength of wastewater for nonresidential customers. All of the other major providers charge higher sewer rates for restaurants than other commercial users in recognition of wastewater strength. OLSD reports that it rejected such a policy because it would be financially punishing to certain businesses and can drive businesses out of the community.
- There may be opportunities to restructure fees to include credits or rebates for water reduction efforts. Credits may be given for the installation of water-efficient plumbing fixtures;
- Sewer connection fees can be structured in a two-tier system to adjust for the costs of extending infrastructure to infill areas with existing sewer lines This type of rate restructuring requires a nexus study to establish fees proportionate to costs.

COST AVOIDANCE OPPORTUNITIES

Wastewater providers in Alameda County already achieve cost avoidance through extensive sharing of disposal facilities and other facility-sharing practices discussed above. There may be cost avoidance opportunities for small wastewater treatment providers, such as San Leandro, through contracting with larger providers to reap economies of scale. San Leandro evaluated and rejected this option in 2002 because it was not found to be cost-effective. OLSD and CVSD are unlikely to pursue this option as these agencies are investing in capacity restoration at their own plant. This option may be evaluated in the future by EBMUD and neighboring agencies.

[102] In most cases, wastewater customers are water consumers, although they purchase water typically from a different provider. Charging on the basis of metered water use requires information-sharing with and, most likely, billing services by the water provider. OLSD reported that it, does not charge residents based on water flow because it believes that the amount and strength of residential discharges are relatively constant.

Some long-term cost avoidance strategies, such as implementation of SCADA and GIS systems, require investments in cost-saving technology.

Livermore, Piedmont, Berkeley, and Albany charge relatively high wastewater rates. While some of the rate variance can be attributed to capital needs, economies of scale, physical factors, such as topography, as well as treatment requirements, the large variance indicates there are likely cost avoidance opportunities. No specific cost avoidance opportunities were identified.

POLICY ANALYSIS

This section provides policy analysis focused on the cities and special districts that provide wastewater service under LAFCo's purview. The policy analysis includes assessment of local accountability and governance and evaluation of management efficiencies, and identifies several government structure options that may be considered by LAFCo.

LOCAL ACCOUNTABILITY AND GOVERNANCE

This section discusses local accountability and governance for the limited purpose agencies, provides an overview of indicators of the local accountability and governance for the multipurpose agencies, and discusses agency data disclosure practices in response to MSR inquiries.

Limited Purpose Agencies

The special districts are governed by boards elected by the public and their meetings are open. All districts hold open elections for their governing bodies, prepare meeting agendas and minutes, and have accessible elected officials. Table 4-20 summarizes various indicators of local accountability.

Table 4-20. Accountability Indicators, Limited Purpose Agencies

	CVSD	DSRSD	EBMUD	OLSD	USD	Sewer Study CSA
Direct service provider	Yes	Yes	Yes	Yes	Yes	No
Service recipients are constituents	Yes	>99%	Yes	Yes	Yes	NA
Uncontested elections since 1994	None	None	None	None	None	None
Latest contested election	Nov 04	Nov 04	Nov 02	Nov 04	Mar 04	Nov 02
Latest voter turnout rate	81%	81%	53%	75%	25%	52%
Countywide turnout rate	77%	77%	53%	77%	44%	53%
Efforts to broadcast meetings	No	No	No	No	No	Yes
Constituents updated via outreach	Yes	Yes	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	No	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Partially	No	Yes

CVSD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2004 was higher than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board meeting agendas or minutes on its website. The District reported that it

updates constituents by sending agendas to various community organizations, public entities and the local newspaper; semi-annual newsletters are mailed to all District residents. The District also discloses public documents via the Internet.

DSRSD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2004 was slightly higher than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board meeting minutes on its website. The District reported that it updates constituents by publishing a customer newsletter twice a year and posting news releases and public documents on its website.

EBMUD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2002 was comparable to the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board agenda and meeting summaries on its website. The District reported that it updates constituents by participating in community events, distributing a newsletter, fact sheets, and reports, and maintaining a website with updates on current projects and press releases. The District also discloses public documents via the Internet. The District solicits constituent input via community meetings.

OLSD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2004 was slightly lower than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post board meeting minutes on its website. The District reported that it updates constituents by sending quarterly newsletters and maintaining a website that includes a board meeting calendar, press releases and information about District programs. The District also discloses public documents via the Internet. OLSD solicits constituent input through an annual telephone survey.

USD is a direct service provider. There have been no uncontested elections since 1994. The voter turnout rate at the District's most recent contested election in 2004 was significantly lower than the countywide voter turnout rate. The District does not broadcast its meetings on television or radio, but does post current board meeting agenda on its website. The District reported that it updates constituents by posting meeting notices at the District office and on the District's website. Board meeting agendas are faxed to interested citizens and meeting minutes are available to the public at the District offices and at board meetings. The District also uses press releases, community workshops as well as mailers. The District does not disclose public documents via the Internet.

Multipurpose Agencies

Assessment of each multipurpose agency's accountability will be finalized in the third volume of the MSR series, as multipurpose agencies will be covered in that report. The assessment of local accountability and governance at the multipurpose agencies is generally an agency-wide assessment. Wastewater related accountability indicators include each provider's planning efforts discussed below in the section on management efficiencies.

All agencies hold open elections for their governing bodies, prepare meeting agendas and minutes, and make accessible their staff and local officials. Table 4-21 provides accountability

indicators for each of the multipurpose agencies. Additional details on local accountability and governance of the multipurpose agency wastewater providers can be found in Appendix A.

Table 4-21. Accountability Indicators, Multipurpose Agencies

	Alameda	Albany	Berkeley	Emeryville	Hayward	Livermore
Direct service provider	Yes	Yes	Yes	Yes	Yes	Yes
Service recipients are constituents	Yes	Yes	Yes	Yes	>99%	>99%
Uncontested elections since 1994	No	No	No	No	No	No
Latest contested election	Nov 04	Nov 04	Nov 04	Nov 03	Mar 04	Nov 03
Latest voter turnout rate	78%	81%	77%	25%	41%	36%
Countywide turnout rate	77%	77%	77%	22%	44%	22%
Efforts to broadcast meetings	Yes	Yes	Yes	Yes	Yes	Yes
Constituents updated	Yes	Yes	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	Yes	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Yes	Yes	Yes

	Oakland	Piedmont	Pleasanton	San Leandro	Castlewood CSA
Direct service provider	Yes	Yes	Yes	Yes	Yes
Service recipients are constituents	Yes	Yes	>99%	Yes	Yes
Uncontested elections since 1994	No	No	No	No	None
Latest contested election	Mar 04	Mar 02	Nov 04	Nov 04	Nov 02
Latest voter turnout rate	40%	51%	84%	77%	52%
Countywide turnout rate	44%	35%	77%	77%	53%
Efforts to broadcast meetings	Yes	Yes	Yes	Yes	Yes
Constituents updated	Yes	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Yes	Yes

EVALUATION OF MANAGEMENT EFFICIENCIES

This section provides analysis of management efficiencies at the wastewater providers. This section considers the effectiveness of each agency in providing efficient, quality public services. Efficiently managed agencies are deemed those that consistently implement plans to improve service delivery, reduce waste, eliminate duplications of effort, contain costs, maintain qualified employees, and build and maintain adequate contingency reserves.

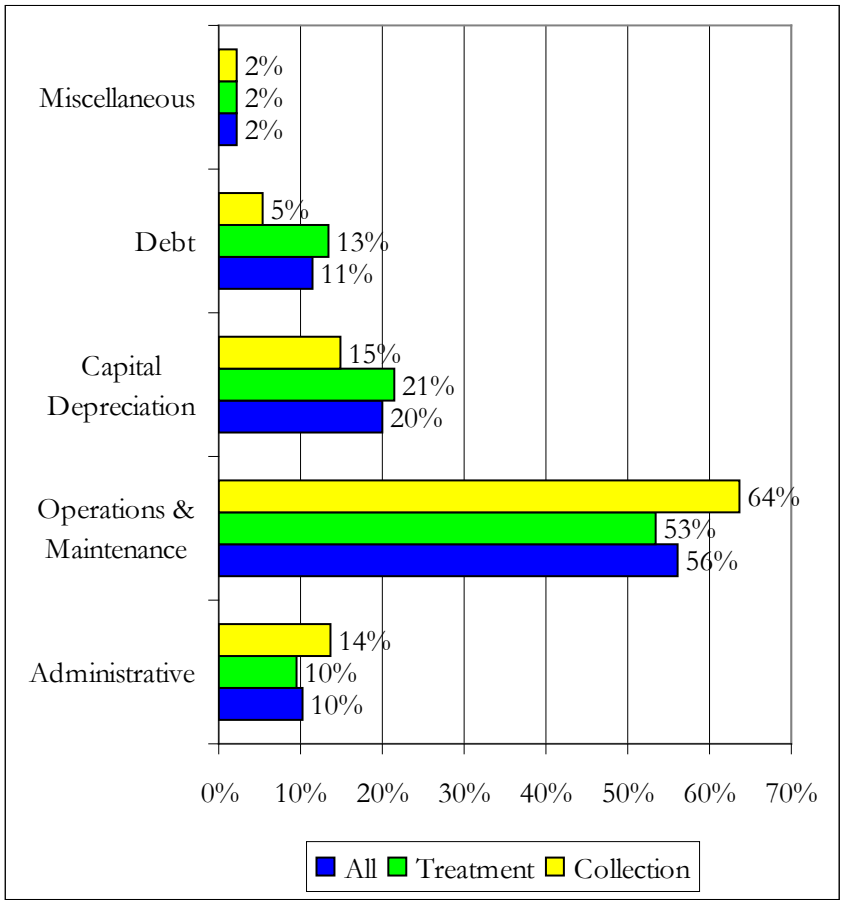
Service Costs

Wastewater service costs vary between providers due to differences in services provided, treatment methods, service areas, infrastructure age, maintenance efforts and capital financing approaches. These cost differences are discussed above in the section explaining rate differences.

Generally, sewer enterprise expenditures have been categorized as administrative, operations and maintenance, capital depreciation, debt and other.

Average costs for collection providers and full-service enterprises differ. The enterprises offering treatment services tend to have higher capital depreciation and financing (debt) costs. Collection providers tend to have higher operations and maintenance and administrative costs.

Figure 4-22. Wastewater Costs by Type, FY 2002-03



Both for collection and full-service providers, operations and maintenance (O&M) is the most significant of these cost categories. As shown in Figure 4-22, O&M costs account for 56 percent of wastewater enterprise expenditures.

Capital depreciation is the second most important cost category, accounting for 20 percent of expenditures. Capital depreciation is the expense associated with the wearing out, breaking down, or technological obsolescence of physical capital, such as sewer pipes, treatment plants and pumping stations.

Among treatment providers, debt accounts for 13 percent of costs and administration accounts for 10 percent of costs. Among collection providers, debt accounts for five percent of costs and administration accounts for 14 percent of costs.

Figure 4-23. Wastewater Costs by Type, FY 2002-03

	Cost per mgd processed ($ millions)		Cost per account	
	Total	O&M	Total	O&M
Collection Providers				
Albany	$1.4	$0.2	$248	$37
Alameda	0.6	0.4	130	86
Berkeley	1.2	0.9	341	250
Emeryville	0.5	0.4	176	128
Oakland	0.7	0.4	186	116
Piedmont	1.3	0.7	375	190
Collection Providers Paying Directly for Treatment				
Pleasanton	1.9	1.3	611	419
Castlewood CSA	0.5	0.4	482	360
CVSD	0.9	0.5	236	142
Treatment Providers				
DSRSD	1.3	0.8	717	435
EBMUD	0.8	0.4	379	162
Hayward	1.0	0.7	362	231
Livermore	2.3	1.9	617	500
OLSD	0.6	0.3	210	114
San Leandro	1.4	1.2	468	392
USD	1.2	0.6	340	157

Due to differences in service configuration, it is more difficult to compare costs than to compare rates for service.

Figure 4-23 shows wastewater costs by provider type. Among the collection providers, Alameda, Emeryville and Oakland had relatively low costs. Albany, Berkeley and Piedmont had relatively high costs.

Among the treatment providers, OLSD was the lowest-cost provider in FY 2002-03. OLSD is restoring its treatment plant's design capacity in response to a RWQCB order, and is expected to face higher costs in the future.

Livermore and Pleasanton have the highest costs based on amount of wastewater processed. San Leandro and DSRSD also had relatively greater costs based on the amount of wastewater processed. Livermore, Pleasanton and DSRSD face higher disposal costs and costs associated with extending infrastructure to new development.

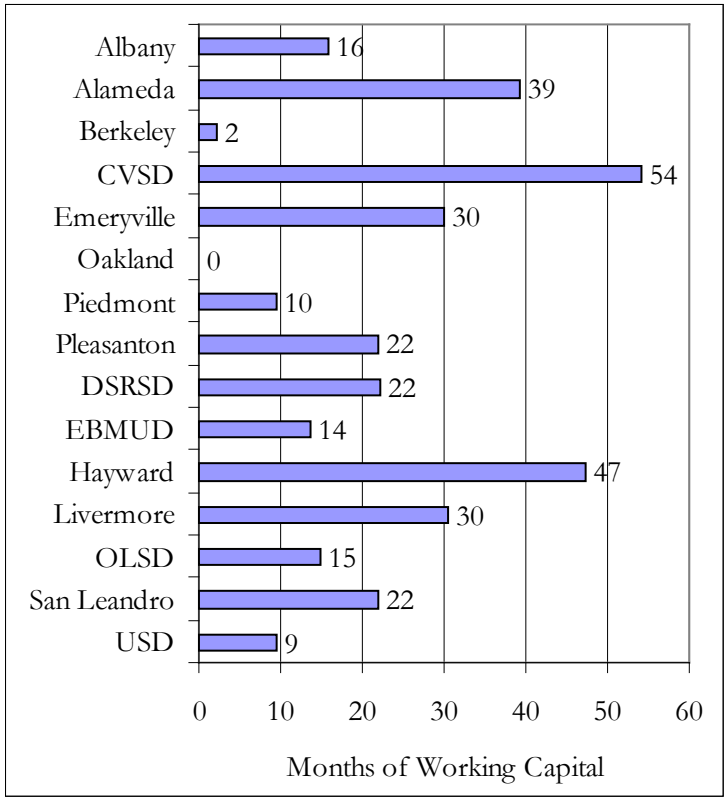
Reserve Ratios

Local agencies maintain contingency reserves to cover costs during economic downturns, unexpected expenses, and sometimes cash flow shortages. The reserve ratio provides a strong indicator of an agency's financial health; however, there are other factors such as revenue and expenditure timing that are not necessarily reflected in the reserve ratio.

There are no official guidelines or widely accepted standards to guide independent special districts in the accumulation and use of contingency reserves. However, the issue of special district reserves was raised in May 2000 by the Little Hoover Commission in its report entitled, *Special Districts: Relics of the Past or Resources for the Future?* The report characterized special district reserves at some enterprise districts as "unreasonably large," pointing to districts with reserves more than three times greater than annual revenue. The report also characterized special district reserves as obscure and not integrated into regional infrastructure planning.

Each wastewater provider's reserves were calculated as unrestricted net assets in the wastewater enterprise. Removed from reserves are capital assets net of related debt as well as reserves restricted for debt repayment or construction. Capital assets net of related debt represent fixed assets and do not represent available resources. Similarly, reserves restricted for debt repayment do not represent available resources.

Figure 4-24. Wastewater Enterprise Reserves, FY 2002-03



Reserves were compared with expenditures—operating and non-operating expenditures—to determine how many months of working capital each provider had, as displayed in Figure 4-24.

The median wastewater provider had 22 months of working capital. Among the treatment providers, the cities had the largest reserve funds. The larger agencies—EBMUD and USD—had smaller reserve funds; reserve funding needs at larger agencies tend to be lower than at smaller agencies.

Among the agencies exclusively engaged in wastewater collection services, median working capital was 19 months. There were substantial differences among collection providers in wastewater enterprise reserves, with zero to 54 months of working capital. CVSD had the largest reserve fund in relative terms with 54 months of working capital. Although Oakland had no wastewater reserves at the end of FY 2002-03, the City subsequently imposed an 11 percent rate increase and issued $62 million in sewer revenue bonds.

Reserve funding levels at CVSD, Hayward and Alameda are more than three times greater than annual expenditures. By Little Hoover Commission standards, these might be characterized as excessive. However, these relatively large reserve funds are being used for major capital projects. CVSD has subsequently drawn upon its reserves to finance its share in the OLSD treatment facility expansion project ordered by the RWQCB. Hayward has subsequently drawn upon its reserves to finance major capital improvements at the City's WWTP, scheduled for completion in 2007. Alameda is replacing a major portion of its sewer system to comply with a RWQCB order to limit infiltration and inflow.

Management Practices

There are various management practices used by wastewater service providers in Alameda County that include implementing master plans, benchmarking and monitoring performance to improve service delivery.

All of the limited purpose and multipurpose wastewater treatment agencies prepare wastewater master planning documents (see Table 4-25). Of the wastewater collection providers, only the cities of Albany, Berkeley and Pleasanton have wastewater master planning documents (see Table 4-26).

Castro Valley Sanitary District

CVSD management practices include financial audits and performance evaluation. The District evaluates its performance through customer service surveys for sewer operations and presents quarterly performance indicators to its Board of Directors. It prepares monthly reports on solid waste service referrals and solid waste collection to track performance. The District also conducts a review of each employee's performance annually. The District conducts annual financial audits. The District does not conduct performance-based budgeting or benchmarking studies.

The District adopted a strategic plan in 2002 that has a planning time horizon of five years. The CVSD wastewater master plan was last updated in 1991 and has a planning time horizon of five years. The District is preparing a wastewater collection master plan, which is scheduled to be completed in 2005.

Dublin San Ramon Services District

DSRSD management practices include benchmarking, financial audits and performance evaluations. The District conducts routine evaluation of performance with an adopted Strategic Plan; the District evaluates its progress toward reaching strategic and financial goals. The District monitors performance on a monthly basis with cost-of-services targets set by the Board, and participates in a peer review process (QualServe) which helps utility service providers improve performance. The District uses several methods in various departments to track workload, including monitoring the unit cost of providing service on a monthly basis, setting productivity goals based on budget expenditures, and maintaining daily logs to collect various indicators to ensure proper staffing levels and analysis of billing costs. Additional management practices include performance-based budgeting and benchmarking.

The District's current strategic plan spans FY 2003-04 to 2008-09 and includes a mission statement and a statement of core values. The strategic plan is prepared with a six-year planning horizon and is updated every two years. The District's water and wastewater master plans were last updated in 2000 and have a planning time horizon of 10 years.

East Bay Municipal Utility District

EBMUD management practices include benchmarking, annual personnel performance evaluations, annual financial audits, and financial trend and budget performance reports. The District's service operations are also routinely evaluated. The District has developed performance indicators to monitor workload for specific areas as well as district-wide planning and goal setting. The performance indicators track productivity and error rates for the various types of work performed. The District does not conduct performance-based budgeting.

Table 4-25. Wastewater Planning, Treatment Providers

Service Provider	Wastewater Master Plan		Wastewater Collection Plan		Wet Weather Flow Capacity Plan	Sanitary Sewer Overflow Plan	Other Plans
	Date/Version	Planning Horizon	Date/Version	Planning Horizon			
DSRSD	2000; 2005	10 years	2000. 2005 plan in progress.	10 years	Included in WWMP	LAVWMA Engineer's Report	None
EBMUD	2000	10 years	NA	NA	Wet Weather Facilities Plan	None	Bio-Solids (2004), Interceptor (1997); Land Use (1996); Odor Control (1998); Recycled Water (1991)
OLSD	2001	20 years	2003	20 years	Included in WWMP	Included in WWMP	None
USD	1994	20 years	1997	20 years	1999	Included in WWMP	Area plans (1997, 2000, 2004)
Hayward	2001	10 years	2002	18 years	Included in WWMP	Included in WWMP	None
Livermore	2004	20 years	Included in WWMP	20 years	2005 Disposal Plan	Included in WWMP	2005 Disposal Plan
San Leandro	1995	5 years	Included in WWMP	5 years	Included in WWMP	Included in WWMP	WPCP Facilities Plan (2004)

Table 4-26. Wastewater Planning, Collection Providers

Service Provider	Wastewater Master Plan		Wastewater Collection Plan		Wet Weather Flow Capacity Plan	Sanitary Sewer Overflow Plan	Other Plans
	Date/Version	Planning Horizon	Date/Version	Planning Horizon			
Castlewood CSA	NA	NA	2004	1 year	None	None	None
CVSD	1991	5 years	Included in WWMP	5 years	Included in WWMP	Included in WWMP	Annual Report 02-03 (Online), Master Planning Studies 1991
Alameda	None	NA	None	NA	None	Addressed in Compliance Plan.	Infiltration/Inflow Compliance Plan (1985)
Albany	1998	5 years	Included in WWMP	5 years	Included in WWMP	Included in WWMP	Infiltration/Inflow Compliance Plan (1985)
Berkeley	2004	10 years	Included in WWMP	10 years	Monitoring in place since 1980	Addressed in Compliance Plan.	Infiltration/Inflow Compliance Plan (1985)
Emeryville	None	NA	None	NA	None	None	Infiltration/Inflow Compliance Plan (1985); Sanitary Sewer Inventory (FY 01-02)
Oakland	NP	25 years	None	NA	None	None	Infiltration/Inflow Compliance Plan (1985)
Piedmont	None	NA	None	NA	None	Addressed in Compliance Plan.	Infiltration/Inflow Compliance Plan (1985); Municipal Tax Review Committee Report (2003)
Pleasanton	In progress	TBD	None	NA	To be included in WWMP	LAVWMA Engineer's Report	None

EBMUD adopted a strategic plan in 2004. The District wastewater master plan was last updated in 2000 and has a planning time horizon of 10 years.

Oro Loma Sanitary District

OLSD management practices include financial audits and performance evaluation. The District conducts performance evaluations annually during budget preparation. The District monitors productivity through monthly activity reports. Maintenance activity reports track sewer lines cleaned, repairs made, service calls, and response times. Treatment plant activity is also tracked, including daily flow, training and work orders. Additional management practices conducted by the District include annual financial audits. The District does not conduct performance-based budgeting or performance benchmarking; however, the District reports that its management structure is relatively flat and that staffing levels were reduced and "right-sized" in the early 1990s.

The District does not have an adopted strategic planning document. The District's wastewater master plan was adopted in 2001 and has a planning time horizon of 20 years; its wastewater collection plan was adopted in 2003 and has a planning time horizon of 20 years.

Union Sanitary District

USD management practices include benchmarking, financial audits and performance evaluation. The District conducts performance evaluation through a system of performance measures that are reviewed quarterly by the affected departments and District executives. The District monitors productivity with various measures, including miles of sewer cleaned, televised lines per crew per day, turnaround time for construction permit application review, average number of days to complete a work order, and work order backlog. Additional management practices conducted by the District include annual financial audits. The District uses performance measures that are reviewed quarterly by District executives and Board members. The District's benchmarking practices include annual participation in the AWWA QualServe program.

The District has an annually adopted strategic plan and a mission statement. The District's wastewater master plan is divided into three documents each covering a different area of District territory. The plans were adopted in 1997, 2000 and 2004. The planning time horizon for each is 20 years.

Multipurpose Agencies

The management practices of the multipurpose agencies are summarized in Table 4-27. Oakland participates in service benchmark studies (i.e., comparing the City's basic performance indicators to those in comparable jurisdictions), conducts performance-based budgeting and monitors workload. The City of Berkeley and the County also include performance measures in their annual budgets. Albany, Emeryville and Piedmont monitor workload as part of the budget process; although the other service providers indicated that they make efforts to monitor productivity, the agencies' budgets track accomplishments rather than workload and performance indicators. Castlewood CSA management practices include performance evaluation through annual service reviews on site at the CSA facilities and in the service area with interested property owners and residents.

Most agencies could improve management practices by benchmarking and by tracking workload and performance.

Best practices involve annually updating user fees and maintaining a master fee schedule, as is done by Oakland.

Table 4-27. Management Practices, Multipurpose Agencies

	Alameda	Albany	Berkeley	Emeryville	Hayward	Livermore
Benchmarking	No	No	No	No	No	No
Financial Audits	Yes	Yes	Yes	Yes	Yes	Yes
Perforamce Evaluation	Yes	Yes	Yes	No	Yes	Yes
Performance-Based Budgeting	No	No	Yes	No	No	No
Workload Monitoring	Yes	Yes	Yes	Yes	Yes	Yes
	Oakland	**Piedmont**	**Pleasanton**	**San Leandro**	**Castlewood CSA**	
Benchmarking	Yes	No	No	No	No	
Financial Audits	Yes	Yes	Yes	Yes	Yes	
Perforamce Evaluation	Yes	No	Yes	Yes	Yes	
Performance-Based Budgeting	Yes	No	No	No	Yes	
Workload Monitoring	Yes	No	Yes	Yes	Yes	

Employees

This section discusses employee certification requirements. It provides information on training and on employee injury, turnover and vacancy rates.

In California, wastewater and water recycling treatment plant operators are required to be certified.[103] The RWQCB administers operator certification, with five grades of certification based on the size and complexity of the wastewater treatment facility.

In order to become certified, operators are required to take courses in wastewater treatment operations, pass a written exam, and meet experience requirements. Operators of major facilities (Grade V certification) are required to complete at least 480 hours of instruction relating to wastewater treatment.[104] Such operators must pass an examination covering tertiary treatment process, recycled water treatment, safety programs, and public health, among other topics. After completing training and passing the exam, an entry-level operator may be certified as an operator-in-training under the supervision of a certified operator. A minimum of four years of work experience is required for Grade V operator certification.

The employees at each of the Alameda County wastewater providers meet certification requirements.

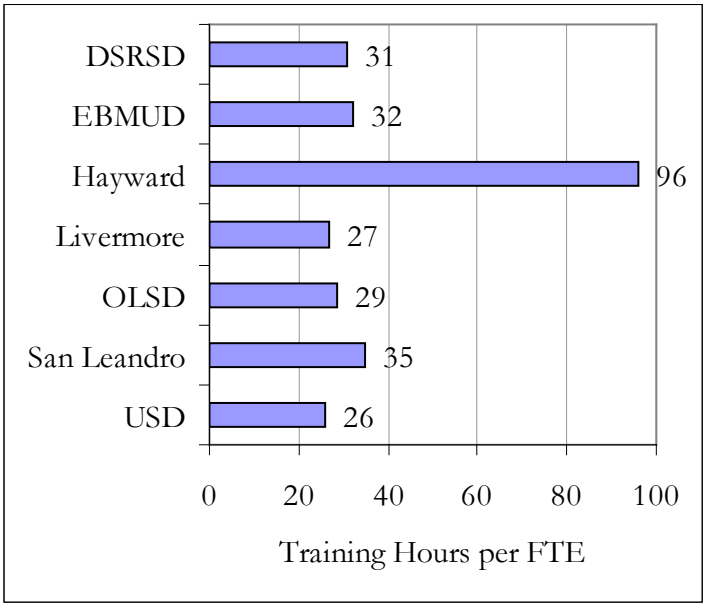
Although not required by law, certification is also available for wastewater workers other than plant operators through the California Water Environment Association (CWEA). CWEA offers voluntary certification for six occupations: collection system maintenance, laboratory analyst,

[103] California Code of Regulations, Title 23, Division 3, Chapter 26.

[104] The education requirements vary depending on the work experience of the operator. A Grade V operator with a chemical engineering license must have at least four years experience as a plant operator; whereas, an operator with no college degree must have at least 10 years of experience as a plant operator.

environmental compliance inspector, plant maintenance, biosolids land application management, and industrial waste treatment plant operator. CWEA certification requires that the employee pass a competency test, meet experience requirements and receive continuing education.

Figure 4-28. Formal Training Hours per Employee, 2004



The median wastewater treatment utility provided 26 hours of formal training per full-time equivalent (FTE) employee, according to the 2003 AWWA QualServe analysis. Among wastewater treatment providers in Alameda County, the median treatment provider extended 31 hours of formal training per FTE annually. All of the treatment providers invest in as much training as the QualServe median provider, as shown in Figure 4-28. The City of Hayward extends the most formal training per employee. San Leandro and EBMUD offer more training than both the Alameda County and QualServe medians.

The median wastewater treatment utility had 56 workdays lost annually due to **work-related** injuries and illnesses per full-time equivalent (FTE) employee, according to the 2003 AWWA QualServe analysis. Within Alameda County in 2004, USD and San Leandro had higher employee health and safety severity rates than the QualServe median. EBMUD and DSRSD had very low rates of absenteeism due to work-related injuries. The cities of Hayward and Livermore and OLSD had no workdays lost due to work-related injuries and illness in 2004.

Table 4-29. Wastewater Employee Indicators

Agency	Employees (FTEs)	Turnover Rate
Hayward	43	15%
Livermore	46	4%
San Leandro	31	7%
CVSD	9	NP
DSRSD	80	5%
EBMUD	277	NP
OLSD	46	2%
USD	130	9%

Staffing levels at the various wastewater service providers vary based on the size and scope of their responsibilities. Employment levels and employee turnover rates for each of treatment providers is shown in Table 4-29. EBMUD and USD wastewater enterprises are the largest employers. Most of the providers reported employee turnover rates. Employee turnover rates ranged from two percent at OLSD to 15 percent at the City of Hayward. CVSD and EBMUD did not disclose employee turnover rates.

GOVERNMENT STRUCTURE OPTIONS

The MSR identifies government structure options, advantages and disadvantages, and evaluation issues, but does not make recommendations about these options. The Commission or the affected agencies may or may not initiate studies on these options in the future, although LAFCo is required to update the agencies' SOIs by January 1, 2008.

Sewer Study CSA Dissolution

The dissolution of the Livermore-Amador Valley Sewer Study CSA is an option. The CSA is not active and does not finance or provide municipal services.

The CSA was formed in September of 1984 to finance the County's share of feasibility and planning studies to determine the need for additional sewer disposal capacity and facilities in the Livermore-Amador Valley. The CSA financed its share of study costs with receipts from the Special District Augmentation Fund.[105] DSRSD, EBMUD and the City of Pleasanton also funded the study. The study, prepared by CH2M Hill, recommended a disposal pipeline stretching from Pleasanton to Suisun Bay.

The County, Pleasanton and DSRSD formed the Tri-Valley Wastewater Authority (TWA) in 1986 for the purpose of financing and building the disposal pipeline. The Board of Supervisors authorized the CSA to purchase easement options and rights-of-way as the County's financing contribution to the TWA pipeline.

The City of Livermore opposed the recommendation as inducing growth, and joined TWA in 1987. The pipeline project was never constructed. TWA formally disbanded in June 2001.

The CSA has not been formally dissolved. It is inactive. The CSA lost its funding source in FY 1993-94. With the exception of sewer collection services in the Castlewood CSA, the County is not a wastewater service provider. Livermore and Pleasanton provide limited wastewater service to adjacent unincorporated areas. Sparse development in outlying areas of the County relies on septic systems.

The CSA is not a relevant vehicle for expanding Tri-Valley disposal capacity. Tri-Valley sewer disposal capacity is 41.2 mgd now that LAVWMA has completed repairs to its old (1979) pipeline. Neither the County nor the CSA is a member of LAVWMA.

Potential advantages of dissolution include:

1) The CSA is inactive and has no purpose. The CSA's formation purpose was to finance the County's role in TWA. The TWA disbanded in June of 2001, due to opposition and ultimate demise of the Suisun Bay pipeline project.

2) LAVWMA has constructed a new expanded pipeline to accommodate planned growth that was the initial concern that lead to CSA creation.

[105] The Legislature abolished Special District Augmentation Funds in FY 1993-94.

3) The financing for the CSA came from the County's Special District Augmentation Fund (SDAF). In FY 1993-94 the legislature abolished SDAF and the County does not use ERAF, parcel taxes or other funds to finance the CSA.

Potential disadvantages of dissolution include any costs associated with the dissolution process.

CVSD and OLSD Consolidation Option

Consolidation of CVSD and OLSD is a government structure option. CVSD and OLSD provide wastewater services to adjacent service areas. Waste Management, Inc. provides solid waste collection services to both districts through separate franchise agreements. Both districts administer solid waste contracts and recycling programs. Their solid waste services are discussed in Chapter 7.

Although CVSD did not identify consolidation as an option in its response to LAFCo questionnaire, OLSD did. The OLSD response stated "while consolidation might be beneficial, neither board of directors ha[s] indicated a desire to seriously discuss consolidation,"[106] in explaining why OLSD did not recommend any government structure options at this time.

The consolidation issue has been raised twice in the past—by RWQCB in 1966 and by LAFCo in considering SOIs for the agencies in 1979. In 1965, RWQCB ordered the districts to address odors and inadequately treated discharges. One year later, RWQCB asked LAFCo to study consolidation. LAFCo staff conducted a preliminary study and found "consolidation is feasible and might well be beneficial."[107] Several months later, the districts separately approved bond financing for treatment plant upgrades. Both RWQCB and homeowners asked LAFCo to continue to pursue consolidation after the bond financing came through. The Districts opposed consolidation. LAFCo voted in January 1967 to give no further consideration to consolidation at that time because "a general plan for the structure of local agencies is needed, and it is hoped that the Commission will be working on such a plan in the not too distant future," according to a letter from the Executive Officer to RWQCB.[108]

In considering SOIs for the districts, the LAFCo staff report mentioned consolidation as an option that "may have some merit and yield more cost-effective services(s) through econom[ies] of scale."[109] Ultimately, LAFCo disregarded consolidation in establishing the districts' SOIs due to a desire to emphasize a "community approach" to SOIs and concerns that a consolidated entity would "render marginal any economic gains due to its excessive size."[110]

The districts share joint ownership of a wastewater treatment plant and share EBDA disposal capacity rights. Otherwise, the Districts maintain wastewater collection systems in adjacent areas

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[106] Oro Loma Sanitary District Response to LAFCo Request for Information, Part II, March 21, 2003.

[107] LAFCo, *Preliminary Staff Report On The Feasibility Of Consolidation Or Reorganization of Oro Loma and Castro Valley Sanitary Districts*, July 1966, page 4.

[108] Correspondence from LAFCo Executive Officer Jack F. McKay to RWQCB Executive Officer John B. Harrison, February 1, 1967.

[109] LAFCo, *Spheres of Influence for Special Districts of Eden Township*, May 1979, page 15.

[110] Ibid., page 15.

with separate staff. The districts do not share staff, management or equipment for inspection and cleaning. The districts are governed by separate boards. Joint facilities are governed by a series of nine written agreements between CVSD and OLSD dating back to 1941.

The Oro Loma WWTP exceeded contaminant removal targets on a number of occasions between 1999 and 2002.[111] The exceedances were not formally considered permit violations because the permit compliance point is the EBDA outfall. RWQCB imposed a time schedule order requiring the districts to restore treatment plant capacity at secondary treatment standards in the Clean Water Act. To avoid future problems, the districts now plan over a five-year planning horizon.

The plant's permitted capacity is 15 mgd of average dry weather flow. Average dry weather wastewater flow is 14.3 mgd. The districts are restoring treatment plant capacity to the original hydraulic design capacity of 20 mgd, with completion targeted for November 2007.

New regulatory requirements impose requirements on wastewater collection providers to prevent sanitary sewer overflows and to prepare sewer system management plans. Both OLSD and CVSD had sewer overflow rates higher than the median for Alameda County providers in 2004, although substantially lower than in Livermore and Oakland. Overflows may be an indication of deferred system maintenance or inadequate capacity to accommodate peak flows.

CVSD has not updated its master plan since 1991.[112] OLSD updated its master plan in 2003.

While the districts have made some improvements in long-range planning, the districts face challenges in collection system capacity planning, geographic planning, and financial reporting.

For the most part, the districts have compatible rate structures. Generally, the districts charge the lowest rates among Alameda County providers. The actual rates differ slightly between the districts, but are generally comparable in structure. OLSD has a more sophisticated rate structure for large nonresidential accounts. Both districts rely on the Alameda County Assessor to bill and collect sewer charges on the property tax bill. CVSD charges higher connection fees than OLSD.

Potential advantages and disadvantages of consolidation are listed in Table 4-30. Potential advantages include improved planning efforts, service level and the professionalism that could be afforded by a larger entity. A consolidated operation would offer efficiencies in administration and planning, and could help these relatively small service providers meet new regulatory requirements and standards.

[111] For the period from January 1999 to June 2002, the treatment plant outfall had the following exceedances: eleven (11) TSS, fourteen (14) settleable solids, four (4) BOD5 and four (4) 85 percent removal rate at the treatment plant outfall, according to RWQCB Time Schedule Order No. R2-2003-0006. In 2002, RWQCB, EPA, OLSD and EBDA met to discuss the exceedances; OLSD agreed to restore the plant to its 20 mgd design capacity in full compliance with secondary treatment standards in the Clean Water Act.

[112] CVSD reports a master plan update is underway in 2005.

Table 4-30. Advantages and Disadvantages of CVSD-OLSD Consolidation

	Advantages	Disadvantages
Purpose	Single provider of sewer services.	Unnecessary because the districts already share the treatment plant.
Electorate	Fewer board seats.	Disruption of governance during transition.
Facilities	Potential for consolidated administrative, maintenance and solid waste facilities and staff.	Transition costs of consolidating facilities.
Oversight	No significant impact.	No significant impact.
Accountability	Centralized planning, administrative and maintenance functions would increase service levels.	No significant impact.
Community Identity		Potential negative effect on Castro Valley community identity depending on name of successor agency.
Cost Avoidance	Potential for administrative and operational cost savings through economies of scale.	Transition costs for operational consolidation (e.g., changes in policy, documents, positions, website, etc.).

The districts have not yet jointly discussed consolidation. Generally, CVSD expressed openness to discussion and consideration of this option, and OLSD acknowledged consolidation as an option but is skeptical that consolidation would be compelling. The districts have not yet had the opportunity to evaluate consolidation in depth, but district staff offered the following preliminary comments on consolidation.

1) Consolidation would have a negative effect on Castro Valley community identity.

2) Potential consolidation cost savings involve reduced costs for the Boards of Directors and for duplicate personnel.

3) CVSD is concerned about recycling rate incompatibility.

4) Consolidation offers potential to simplify facility-sharing by avoiding the need for a complex series of agreements on joint facilities.

5) Consolidation may affect service levels, particularly recycling and community outreach and education.

6) Consolidation would create a need to alter solid waste franchise contract terms and conditions.

The Commission may determine that evaluation of this option is warranted. If so, some potential areas on which evaluation might focus include (1) opportunities to streamline operations and reduce management costs; (2) ability to meet regulatory requirements; (3) ability to engage in effective capital improvement planning and finance deferred maintenance; (4) opportunities to restructure rates to cover capital needs and regulatory costs; (5) potential disruptions and transition costs; (6) deferred maintenance liability; and (7) constituent preferences.

USD and ACWD Consolidation Option

ACWD and the Union Sanitary District provide water and wastewater services, respectively, to similar service areas, including the cities of Fremont, Newark and Union City. In 1995, the districts retained consultant Ralph Andersen & Associates to study consolidation of the two agencies as a special district, as well as consolidation through a JPA comprised of representatives of the respective cities. The advantages and disadvantages of consolidation are listed in Table 4-31.

Table 4-31. Advantages and Disadvantages of USD-ACWD Consolidation

	Advantages	Disadvantages
Purpose	Single provider of water and sewer services.	Unnecessary because providers are already collaborating on recycled water development.
Electorate	Fewer board seats.	Disruption of governance during transition.
Facilities	Potential for consolidated facilities, one-stop permitting	Facility consolidation would be costly.
Oversight	No significant impact.	No significant impact.
Accountability	Centralized customer service functions would increase service levels.	No significant impact.
Cost Avoidance	Potential for operational cost savings of 1.6 to 2.3 percent through management streamlining and a shared long-range planning unit.	Operational savings are partially offset by transition costs for facilities consolidation and by compensation costs from reconciling salary structures.

Potential advantages of consolidation include improved customer service through a one-stop permitting center and the potential for modest cost savings. Potential disadvantages of consolidation include high transition costs for facility consolidation, increased costs associated with reconciling two disparate compensation schemes and no expected benefit in terms of reduced costs or increased service levels.

The 1995 study recommended against consolidation for several reasons:

1) The Districts operate efficiently and effectively. No major concerns over service levels or financing were identified.

2) The Districts' respective operations would be run as separate enterprises if consolidated, minimizing cost avoidance opportunities; and

3) High transition costs and increased personnel costs would partly offset savings from eliminating some management positions.

The study concluded that consolidation was unnecessary and potentially disruptive.[113] Further, the study recommended that the districts jointly review enhanced cooperation through streamlined

[113] The study conclusions were endorsed by the study's technical review committee, which include LAFCo staff, a representative of former Senator Lockyer, and the City Managers of Fremont, Newark and Union City.

permitting, strategic planning, legislative advocacy, joint public information programs, joint management training programs, and GIS system collaboration.[114]

Since the 1995 study, ACWD and USD have initiated several joint programs including annexations, emergency response, development and use of GIS data, evaluation of options for consolidating permitting, development of a Recycled Water Master Plan, implementation of a water conservation plan, and integrated planning and grant funding.

CVSD Detachment Options

Detachment of portions of Cull and Crow Canyons, Sunnyslope and other perimeter areas protected by Measure D is an option.

Development in the Castro Valley and Palomares canyonlands (among other areas) was restricted in 2000 by Measure D —the voter-initiated urban growth boundary (UGB). Measure D restricts land use in the canyonlands to agriculture, resource management, watershed management, and low-density rural residential housing (i.e., five-acre minimum lot size), but does not affect pre-existing development.

The County UGB limits development within CVSD's northern and eastern boundaries, specifically in Cull and Crow Canyons, Sunnyslope and other perimeter areas. Measure D limits the capacity of infrastructure extended into such areas to a level consistent with land use restrictions. Prior to Measure D, CVSD had already extended service to developed portions of the canyons accessible with gravity sewers and to the Sunnyslope area. Clearly, it would be impractical to detach areas where sewer infrastructure is already in place. Detachment options would involve unsewered areas protected by Measure D.

Detachment may be initiated by voter or landowner petition, or by resolution of the governing body of any affected agency (i.e., county, city or district).

Advantages of detachment include consistency with the voter-initiated UGB, protection of open spaces and natural habitats, consistency with the County's planning area, and the limiting of urban sprawl. Disadvantages of detachment include uphill septic use and related public health concerns.

Standard Annexation Options

Government structure options also include annexation of adjacent unincorporated areas within urban wastewater service areas. The wastewater service areas for the cities of Pleasanton, Hayward and Livermore include adjacent unincorporated areas.

The City of Hayward's wastewater service area extends into three unincorporated areas:

- the unincorporated Mission-Garin Hills area located south of CSU-Hayward and west of Garin Regional Park,
- developed properties north of West A Street, and
- the developed southeast portion of the Fairview area.

[114] Ralph Andersen & Associates, 1995, pages 121-124.

The City of Livermore's wastewater service area extends into five unincorporated areas:

- the Rancho Las Positas development at the intersection of Vasco and Tesla Roads,
- the partly developed Las Colinas Road area,
- an undeveloped area south of the Livermore Municipal Airport,
- an undeveloped area north of Altamont Pass Road, and
- the Lawrence Livermore and the Sandia National Laboratories.

The City of Pleasanton's wastewater service area extends into the unincorporated area of Castlewood.

Annexations may be initiated by landowner petition, voter petition or by resolution of the governing body of the annexing agency. In Alameda County, cities generally initiate annexations. The annexing city or petitioner is responsible for preparation of a service plan as well as public outreach in the affected area. As land use authority, the city is responsible for prezoning and project-related environmental reviews. Depending on the number of written protests received from landowners and/or registered voters, the Commission orders the annexation, orders the annexation subject to an election or terminates the annexation. Typically, the Commission receives written protests from less than 25 percent of registered voters or landowners and approves the annexation without an election.

Advantages of annexation include control over land use planning and development requirements in these areas, logical boundaries and service efficiencies.

After annexation, property tax, sales tax and most other revenue streams accrue to the annexing city, providing a financing mechanism for service provision to the newly annexed area. However, from the perspective of the affected cities, there are financial and infrastructure disadvantages related to annexation of developed areas. The property tax in lieu of vehicle license fees (i.e., VLF backfill) does not credit the annexing city with the assessed value of properties annexed to the city, although it does credit the annexing city with growth in value subsequent to annexation.[115] State law provides that the taxes, benefit assessments, fees and charges of an agency apply to newly annexed areas.[116] There are also infrastructure considerations for annexation of developed island areas. Annexation of developed areas may require the annexing agency to install or to rehabilitate water, sewer, street, and sidewalk improvements without development impact fees to finance infrastructure extension. Although water and sewer infrastructure extension may be financed by connection fees and/or supplemental service charges, financing street and sidewalk improvements in such areas would require voter-approved assessments.

The City of Hayward's approach to financing capital improvements in potential developed annexation areas is to require properties outside City boundaries to sign pre-annexation agreements when they connect to the City's water or wastewater system. If and when the area is annexed, the pre-annexation agreement requires the property owner to make various infrastructure

[115] Although the League of California Cities has proposed that annexing cities receive full credit for assessed value in annexed territory, the Legislature has not remedied this problem to date.

[116] Government Code §57330.

improvements, including street rehabilitation and sidewalk, curb, and gutter installation.[117] The improvements may be financed by formation of a Community Facilities District or directly by the property owner. The approach gives property owners an incentive to support formation of a Community Facilities District in the event of annexation.

Island Annexation Options

Government structure options include annexation of unincorporated island areas. The wastewater service areas for the cities of Pleasanton, Livermore and Hayward include unincorporated islands surrounded by the respective cities.[118]

The City of Hayward's wastewater service area extends into some unincorporated island areas, although most of the island properties rely on septic service. The City has proposed annexation of the islands in the Mt. Eden area. Most of the islands in the Mt. Eden project area are developed. The City plans to provide wastewater service to the annexation area. The City has not yet proposed annexation of the Mohr Drive and Chabot College island areas.

The City of Livermore extends wastewater service to three unincorporated island areas. There are two developed island areas, one located in the northern portion of the City south of Las Positas Road and the other in the central portion of the City encompassing Pleasant View Lane. The third island is undeveloped and located east of the Livermore Municipal Airport.

The City of Pleasanton provides wastewater service to the developed island areas located in the eastern portion of the City. The City of Pleasanton has also been studying annexation, but has not formally proposed annexation of its islands.

LAFCo has informed the cities that unincorporated islands may be annexed under streamlined procedures. The city and LAFCO must each conduct a public hearing. LAFCO waives protest proceedings, including election, and approves the annexation under the following conditions:

1) the island is less than 150 acres in size;

2) the island is an unincorporated area substantially surrounded by the city boundary or by a combination of the city and County boundaries;

3) the City Council of the annexing city adopts a resolution proposing annexation;

4) the area is substantially developed or developing, as reflected by the availability of public utility services and physical and public improvements;

5) the area is not prime agricultural land; and

6) the area will benefit from the annexation or is receiving benefits from the annexing city.

[117] In the event that the City of Hayward considers annexation of Arbutus Court or similar semi-rural areas in the future, the Council would consider relaxing the infrastructure improvement requirements to semi-rural standards.

[118] Although there are similar islands in Livermore, these areas are served by Cal Water.

Advantages of island annexation include control over land use planning and development requirements in these areas, logical boundaries and service efficiencies.

From the perspective of the affected cities, there are financial and infrastructure disadvantages related to annexation of developed island areas.

Oakland Hills Annexation Options

Annexation of unincorporated areas in the Oakland Hills to the City of Oakland and EBMUD is a government structure option, although LAFCo cannot compel the agencies to extend wastewater service to the Oakland Hills.

Oakland Hills—both the unincorporated portions and areas within the city limits—relies on septic systems and is not connected to the City's sewer collection system. Oakland has found that extending sewer infrastructure to the hilly area would not be cost-effective.

EBMUD provides wastewater treatment services to Oakland and has adequate capacity to provide treatment services to additional areas. However, EBMUD wastewater service is provided through a subordinate district (SD-1) of EBMUD. Although LAFCo is empowered to annex territory to EBMUD, LAFCo is not empowered to annex territory to SD-1. The SD-1 boundary area is smaller than the EBMUD boundary area.

San Leandro Annexation to EBMUD SD-1

Another government structure option is for territory within the City of San Leandro to be annexed to or contract with EBMUD's wastewater enterprise. EBMUD's wastewater enterprise is a subordinate special district (called SD-1) of EBMUD. Annexation of the area to EBMUD SD-1 is a government structure option that would require agreement between the City and EBMUD. This particular option would not require LAFCo action because the affected area already lies within EBMUD boundaries and because the EBMUD dependent special district boundaries are not subject to LAFCo action as long as they do not expand beyond EBMUD boundaries.

EBMUD has excess treatment capacity. Its main plant has a design capacity of 320 mgd and treats an average dry weather flow of 80 mgd. The EBMUD plant was built in the 1950s and is in fair condition. San Leandro operates a smaller plant with a design capacity of 7.9 mgd and treats an average dry weather flow of 5.5 mgd; the plant was built in 1939 and is in fair condition.

In 2002, the San Leandro City Council rejected the alternative of relying on EBMUD for treatment. The Council's decision followed two financial studies prepared by independent consultants comparing San Leandro's existing operating costs to the operating and system buy-in costs associated with relying on EBMUD or OLSD for treatment service. The City provided LAFCo with a copy of a preliminary study conducted in 1995. That study found that reliance on EBMUD would cost approximately 19 percent and that reliance on OLSD would cost approximately 27 percent more than the City's existing operating costs. Significant assumptions made by the study include:

1) the City would pay operating and system buy-in costs based on information provided by the alternative treatment providers;

2) the City would not pay costs for treatment plant demolition, site assessment and remediation, and would not receive any payment for treatment plant assets;

3) the City would continue to provide wastewater collection, industrial pre-treatment and billing services; and

4) the City would continue to pay EBDA "fixed costs"—51 percent of disposal costs—even if it no longer discharges through EBDA lines.

EBMUD encouraged LAFCo to evaluate the government structure option of San Leandro contracting with EBMUD for treatment services as well as other related options during the next MSR cycle in FY 2010-11.

District Annexation Options

Government structure options also include annexation to special districts. There are potential annexation areas within the SOIs of CVSD, DSRSD, EBMUD, OLSD, and USD.

DSRSD, EBMUD and USD have excluded "islands," or in other words areas excluded from district boundaries that are totally surrounded by territory within district boundaries. These "islands" are generally undeveloped or do not require utility services at present.

In addition, there are potential annexation areas along the fringes of CVSD, DSRSD, OLSD, and USD.

The districts generally initiate annexation when adjacent areas within their SOIs need wastewater service.

District annexations may be initiated by landowner petition, voter petition or by resolution of the governing body of the annexing district. If initiated by the district, the annexing district is responsible for preparation of a service plan and environmental documentation. Depending on the number of written protests received from landowners and/or registered voters, the Commission orders the annexation, orders the annexation subject to an election or terminates the annexation. Typically, the Commission receives written protests from less than 25 percent of registered voters or landowners and approves the annexation without an election.

Annexation may be advantageous when it is cost-effective to extend wastewater services to planned or new development within a district's SOI.

Various options for spheres of influence are discussed in Chapter 9.

CHAPTER 5: FLOOD CONTROL SERVICES

This chapter focuses on flood control service—the operation and maintenance of regional runoff collection, conveyance and discharge systems. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, and financing constraints and opportunities. Policy analysis—including shared facilities, cost avoidance, rate issues, government structure options, evaluation of management efficiencies and local accountability and governance—is focused on service providers under LAFCo's jurisdiction.

Flood control services refer to the operation and maintenance of regional runoff collection, conveyance and discharge systems as well as regional watershed planning and floodplain management of major creeks, streams and drainage systems. Municipal stormwater service, discussed in Chapter 6, refers to the operation and maintenance of local runoff collection, conveyance and discharge systems, and the regulation of certain private dischargers. Flood control and stormwater services are similar providing runoff drainage services, and the respective infrastructure is in many cases connected. However, they differ both in scope and in provider type; typically in California, cities provide stormwater services and flood control services are provided by the county or a flood control district.

SERVICE OVERVIEW

This section provides an overview of flood control services and providers in Alameda County and explains how the various flood control services are delivered and shared by the agencies.

The primary function of flood control is to manage the flow of flood waters and protect watercourses, watersheds, harbors, public highways, life and property from damage or destruction from such waters. Flood control service activities include watershed planning, flood plain management, hazard mitigation, erosion control, building and maintaining infrastructure such as channels and pumps, as well as regular maintenance tasks that include desilting, dredging, fence repair, and debris and vegetation removal. Additional flood control activities include habitat restoration and public education.

Service Providers

The Alameda County Flood Control and Water Conservation District (ACFCD) flood control system is an integrated part of local stormwater systems, which are built and managed by the cities, and functions as an expansion of the local cities' stormwater systems. City stormwater systems drain in various fashions, in some cases directly into ACFCD channels and in other cases through local creeks and into the San Francisco Bay.[119]

The ACFCD is the main flood control service provider in the County. The District is a dependent district governed by the County Board of Supervisors. In 1949, enabling legislation created the District in response to serious flooding throughout the State and the County. In the

[119] For use in this report, flood control channels signify larger paved or natural waterways maintained by ACFCD, whereas creeks are smaller natural waterways that are maintained either by ACFCD or cities within their jurisdictions.

1950s and 1960s, channelizing streams and other waterways to allow for increased capacity and greater control was completed. Although the District's boundaries are countywide, the District's service area includes only the territory included within District zones. Ten flood control zones have been created; zoned territory includes ten cities and most unincorporated areas. The cities of Alameda, Albany, Berkeley and Piedmont and the unincorporated EBMUD watershed lands lie outside the zoned territory.

Zone 7 of the ACFCD provides flood control service to the eastern part of the County, including the cities of Dublin, Livermore and Pleasanton. Zone 7 is quasi-independent. Zone 7 has an independently elected board that has sole authority to govern all matters relating only to Zone 7, although the County Board of Supervisors has governing authority on matters that also involve other zones of ACFCD. Zone 7 staff operates independently from staff operating the other ACFCD zones, except that Zone 7 contracts with ACFCD for maintenance services. In addition to flood control services, Zone 7 provides wholesale water service as discussed in Chapter 3.

The cities of Alameda, Albany, Berkeley, and Piedmont provide their own integrated drainage services, including both stormwater and flood control functions. These cities are responsible for urban stormwater collection and sub-street infrastructure. Drainage services provided by these cities are covered in Chapter 6 because their respective drainage systems are predominantly urban stormwater systems.

The U.S. Army Corps of Engineers (the Corps) is a flood control service provider, but is not under LAFCo jurisdiction. The Corps undertakes major projects throughout the County and works closely with the ACFCD and Zone 7 to provide for countywide flood protection. Often these projects are contracted to ACFCD, which manages facilities at a local level with funding from the federal government.

The California Department of Water Resources (DWR) is a flood control service provider, but is not under LAFCo jurisdiction. The DWR is the primary state agency for flood management. Unlike local agencies responsible for operation and maintenance of local flood control facilities and flood control planning within their jurisdictions, DWR operates larger flood control facilities (primarily in the Central Valley) and programs, such as dams and a flood operations center, that serve Alameda County along with other areas of the state. DWR's responsibility includes funding the local share of federal flood control projects, assisting the National Weather Service in flood forecasting, providing technical assistance to local agencies on complying with the National Flood Insurance Program, and expanding mapped areas that are prone to flooding. The DWR seeks to study and map areas outside the 100-year floodplain FEMA designation and conducts a statewide floodplain-mapping program. The program receives its funding from the State General Fund and Proposition 13 bond funds.

Service Area

Table 5-1. Flood Control Zone Service Areas

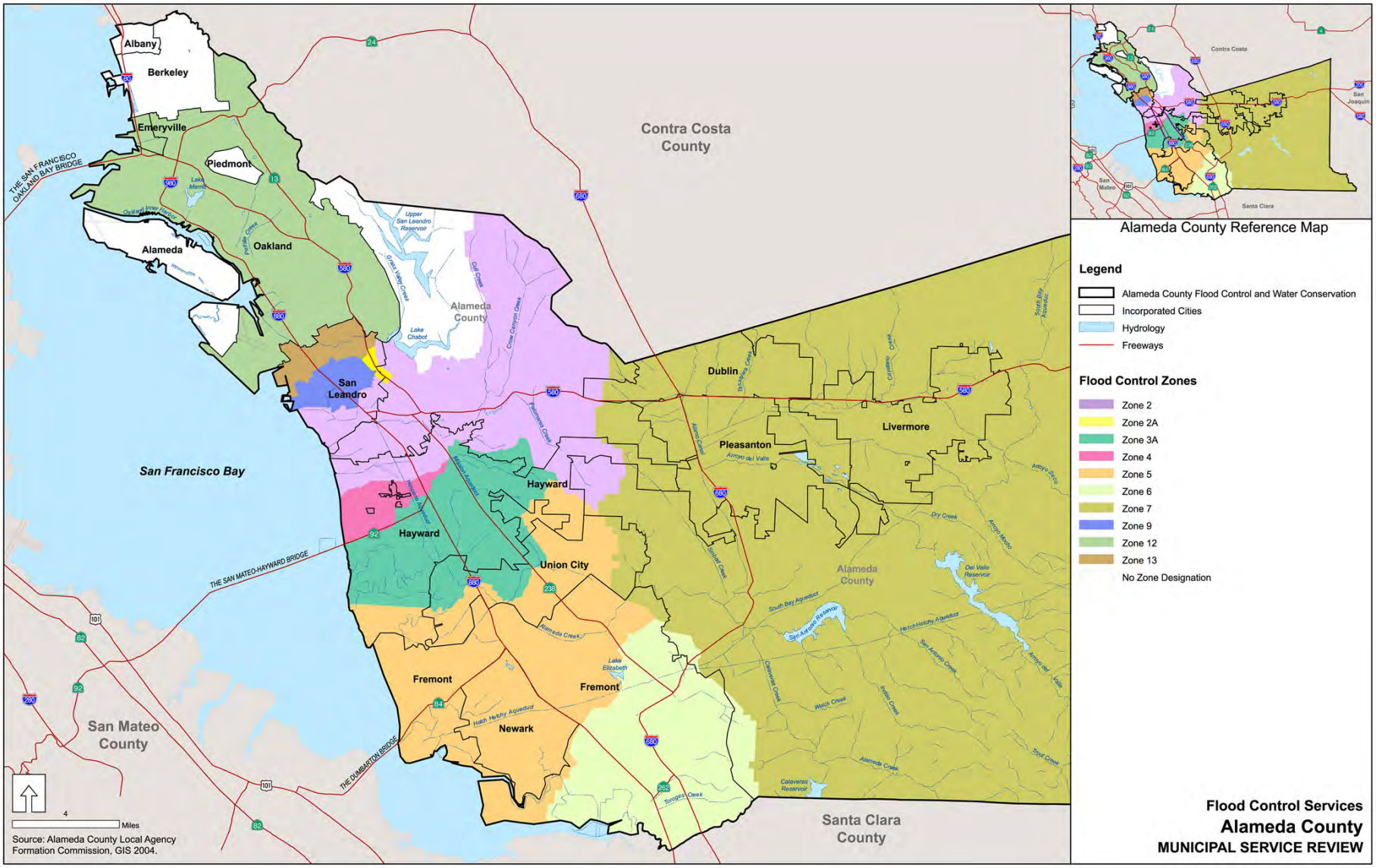
Zone	Service Area	Watershed/Drainage Description
Zone 2	Portions of San Leandro, Hayward and Dublin and the unincorporated communities of Castro Valley, San Lorenzo, Ashland and Cherryland	Many small creeks drain west from Castro Valley toward San Lorenzo Creek and flood control channels in the Zone.
Zone 2A	Eastern portion of San Leandro	Pipes carry water to the channels in Zone 2.
Zone 3A	Most of Hayward, a portion of Union City, and pockets of unincorporated areas	Ward, Zeile and Mt. Eden Creeks drain to Old Alameda Creek and to the Bay.
Zone 4	Western portion of Hayward	Channels drain the alluvial plain adjacent to the Bay.
Zone 5	Newark, northern Fremont, and portions of Hayward and Union City	Alameda Creek drains runoff originating in Livermore-Amador Valley through an alluvial plain adjacent to the Bay.
Zone 6	Southeast portion of Fremont and unincorporated areas along Fremont's eastern boundary	Coyote Creek and channels drain the alluvial plain adjacent to the Bay.
Zone 7	Entire eastern half of the County and the cities of Livermore, Pleasanton and Dublin	All of the major arroyos drain to the Arroyo de la Laguna which in turn drains to Alameda Creek and to the San Francisco Bay.
Zone 9	Central portion of San Leandro	Pipes and channels carry water to the Bay.
Zone 12	Oakland and Emeryville	Several small creeks drain to the Bay and Lake Merritt.
Zone 13	Northern portion of San Leandro	The Zone comprises the watershed for San Leandro Creek.

The service area for the Alameda County Flood Control and Water Conservation District includes most territory within Alameda County. The service area for each service zone in ACFCD is outlined in Table 5-1, along with a description of the watershed or drainage pattern in the zone.

The very nature of flood control, natural watersheds and political boundaries means that the county flood control system services drainage originating outside the County.

Alameda Creek, Arroyo Las Positas and Arroyo Mocho are just a few of the watersheds that drain into the County and thus into the flood control system. The system designers, both current and past, take this into consideration when implementing improvements and planning for peak flows.

Figure 5-2. Flood Control Service Map



SERVICE DEMAND

This section provides indicators of service demand such as precipitation and developed areas within the 100-year flood plain. The section discusses factors influencing service demand as developed areas proliferate in the future. Chapter 2 provides the residential population and job base, projected population and job growth rates, and a description of growth areas for each provider.

Flood control service demand is determined by precipitation levels and intensity, impervious surfaces and other factors such as topography affecting the amount of runoff, and the prevalence of development in flood prone areas. While precipitation amounts are not controllable, proper planning can minimize flooding hazards and reduce service needs based upon annual rainfall amounts. Rainwater is typically absorbed within the soil or dispersed as runoff into local creeks that feed rivers and flow to the ocean. The amount of rainwater retained by the soil is decreased dramatically by the expansion of impermeable surfaces such as concrete or buildings. These areas contribute nearly all of their rainwater to runoff which in turn increases demand upon the flood control system.

Demand on the system can be reduced by the introduction of proper planning techniques and materials, such as permeable asphalt, open space preserves, infiltration basins and other methods, reducing the amount of precipitation transformed into runoff.

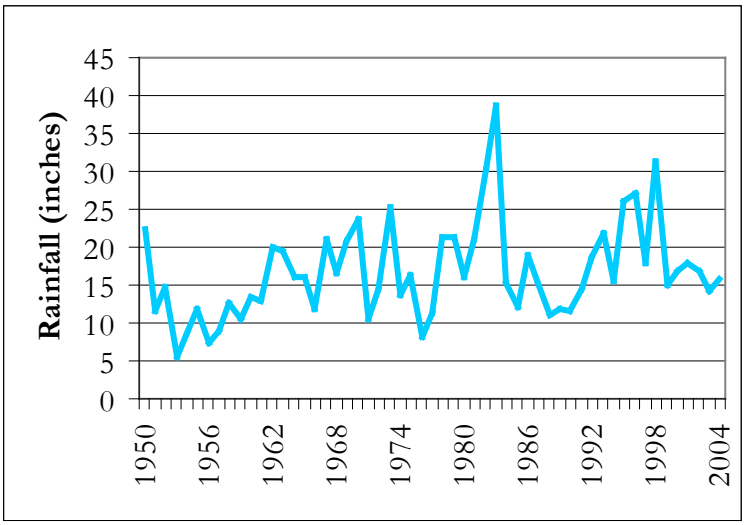
PRECIPITATION

A major factor influencing service demand is the amount and intensity of precipitation and duration of storm events.

Figure 5-3. Average Annual Rainfall, 1950-2004

Precipitation levels in Alameda County vary substantially by year. Figure 5-3 shows average rainfall in inches at National Weather Service monitoring stations in the County. There have been 17 inches of rain on average in the County since 1950.

In some years, precipitation may be more than 50 percent greater than average; in other years, precipitation may be 50 percent less than average. In 1983, precipitation was more than double the annual average.



The County, similar to the State as a whole, experiences most of its rainfall during the winter months. Based on information obtained from the National Weather Service, over 80 percent of annual rainfall occurs between the months of November and March.[120] Severe storms in Northern California resulting in flooding and mudslides corresponded with high rainfall in Alameda County during the winter months of 1995 and 1998.[121] Rainfall varies throughout the County, and is heaviest in the coastal northwestern cities of Albany, Alameda, Berkeley, and Emeryville. Heaviest rainfall tends to occur in January and February, reaching a maximum of four inches per day in coastal areas like San Leandro and three and a half inches in Livermore. Rainfalls greater than an inch per day occur an average of two times per year in inland areas and up to seven times a year in coastal areas. Areas with densely developed land face increased risk of flooding hazards and effects on water quality due to higher rates and volumes of surface runoff.

FLOOD PRONE AREAS

Flood prone areas are mapped by the Federal Emergency Management Agency (FEMA). FEMA has designated certain areas within Alameda County as falling within the 100-year flood plain. A 100-year flood plain is an area that has a one percent chance of flooding in any given year. Within the 100-year flood plain areas, FEMA requires flood insurance for property owners to get secured financing to buy, build or improve structures. If infrastructure improvements reduce the chance of flood damage, FEMA may remove affected properties from the 100-year flood plain and waive the flood insurance requirement. In some areas, infrastructure improvements cannot alleviate all risk of floods due to topographical constraints.

Currently, flood prone areas in Alameda County are quite small in comparison to other parts of the State. There are, however, many developed and populated areas that fall within the 100-year flood plain and thus require National Flood Insurance Program coverage, as shown in Table 5-4. The majority of these areas are near streams that could overflow or are in low-lying coastal areas.

The undeveloped areas of greatest concern are the Arroyo Mocho located southeast of Livermore along Mines Road, Altamont Creek, which flows through northeast Livermore, and Arroyo Las Positas, which flows through east Livermore just north of LLNL. Few developed areas are within 100-year flood plains in the cities of Alameda, Emeryville, Livermore, Newark, Oakland, Piedmont, and Union City.

Developed areas within the 100-year flood plan are listed in Table 5-4. The risk of flooding to the areas described in Table 5-4 is one percent in any given year. Zone 7 has a Comprehensive Stream Management Master Plan (2004) to eliminate all developed areas within the zone from the 100-year flood plain once the zone has been completely built out.

[120] Rainfall figures for Alameda County are based on averages of rainfall information collected at three National Weather Service Cooperative stations located in Livermore, Newark and Upper San Leandro.

[121] As reported by the Federal Emergency Management Agency.

Table 5-4. Developed Areas Within 100-Year Flood Plain

Service Area	Developed Areas in 100-Year Flood Plain
Alameda	None
Albany	A 100-foot narrow strip of land between the Golden Gate Fields Racetrack and the Eastshore Freeway and industrial land east of the racetrack.
Berkeley	Along creeks on the University of California campus, particulary the north fork of Strawberry Creek. Portions of industrial and mixed-use areas in the northwest.
Dublin	Areas near Amador Valley Blvd. and Sinclair Freeway intersection including a residential area northwest of the intersection and a commercial area southwest of the intersection. Also, an industrial area northeast of the Dougherty Road and I-580 intersection.
Emeryville	None
Fremont	Industrial areas between I-880 and Warren Ave., Niles Canyon, Mission Creek subdivision and areas around Lake Elizabeth, areas along Olive Ave. east of I-680, and a portion of northeastern residential areas adjacent to hillsides.
Hayward	The southwestern corner of the City including a large area of industrial land, residential areas and public facilities.
Livermore	None. Flood plains along Arroyo Mocho, Altamont Creek and Arroyo Las Positas cover open space and undeveloped areas.
Newark	Flood plain areas lie west of the Southern Pacific Railroad where land is primarily undeveloped. The City maintains industrial and residential development plans throughout this area, subject to wetland constraints.
Oakland	None
Piedmont	None
Pleasanton	Valley Trails and Del Prado Park neighborhoods east of the Alamo Canal and south of Arroyo Mocho.
San Leandro	Portions of southwest San Leandro, including 1,870 homes in Manor, Floresta and Springlake neighborhoods.
Union City	None. Flood plains include areas in undeveloped parts of the City along Dry Creek, the M Line Channel and western Baylands areas.
Alameda County	Residential areas in Castro Valley including areas south of I-580 along Castor Valley Creek and along Chabot Creek. In the Ashland area, southwest of East 14th St. at 160th Ave.
Five Canyons CSA	Northern residential areas along San Lorenzo Creek.

IMPERVIOUS SURFACES

Impervious surfaces increase runoff volume because they form a barrier between the rainfall, the underlying soil and groundwater basins, thereby limiting percolation and groundwater recharge. As development proceeds, the prevalence of impervious surfaces—paved streets, sidewalks, driveways, building footprints and parking lots—tends to increase, often dramatically.

EROSION

Erosion and sedimentation affect service needs. Excessive sedimentation affects flooding by reducing channel capacities and preventing flood control facilities, such as storm outfalls and flap gates, from functioning properly. Also, excessive sedimentation or erosion can affect water quality and water supplies needed for human, wildlife and instream aquatic organisms by impacting water temperature, turbidity and nutrient loading.

To manage and control erosion, the ACFCD and Zone 7 are subject to regulatory requirements for stormwater pollution control requirements on commercial and construction activities, such as grading, clearing, excavation, or other earth moving activities. The ACFCD and Zone 7 are responsible for carrying out the pollution control requirements in the unincorporated areas of the County. The regulatory requirements are administered countywide through the Alameda Countywide Clean Water Program (ACCWP). The ACCWP also works closely with the Alameda County Resource Conservation District on soil erosion control programs.

PROJECTED DEMAND

In the future, as outlying areas become more developed and impervious surface areas increase, flood control capacity will need to keep pace with increased runoff amounts.

As the Livermore-Amador Valley has been transformed from rural to suburban land uses, the potential for flood runoff has steadily increased. Zone 7 projects significant increases in peak runoff and runoff volume (and, by implication, runoff velocity) as a result of increases in impervious surfaces caused by construction of buildings and paving of streets and parking lots.[122] Increasing runoff—both quantity and velocity—also results from natural flood plains that have been lost and natural arroyos that have been converted into trapezoidal channels. Runoff flows in Zone 7 drainage channels are projected to continue to increase until full General Plan buildout occurs. The expansion of the floodplain at buildout is projected to be dramatic, particularly in the area immediately east of I-680 and south of I-580.

The ACFCD and Zone 7 currently are addressing these issues through planned capital improvements and runoff reduction measures. The planned projects include diversion of peak flows from Arroyo las Positas and Arroyo Mocho to Cope Lake or other areas in the Chain of Lakes region for storage as well as removal of excess sediment, which has accumulated along the reaches of Arroyo las Positas, Arroyo Mocho, Alamo Canal, and Arroyo de la Laguna.[123]

INFRASTRUCTURE NEEDS OR DEFICIENCIES

In the context of flood control, infrastructure needs signify facilities that do not provide adequate capacity to accommodate current or projected demand for service for the region as a whole or for jurisdictions within the County.

[122] RMC, March 2004, page S1-6.

[123] Stream Management Master Plan, 2004.

INFRASTRUCTURE CONDITIONS

The ACFCD operates and maintains over 448 miles of channel and 22 pump stations as well as underground pipes and natural waterways. Routine maintenance is handled by County staff and includes such duties as vegetation removal, fence repair, debris removal, desilting, dredging, bioengineering and pump maintenance.

The channels in the southern part of the County tend to be newer and are in better overall condition, while northern channels in dense urban areas are in slightly worse condition. [124] Current pump station needs include overhaul of pumps in Zones 3A, 9 and 12.

Table 5-5. ACFCD Channel Waterway Needs and Deficiencies

Zone 2	Channels Line A, K, and the Estudillo Canal need increased capacity and Line G needs drainage improvements.
Zone 2A	None
Zone 3A	Line A needs desilting operations, Line D needs a flood wall and Line C needs a detention basin.
Zone 4	Line A needs increased capacity.
Zone 5	Lines B, J, H and F need capacity enhancements. Line M needs increased capacity and basin construction. Line P needs channel realignment.
Zone 6	Lines E, I, M, K need capacity enhancements, Line M, D and L need bank stabilization. Line L also needs outfall improvements.
Zone 7	Arroyo las Positas needs bank enhancement, habitat restoration and a diversion to the Chain of Lakes. Arroyo Mocho needs diversion for regional storage and various other improvements. Arroyo Seco and Line T need bridge improvements to increase capacity. Chabot Canal and Line J need improvements along their banks. Alamo Canal needs erosion control. Line F needs new concrete lining. Arroyo de la Laguna needs various improvements totaling $60 million.
Zone 9	None
Zone 12	Lines C, B, F and I need capacity enhancements. Line F also needs creek restoration.
Zone 13	None

Current channel waterway needs identified by the agency are shown in Table 5-5. Infrastructure needs in Zone 7 are significant to prevent additional territory from being added to the 100-year flood plain as impervious surfaces proliferate.

Replacement of aging equipment and facility upgrades must be undertaken.

The Corps is currently in various stages of activity on four projects involving the Alameda County Flood Control System. Three of those projects—Laguna Creek Watershed, Estudillo Canal, and Arroyo de la Laguna—are general investigation studies exploring flood damage reduction alternatives in highly developed areas.[125] All three could have an impact on how the ACFCD manages flood damage. The reconnaissance phase of these studies has been completed but currently a lack of funding has stalled progress on the feasibility study phase. The estimated cost of proceeding is approximately $2 million per project. Any one of these three projects could be resurrected if the financing is appropriated.

[124] Lorick and Associates Consulting, Inc., 2000.

[125] Additional information about the U.S. Army Corps of Engineers flood control projects can be found at http://www.spn.usace.army.mil/projects/.

A fourth Corps study of Alameda Creek falls under Section 1135 of the Water Resources Development Act of 1986. The Act provides the authority to modify existing projects to restore the environment and to create new projects for areas degraded by Corps projects. The study, performed in conjunction with ACFCD, is a feasibility study on removing structural barriers to fish passage upstream in the flood control system. Currently pending final budgetary approval, the total federal cost is $5 million. ACFCD is expected to be responsible for any additional costs for this project.

There are also several projects planned locally by the ACFCD to supplement Corps projects. Over the next seven years, the ACFCD has planned over $61 million in system improvements for all zones except Zone 7. Zone 7 operates under a separate budget; implementation of its Stream Management Master Plan to control flood waters and habitat improvement is estimated to cost $455.7 million. Capital requirements in Zone 7 are relatively high to prevent development from converting substantial additional areas into flood prone areas. Zone 7 plans to divert peak flows to Arroyo las Positas and Arroyo Mocho to Cope Lake and other lakes in the Chain of Lakes acting as detention storage. Additionally, Zone 7 plans to remove excess sediment around Arroyo las Positas, Arroyo Mocho, Alamo Canal, and Arroyo de la Laguna to reduce peak flows. Zone 7 conducts projects to improve fish passage and habitat in the Arroyo Mocho, which is a tributary to Alameda Creek. The projects involve sediment removal and structural and habitat enhancements to restore steelhead passage and enhance channel capacity.

The major regional infrastructure needs in the County involve increasing capacity and preventing erosion.

OPPORTUNITIES FOR SHARED FACILITIES

The flood control system throughout the County is interconnected and multi-agency cooperation is important for providing service. Both the District and Zone 7 share in regulatory compliance costs through participation in the Alameda Countywide Clean Water Program (discussed in more detail in Chapter 6). Through the Bay Area Stormwater Management Agencies Association, costs of regional stormwater studies and planning efforts are shared with cities, counties and special districts that provide flood control or stormwater service in the Bay Area.

The ACFCD engages in extensive staff sharing. The District is staffed by the Alameda County Public Works department and as a dependent district works in County facilities. Although ACFCD and Zone 7 do not share staff , Zone 7 contracts with ACFCD for certain flood control maintenance services from ACFCD. Neither agency mentioned staff sharing as an opportunity. An opportunity for staff sharing exists between the Alameda Countywide Clean Water Program and ACRCD. The ACCWP supports ACRCD watershed programs and San Lorenzo Creek restoration projects.

There are minimal opportunities for shared facilities as flood control service is mostly a countywide effort. One opportunity was identified in a benchmarking study conducted for the Alameda County Public Works Department. It recommended sharing staff with sanitary and water districts to assist during emergencies or preventive maintenance activities.[126]

[126] Lorick and Associates Consulting, Inc., 2000.

SERVICE STANDARDS AND ADEQUACY

There are various measures of flood control service adequacy, which are based on agencies' ability to meet regulatory standards and performance benchmarks, success in avoiding flood damage, local plans and programs, and public education.

The ACFCD and Zone 7 are two of 17 agencies jointly included in the countywide National Pollutant Discharge Elimination System (NPDES) permit for municipal stormwater; the other 15 agencies include the 14 cities and the County. The agencies are collectively required to limit the discharge of pollutants. ACFCD and Zone 7 activities include watershed assessment and monitoring, public outreach and illicit discharge control. The flood control providers are responsible for meeting regulatory standards, although ACFCD and Zone 7 are not required to conduct certain permit issuance and inspection activities under the permit and are not directly responsible for related municipal maintenance services. ACFCD and Zone 7 are in compliance. (For a detailed discussion of stormwater regulatory requirements see Chapter 6.)

As discussed under service demand, FEMA is responsible for mapping territory as inside or outside the 100-year flood plain. One measure of service adequacy is construction and maintenance of flood control infrastructure to reduce or to limit the expansion of the 100-year flood plain by expanding channel capacity and by diverting flows. FEMA periodically conducts flood insurance studies of previously studied areas as well as newly studied areas (e.g., pending study of Alameda Point). The Livermore-Amador Valley was studied in the late 1970s and in 1997. Due to rapid growth in the area, flood plain designations are dynamic and likely to expand. Zone 7 projects that the 100-year flood plain boundaries will expand under build-out conditions to approximate the 500-year flood plain identified in the 1997 study. Zone 7's capital improvement program, discussed under Service Demand, aims to limit this trend.

Table 5-6. Flood Control Service Performance

ACFCD Maintenance Benchmarks			
	Partner 1	Partner 2	Alameda County
Cost per mile cleaned	$ 1,002	$ 1,463	$ 3,146
Annual complaints per channel mile	N/A	0.14	0.03
Cost per pump station	$ 2,962	$ 30,876	$ 13,879
Staff per pump station	0.5	0.5	0.45

The Alameda County Public Works Agency is in charge of the management and daily operation of the ACFCD. The agency conducted a benchmark study comparing its performance in 10 maintenance activities (including flood control) to the performance of other public agencies throughout the nation.[127]

The activities related to flood control service included cleaning vegetation and debris from flood control channels and maintaining pump stations. Service indicators used in the Alameda County Public Works Agency benchmarking study are shown in Table 5-6. The study compared ACFCD to two "Best in Class" providers. Partner 1 is described as a district located on the West Coast that includes two incorporated cities; the majority of the territory is rural or agricultural. Partner 2 is

[127] Lorick Associates Consulting, June 2000.

described as a district in the Pacific Southwest that serves the unincorporated portions of the county.

ACFCD has greater costs per mile cleared of vegetation while having fewer complaints per channel mile. Vegetation removal is defined by the District as the routine removal of vegetation from channels, fence lines and access roads permitting channels to function as designed. This activity is performed predominately in the dry months on the west side of the County where most of the flood control channels are located.

The ACFCD cost per pump station lies between the costs of the two comparison districts with similar staffing per pump station. Pump station maintenance is defined by the District as the routine maintenance and inspection as recommended by manufacturers, regulatory agencies or others regarding pump station equipment. The District also maintains fences bordering the flood control channels.

Service Challenges

Requirements such as dewatering flood control channels are expected to drive up costs through the complexities of the new process.[128] Due to restrictions on the use of chemical sprays, the District must transition to manual weeding to maintain flood control channels. Without additional funding, lower levels of flood control service are anticipated.

Table 5-7. Service Challenges

Name	Service Challenges
Zone 2	Fence repair, debris removal, erosion control and vegetation removal.
Zone 2A	None
Zone 3A	Erosion control and tidal action, causing silt buildup.
Zone 4	Silt buildup and tidal erosion.
Zone 5	Erosion to Alameda Creek's earthen channels, the removal of vegetation and debris, and sediment accumulation.
Zone 6	The flat nature of the zone makes sediment accumulation a challenge to effective flood control.
Zone 7	Numerous major natural waterways do not provide sufficient capacity for major storm events and expansion of existing manmade channels is not viable. Sediment accumulation and other institutional and financial constraints need to be addressed. Erosion control and the revegetation of certain creeks are the biggest concerns.
Zone 9	Aging equipment
Zone 12	Creek restoration, erosion control and pollution prevention are the biggest challenges in this highly urbanized zone.
Zone 13	Erosion of creek bed as well as vegetation and debris removal.

[128] Lorick Associates Consulting, June 2000.

FINANCING CONSTRAINTS AND OPPORTUNITIES

Financing constraints and opportunities impacting delivery of services are discussed in this section. The revenue sources currently available to the service providers as well as long-term debt and reserves are identified. The section discusses innovations for contending with financing constraints, cost-avoidance opportunities and opportunities for rate restructuring.

FINANCING SOURCES

Sources for financing of flood control services include benefit assessments, property taxes, regulatory and user fees, government aid, and interest on cash reserve balances.

Assessments

The ACFCD levies benefit assessments as required by the Benefit Assessment Act of 1982 to be proportionate to the amount of stormwater runoff from each parcel of property. The amount of stormwater runoff relates to parcel size and land use. Larger parcels generate greater runoff as do more highly developed parcels with impervious surfaces. The Alameda County Board of Supervisors established five land use categories for the benefit assessments:

- Commercial and industrial
- Multi-family residential (5 or more units) and institutions
- Single family and small multi-family residential (2 - 4 units)
- Vacant land used for farming, vineyards, crops, parks, etc.
- Vacant land that is undisturbed (includes land used for grazing)

The assessment is calculated by multiplying the established rate, based on zone and land use group, by property acreage.

Property Taxes

The ACFCD receives a portion of the countywide one percent property tax. The District also pays in to the Educational Revenue Augmentation Fund (ERAF). Approximately two fifths of the District's property tax allocations are directed to ERAF to finance schools. The District receives modest reimbursement for this expense.[129]

Fees

The District charges various fees including rental of District-owned property and plan review and permit fees paid by developers.

[129] Alameda County Flood Control and Water Conservation District, 2001, page 8.

Other Revenue Sources

Other revenue sources include interest on cash reserves, rental revenue, contracted service, and government aid. Rental revenue is derived from use of property owned by the District.

The Zone 7 Special Drainage Area (SDA 7-1) Program, which is funded by developer fees, is currently the Agency's only source of revenue for development-related improvements to the unimproved creeks, arroyos and streams within Zone 7's service area. The SDA 7-1 program outlines the design criteria with which developers and other must comply to ensure adequate flood protection. Under this program, Zone 7 enters into agreements with developers to take ownership, and thus maintenance responsibility, of the facilities that are constructed to agency standards. The developers are reimbursed a predetermined amount for channel improvements and right-of-way.

FINANCING CONSTRAINTS

The most significant constraint on the financing of flood control services is the voter approval requirement for assessments. Flood control assessments are considered property-related fees under Proposition 218, and require an affirmative two-thirds vote to be imposed or increased. Although assessments already in place prior to November 1996 are not subject to Proposition 218 voter approval requirements, the agency must follow Proposition 218 requirements to increase the assessment.

The ACFCD assessments are required by state law to be proportionate to the amount of stormwater runoff from each parcel, thereby limiting restructuring methods. As assessments are considered taxes under Proposition 13, the District must seek voter approval of proposed assessments. The two-thirds vote required by Proposition 218 supercedes the majority vote requirement in the California statute (i.e., the Benefit Assessment Act of 1982). A proposed constitutional amendment (A.C.A. 13) would exempt flood control assessments and other property-related fees or charges from Proposition 218 requirements for voter approval.

In order to raise user fees, the jurisdiction must document that the fee recoups only the costs of providing the fee-related service. In setting regulatory fees such as permit fees, the jurisdiction may impose fees to include the costs of inspection, investigation, enforcement and administration.

FINANCING OPPORTUNITIES

Financing opportunities include increasing benefit assessments, imposing development related fees and increasing user fees.

Financing opportunities that require voter approval include increased assessments, bonded indebtedness and creating special drainage areas to finance improvements in newly developed areas. Special drainage areas can be designated to assess developer fees.

Plan review and permit fees paid by developers could be increased if justified based on cost-of-service analysis. Similarly, other user fees could be increased if justified based on cost-of-service analysis.

One type of government aid is FEMA's Flood Mitigation Assistance (FMA) program. FMA provides funding to assist states and communities to implement measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insurable under the National Flood Insurance Program (NFIP). There are three types of grants available under FMA: Planning, Project, and Technical Assistance Grants. Communities receiving FMA Planning and Project Grants must be participants in NFIP. FEMA also has a Pre-Disaster Mitigation Grant Program (PDM). The PDM assists states and local governments to implement cost-effective hazard mitigation activities that complement a comprehensive mitigation program. The PDM favors comprehensive and multi-objective programs, with potential objectives including environmental restoration, impact mitigation and recreation. All applicants must be participants in the National Flood Insurance Program and identified through the NFIP as having a Special Flood Hazard Area or have a Flood Insurance Rate Map (FIRM) issued.

The Department of Water Resources (DWR) shares part of the costs of flood control projects with local agencies and the federal government. For federally authorized flood control projects, the federal government will contribute 65 percent of the planning and construction costs. Under A.B. 1147, the DWR contributes at least 50 percent of the non-federal share of the total flood control project cost. The DWR will contribute up to 70 percent if the DWR determines the project has multiple benefits, such as open space.

OPPORTUNITIES FOR RATE RESTRUCTURING

As discussed above, there are opportunities for the ACFCD to restructure assessments with voter approval, as well as opportunities to restructure various fees. The last assessment increase predates Proposition 218 and occurred in Zone 6 in FY 1993-94.

COST AVOIDANCE OPPORTUNITIES

Cost avoidance opportunities refer to the elimination of unnecessary costs. Unnecessary costs may involve duplication of service efforts, higher than necessary administrative costs, use of outdated or deteriorating infrastructure and equipment, underutilized equipment, buildings or facilities, overlapping or inefficient service boundaries, inefficient purchasing or budgeting practices, and lack of economies of scale.[130]

The Alameda County Public Works Agency nationwide benchmarking study conducted by its maintenance and operations department was an effort to identify cost-saving practices as well as opportunities to improve service performance. The study identified several areas where the ACFCD can improve services and save costs. The County can cut costs through the use of chemical sprays, inmate labor to clear vegetation and mechanical equipment to clear vegetation.[131]

In addition, demand management strategies can help to eliminate unnecessary costs. Zone 7 uses performance-based budgeting to track workload and performance measures on an annual basis and to improve organizational efficiency. The ACFCD conducted a benchmark study in 2002. The

[130] Local Agency Formation Commission of Alameda County, 2002.

[131] Although not completely banned, new TMDL restrictions have limited the type, amount and manner of application of chemical sprays that can be used to remove vegetation because of emerging water quality concerns.

Engineering and Construction Department is currently conducting a nationwide benchmarking study. Managerial performance incentives would help to identify cost avoidance opportunities; such incentives involve providing bonus pay to managers who identify innovative ways to reduce ongoing costs.

POLICY ANALYSIS

This section provides policy analysis that is focused on local government agencies that provide flood control services. The policy analysis includes assessment of local accountability and governance, evaluation of management efficiencies, as well as the identification of government structure options that may be considered by LAFCo.

LOCAL ACCOUNTABILITY AND GOVERNANCE

This section discusses local accountability and governance for the limited purpose agency, and provides an overview of indicators of local accountability and governance for the multipurpose agencies.

Table 5-8. Accountability Indicators

Indicator	ACFCD	Zone 7
Direct service provider	Yes	Yes
Service recipients are constituents	Yes	Yes
Uncontested elections since 1994	None	None
Latest contested election	Nov-02	Mar-02
Latest voter turnout rate	52%	33%
Countywide turnout rate	53%	35%
Broadcasts meetings	Yes	No
Constituents updated via outreach	Yes	Yes
Solicits constituent input	Yes	Yes
Discloses finances	Yes	Yes
Discloses plans	Yes	Yes
Posts public documents on web	Yes	Yes

The assessment of local accountability and governance is generally agency-wide. All agencies hold open elections for their governing bodies, prepare meeting agendas and minutes, and make staff and elected officials accessible. Accountability indicators for ACFCD and Zone 7 are shown in Table 5-8.

The ACFCD is governed by the County Board of Supervisors. There have been no recent uncontested elections and voter turnout at the most recent election was comparable to the countywide voter turnout rate. The Board updates constituents, broadcasts its meetings, solicits constituent input, discloses its finances, and posts public documents on its website.

The Zone 7 Water Agency is governed by an independently elected Board of Directors. There have been no recent uncontested elections and voter turnout at the most recent election was comparable to the countywide voter turnout rate. The Zone 7 Board updates constituents, solicits constituent input, discloses its finances, and posts public documents on its website. The agency does not broadcast board meetings.

Table 5-8 provides accountability indicators for the two flood control service providers and Appendix A provides an extended discussion of local accountability and governance at these agencies.

EVALUATION OF MANAGEMENT EFFICIENCIES

This section provides analysis of management efficiencies at the local flood control agencies and considers the effectiveness of each agency in providing efficient, quality public services.

Management Practices

ACFCD management practices include benchmarking, financial audits and performance evaluation. The District's flood control service indicators were part of the previously noted nationwide benchmarking study to compare its performance to similar jurisdictions. The District's engineering department is currently doing a similar study. To monitor productivity within the District, its engineers develop labor cost estimates and project schedules for each project. The labor costs and project schedules are monitored monthly. Workload is also monitored through monthly work assignment status updates. ACFCD adopted a Capital Improvement Plan in FY 2002-03 with a time horizon of seven years.

Zone 7 management practices include financial audits and performance evaluation. Outside consultants are used to provide performance and program audits; most recently completed was a review of the District's water resource department in 2000. Zone 7 tracks workload through individual personnel performance evaluation and task planning and monitoring for its engineering, water resources and maintenance departments. To monitor productivity within the District, every department monitors employee assignments on a project basis. Additional management practices conducted by the District include performance-based budgeting.

Zone 7 has adopted planning documents on flood control service issues, including a Capital Improvement Plan in FY 2002-03, with a time horizon of five years, and an interim Stream Management Master Plan in 2004 that address several long-term service issues.

Conclusion

It is difficult to assess agency management efficiencies as the ACFCD and Zone 7 are the only regional flood control service providers in the County. In addition, flood control service is closely related to the effectiveness of stormwater service provided by the cities. Both the County and the cities work closely together under the same state requirements regarding urban runoff. The agencies are working together to limit pollutant levels in the runoff.

GOVERNMENT STRUCTURE OPTIONS

The MSR identifies government structure options, advantages and disadvantages, and evaluation issues. The Commission or the affected agency may or may not initiate future studies of these options, although LAFCo is required to update all SOIs by January 1, 2008.

The cities of Berkeley and Albany include developed areas within the 100-year flood plain. These two cities provide integrated flood control and stormwater services and are not included in a zone of the ACFCD. The cities may propose to become an ACFCD zone. The Board of

Supervisors is empowered to create and alter zones. Incorporated cities are authorized to withdraw from the District through a popular vote.

With the exception of Zone 7−because zones are not "districts" as defined in the CKH Act−LAFCo does not have jurisdiction over the creation of or the boundaries for the various zones of the ACFCD. Hence, no government structure options under LAFCo jurisdiction were identified.

CHAPTER 6: STORMWATER SERVICES

This chapter discusses the provision of stormwater and drainage services in Alameda County by the County, cities, special districts, and federal agencies. The chapter addresses questions related to growth and population projections, current and future service needs, infrastructure needs, and financing constraints and opportunities. Policy analysis—including shared facilities, cost avoidance, rate issues, government structure options, evaluation of management efficiencies, and local accountability and governance—is focused on service providers under LAFCo's jurisdiction.

Stormwater refers to pure rainwater plus anything the rain carries with it.[132] Unlike sewage, stormwater is usually not treated.[133] Although it may be filtered through catch basins, stormwater flows directly from streets and gutters into creeks, the Bay and the ocean.

Municipal stormwater service refers to the operation and maintenance of local runoff collection, conveyance and discharge systems, and the regulation of certain private dischargers. (Flood control services discussed in Chapter 5 refer to the operation and maintenance of regional runoff collection, conveyance and discharge systems.) Flood control and stormwater services are similar in that they are runoff drainage services and the respective infrastructure is in many cases connected. However, they differ both in scope and in provider type; typically in California, cities provide stormwater services and flood control services are provided by the County or a flood control district.

SERVICE OVERVIEW

This section provides an overview of stormwater and drainage services and service providers in Alameda County, and explains how the various stormwater services are delivered and shared by the agencies.

SERVICE PROVIDERS

Stormwater services in Alameda County are provided directly by cities in their respective jurisdictions and by the County in unincorporated areas. The County provides stormwater services for the Five Canyons CSA and some cities contract with special districts or private providers to perform permitting and preventive stormwater services, as shown in Table 6-1. The Five Canyons CSA serves the northeast portion of the unincorporated Fairview area.

[132] U.S. EPA website, http://www.epa.nsw.gov.au/stormwater/whatis/index.htm

[133] In older areas of some jurisdictions (e.g., downtown Sacramento), there are dual wastewater-stormwater systems; no such systems exist in Alameda County.

Table 6-1. Stormwater Service Matrix

Agency	Maintenance	Permitting	Preventive	Treatment
Alameda	Direct	Direct	Direct	None
Albany	Direct	Direct	Private (street sweeping)	None
Berkeley	Direct	Direct	Direct	None
Dublin	Direct; Private	Direct	Private (street sweeping)	None
Emeryville	Direct	Direct	AC Environmental Health (inspection) Private (street sweeping)	None
Fremont	Direct	Union Sanitary District	Direct	None
Hayward	Direct	Direct	Direct	None
Livermore	Direct	Direct	Direct	None
Newark	Direct	Direct	Direct	None
Oakland	Direct	Direct	Direct	None
Piedmont	Direct	Direct	Direct	None
Pleasanton	Direct	Direct	Direct	None
San Leandro	Direct	Direct	Direct	None
Union City	Direct	Direct	Direct	None
Five Canyons CSA	County	County	County	None
Alameda County	Direct	Direct	Direct	None

In Alameda County, all of the municipalities and relevant agencies have joined together in the Alameda Countywide Clean Water Program (ACCWP). The ACCWP was established in 1991 through a Memorandum of Agreement (MOA) between all cities, County, ACFCD and Zone 7. ACCWP provides various support services to the cities, special districts and the County through subcommittee meetings, legal advice, regulatory advice, agency education and information sharing. The ACCWP has implemented Best Management Practices (BMPs) and is developing programs to address the new requirement that 85 percent of runoff be treated. Additional programs are aimed at combating erosion of creek beds through reduction of stormwater flow rates.

SERVICES

Stormwater and drainage services include direct maintenance services, preventative maintenance, regulatory activities and pre-treatment services.[134]

The direct maintenance services include removal of blockage from storm drainage and piping, cleaning of stormwater inlets and basins, and repair of stormwater infrastructure. Preventative services include open space litter control, street sweeping and inspection of inlets. Regulatory activities involve public outreach and education, industrial and commercial discharger permitting and inspections, development of source controls and site design for development projects and inspection for illicit wastewater discharge. Many cities in Alameda County also support programs to promote proper recycling and disposal of hazardous waste.

Pre-treatment involves on-site treatment and retention methods to prevent polluted runoff from reaching the storm drain system. These methods include vegetated swales, surface sand filters, retention ponds, bioretention units, gravel wetland units, porous asphalt pavement, tree box filters, and other devices. The Alameda Countywide Clean Water Program (ACCWP) advocates the

[134] See Chapter 4 for discussion of wastewater services relating to stormwater infiltration into wastewater collection systems.

implementation of local and pre-treatment methods because stormwater treatment is prohibitively expensive.

Stormwater treatment services are not provided in Alameda County. There are no dual wastewater-stormwater collection systems in Alameda County. Stormwater that seeps into the wastewater system (i.e., infiltration and inflow) is treated, as discussed in Chapter 4.

SERVICE AREA

Each agency is responsible for service within its boundary area. None of the agencies reported providing services outside their respective territory. Table 6-2 describes the drainage areas of each stormwater service provider in Alameda County.

Table 6-2. Stormwater Drainage Areas

Area	Description
Alameda	Pipes and channels flow to the San Francisco Bay.
Albany	Storm drains flow through Cerrito, Middle, Marin, Village, and Cordornices Creeks to the San Francisco Bay.
Berkeley	Storm runoff flows through pipes to San Francisco Bay. Natural creeks - Codornices, Cerrito, Strawberry and Temescal Creeks - also provide a path for stormwater runoff to the San Francisco Bay.
Dublin	The City maintains inlets and pipes to carry stormwater to Alamo, Dublin, Tassajara, Koopman, Donjan, and Canyon Creeks, and through the flood control system.
Emeryville	Storm drains flow to channels and Temescal Creek and to the San Francisco Bay.
Fremont	Storm drains flow through Laguna, Irvington, Sabercat, and Mission Creeks to the San Francisco Bay.
Hayward	Located on an alluvial plain adjacent to the Bay, stormwater in the City of Hayward flows through storm drains, pipes, channels, and natural creeks including Sulphur, Ward, Ziele, and Alameda Creeks to the San Francisco Bay.
Livermore	Concrete pipes flow to major channels and detention basins, and to creeks including Arroyo Las Positas, Arroyo Mocho, Granada Channel, Cottonwood, Cayetano, and Altamont Creeks.
Newark	In an alluvial plain adjacent to the Bay, the City of Newark uses storm drains, pipes and channels to drain to Beard Creek, Sanjon de los Alisos, Plummer Creek, Newark Slough, and Mowrys Slough, and to the San Francisco Bay.
Oakland	Several creeks generally flow in a southwesterly direction from the hills down to developed areas and to the San Francisco Bay through culverts, channels, and creeks including Sausal Creek, Peralta Creek, Lion Creek, Arroyo Viejo, and Elmhurst Creek.
Piedmont	Principal drainages are Indian Gulch, Piedmont Park and Dracena Park Canyon.
Pleasanton	The City utilizes storm drains, pipes, and culverts which drain to creeks and channels including Arroyo de la Laguna, Arroyo del Valle, Arroyo Mocha Canal, Pleasanton Canal, Alamo Canal, Laurel Creek, and Tassajara Creek.
San Leandro	Pipes, Estudillo Canal, Corvalis Canal, San Leandro Creek, and San Lorenzo Creek carry water to the San Francisco Bay.
Union City	In an alluvial plain adjacent to the San Francisco Bay, Union City uses storm drains, pipes and channels to drain to Alameda Creek, Dry Creek, and to the San Francisco Bay.
Alameda County	The Flood Control District and the County Public Works Department manage the storm drains, which flow to the flood control system.
Five Canyons CSA	Storm drains, ditches and pipes flow to San Lorenzo Creek.

SERVICE DEMAND

This section discusses the factors affecting service demand, such as precipitation, impervious surfaces (i.e., paved areas), permits, and the regulatory environment. Chapter 2 provides the residential population and job base in each agency, projected population and job growth rates, and a description of growth areas.

PRECIPITATION

A major factor influencing service demand is the amount of precipitation. See Figure 5-3 and the flood control service chapter for information on precipitation in Alameda County.

While precipitation amounts cannot be controlled, proper planning can determine service needs based upon annual rainfall amounts and seasonal heavy rainfalls.

IMPERVIOUS SURFACES

Rainwater is typically dispersed by percolation into either retention within the soil, proper onsite drainage/design systems, or runoff into local creeks, feeding rivers and so on into the ocean. The amount of rainwater retained by the soil is decreased dramatically by the expansion of impermeable surfaces such as concrete or buildings. As development proceeds, the prevalence of impervious surfaces—paved streets, sidewalks, driveways, building footprints and parking lots—tends to increase.

Stormwater runoff can be reduced by the introduction of proper watershed management and planning techniques and materials such as permeable asphalt, open space preserves, infiltration basins, soil erosion control, monitoring of development plans and projects, and public education. Stormwater service providers may reduce runoff caused by new development by implementing development standards that minimize impervious surfaces and by requiring site measures (e.g., swales and bioretention basins) that direct runoff to pervious surfaces.

REGULATORY ENVIRONMENT

Stormwater service needs are also affected by pollutant loads in stormwater runoff and emerging regulatory requirements, including total maximum daily load requirements, for reducing pollutants to the maximum extent practicable.

PERMIT MONITORING

Each of the cities and certain industries known to contribute to stormwater runoff pollution are regulated by National Pollution Discharge Elimination System (NPDES) permits. The NPDES permits are administered by San Francisco Bay Regional Water Quality Control Board (RWQCB).

The types of industry subject to NPDES permits include concentrated animal feeding operations and aquatic animal production facilities, manufacturing, mining, silvicultural operations, trailer parks, service stations, laundromats and storm water discharges associated with industrial activity.

Since 1993, the stormwater service providers in Alameda County have conducted stormwater monitoring at NPDES permit sites and other potential industrial and commercial sources of runoff.

Table 6-3. Discharge Permits and Inspections

Name	Active Industrial Discharge Permits	Active Construction Discharge Permits	FY 2003-04 Industrial and Commercial Inspections
Alameda	13	8	129
Albany	2	2	20
Berkeley	21	4	126
Dublin	5	33	93
Emeryville	6	6	35
Fremont	47	46	438
Hayward	86	37	264
Livermore	24	67	236
Newark	28	8	229
Oakland	113	20	950
Piedmont	0	0	5
Pleasanton	11	25	72
San Leandro	48	6	223
Union City	22	20	115
Alameda County	10	14	177
Five Canyons CSA	NA	NA	NA

Stormwater permits require cities and other permittees to implement construction programs that minimize the negative impacts of construction, industrial and commercial activities on municipal stormwater quality. This is a parallel and separate effort from the statewide construction and industrial permits issued by the State Water Resources Control Board (SWRCB).

The stormwater service providers are responsible for inspecting all potential non-residential dischargers. Table 6-2 shows the currently active discharge permits in each jurisdiction as of January 2005 and the number of inspections conducted in FY 2003-04.

Construction discharge permits are most numerous in Livermore where large amounts of development are occurring, while industrial permits are most numerous in Oakland.

The number of inspections carried out by each agency varies depending on the types of businesses located within each agency's boundaries.

PROJECTED DEMAND

Over the next 5-15 years, stormwater service demand will likely increase to keep pace with growth in impervious areas and regulatory requirements. In the future, factors that affect stormwater service demand include the amount of rainfall, new development of storm drains and other stormwater infrastructure, development controls, as well as increased commercial and industrial growth necessitating more NPDES permits and discharge monitoring.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

In the context of stormwater service, infrastructure needs signify facilities that do not provide adequate capacity to accommodate current or projected demand for service for the region as a whole or for jurisdictions within the County.

INFRASTRUCTURE CONDITIONS

The infrastructure used to provide stormwater services includes storm drains, catch basins, channels and natural waterways, pump stations, pipes and ditches.

Table 6-4. Stormwater Infrastructure Needs and Deficiencies

Agency	Facility Needs and Deficiencies
Alameda	In some areas, the size of pipes is too small to handle system flows and various improvements are needed to alleviate flooding. The pump stations lack fixed generators and power-operated trash racks.
Albany	Need some creek restoration and continued maintenance.
Berkeley	The system is over 80 years old and needs substantial improvement. There are over 500 trouble spots during rainstorms. Capital improvements have been postponed due to lack of funding.
Dublin	None
Emeryville	Need increased flow capacity at several points. Must begin storm drain reconstruction program.
Fremont	Need to address localized ponding and improvement of siphoning methods in some areas.
Hayward	Need to address localized ponding and flooding along the industrial corridor.
Livermore	Need improvements to system for localized flooding, major maintenance on channels, and erosion control of Arroyo Mocho. Three pump stations need to be updated within 5-10 years. The P Street pump station is not adequate for required flow rate.
Newark	Need to update 91 storm drain inlets with newer higher flow models.
Oakland	Need storm drain replacements throughout City.
Piedmont	None
Pleasanton	None
San Leandro	In southwest areas, pipe size is too small to handle system flows and various improvements are needed to alleviate flooding.
Union City	None
Five Canyons CSA	None
County	Drainage improvements are needed on Acorn Street in Castro Valley and on Via Andeta in San Lorenzo.

Each of the cities and the County maintain its own system of storm drains, underground pipes and local channels, which eventually flow to the County flood control system or directly into San Francisco Bay. In some cities, catch basins and lagoons are used to regulate flow and pollution.

The cities are responsible for maintenance of their own facilities. All of the cities regularly inspect and clean their stormwater infrastructure, but some cities are more active in this than others due to financial constraints. The ACFCD is responsible for its facilities within each city.

While most cities have facilities that are in fair to good condition, some cities—such as Berkeley, Emeryville and Oakland—have systems that are either very old or cannot handle the necessary capacity (see Table 6-4).

The four cities not served by ACFCD or Zone 7 drain stormwater into the San Francisco Bay. Three cities drain directly into the Bay, and Piedmont drains indirectly via Oakland.

The California Department of Toxic Substances Control has proposed a soil and groundwater cleanup for Lawrence Berkeley National Laboratory (LBNL). The cleanup involves digging out contaminated soil and removing it for off-site disposal; adding hydrogen peroxide to degrade or destroy contaminants in the soil; flushing contamination using the site's cleaned groundwater; cleaning the groundwater with activated carbon; addition of additives to the groundwater to speed the breakdown of solvents; and rerouting a storm drain line.[135] LBNL will carry out the storm and groundwater remedies by fall 2006.

OPPORTUNITIES FOR SHARED FACILITIES

All of the stormwater service providers participate in the countywide ACCWP, which coordinates the implementation of service activities and standards to combat stormwater pollution; develops regional programs that address both federal and state requirements; and fosters regional awareness of watershed and environmental priorities. The program coordinates its activities regionally with other pollution prevention programs, such as wastewater treatment plants, hazardous waste disposal and water recycling. Additional ACCWP activities are discussed in the service provider section.

Regional flood control facilities are shared by all agencies included in the ACFCD drainage system.

There are minimal opportunities for shared facilities. Due to the contained nature of the service, each jurisdiction's stormwater facilities are constructed and maintained at the local level.

SERVICE STANDARDS AND ADEQUACY

There are various measures of stormwater service adequacy based on agencies' ability to meet regulatory standards set by the SWRCB. Service adequacy is measured by agency compliance with Total Maximum Daily Loads (TMDLs) and stormwater discharge policies, meeting performance standards, implementation of source control and pollution programs, response times, service challenges, localized ponding, and storm drain back-up.

The Clean Water Act (CWA) is the primary federal law that affects stormwater regulations. Adopted in 1972, CWA requirements have become more stringent over the years. To reduce runoff pollution, the CWA directed the states to adopt and enforce water quality standards, to establish maximum allowable pollution levels, TMDLs, and to monitor and regulate dischargers through NPDES permits.

In California, the SWRCB has overall responsibility for water quality and the authority to regulate point source discharges, such as municipal stormwater discharges, and the administration of NPDES permits.[136] The SWRCB devolves the responsibility to its regional boards. The Regional Water Quality Control Board—San Francisco Bay Region (RWQCB) is responsible not only for

[135] California Department of Toxic Substances Control, 2005, page 4

[136] Direct pollution is caused and is potentially traceable to a specific pollution source; it is known as "point source pollution." Point sources are most easily and commonly regulated; e.g., they are typically required to hold discharge permits. Indirect pollution is often conveyed into the waterways by stormwater runoff and is known as "non-point source pollution."

implementing the CWA but also for developing area-specific pollution standards for Alameda County and the rest of the Bay Area. The Board researches, develops and adopts TMDLs and develops an overall watershed management plan.

In 1997, RWQCB approved a countywide municipal stormwater NPDES (MS4) permit for the 14 cities, the County, ACFCD and Zone 7. The permit identifies mercury, copper, pesticides, PCBs and sediment to be specific pollutants of concern and requires the permitees to protect the San Francisco Bay by reducing pollutants in stormwater runoff "to the maximum extent practicable." Although the permit does not establish precise numeric definitions of acceptable effluent levels, it requires the parties to adopt policies to control and abate the pollutants of concern. As reported to the Alameda Countywide Clean Water Program in their Fiscal Year 2003-04 Annual Report, all parties have conducted a review of existing policies for mercury reduction and minimization of pesticide use and are currently in the process of updating policies to meet the new requirements.

In addition, the RWQCB issues TMDL requirements with specific countywide maximum standards for the particular pollutant of concern. In September 2004, the RWQCB adopted a mercury TMDL, although it does not become legally enforceable until adopted by the State Water Resources Control Board.[137] The draft mercury TMDL goal is to reduce mercury transmission from stormwater runoff in Alameda County by nearly 50 percent over 20 years with half the reduction to occur in 10 years. TMDLs for diazinon and polychlorinated biphenyls (PCB) have been drafted, with adoption of the diazinon TMDL projected for November 2005 and adoption of the PCB TMDL projected by 2006 or 2007.[138]

TMDL Requirements

ACCWP's Stormwater Quality Management Plan establishes requirements for the cities, the County and ACFCD to reduce or control mercury loads and identifies actions necessary to better understand and control methylmercury production.

Ingestion of mercury is known to cause damage to internal organs, the brain, and central nervous system, with effects including loss of coordination, mental retardation, blindness and death. Mercury causes sensory, neurological, motor, and behavioral dysfunctions similar to characteristics found in autism. Studies have revealed that some types of autism are unique forms of mercury poisoning caused by early exposure.[139]

The most relevant cause of mercury traces in the San Francisco Bay is its historic use in amalgamating gold. Fish consumption is the major source of human mercury exposure in the U.S. As a result of high mercury levels in the San Francisco Bay, the Office of Environmental Health Hazard Assessment has adopted a fish consumption advisory not to consume more than two meals per month of sport fish from the San Francisco Bay.

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[137] In September 2005, the Board rejected the draft mercury TMDL and ordered RWQCB staff to submit a revised mercury TMDL by June 2006.

[138]Diazinon is a pesticide that jeopardizes aquatic life and is harmful to humans. As of December 31, 2004, it is unlawful to sell diazinon outdoor, non-agricultural products in the United States. However, it is still legal to use diazinon products, and some diazinon products are still legally sold. PCBs were widely used as a fire preventive and insulator in the manufacture of transformers capacitors; were found to cause cancer; PCB manufacture was outlawed in 1976. Products containing PCBs are still in use.

[139] Bernard, Sallie et al., Autism: A Unique Type of Mercury Poisoning. ARC Research, 2000.

To achieve reductions in mercury levels, ACCWP is working with the municipalities, the Alameda County Resource Conservation District, the EPA and the public to reduce mercury directly and to study methods to reduce mercury concentrations. Such methods include source control and pollution prevention activities, including fluorescent light bulb, electrical switch, and thermometer collection and disposal programs, and other household hazardous waste collection programs.

Urban storm water mercury loads can also be reduced through capture, detention and removal of highly contaminated sediment, and possibly via urban stormwater treatment.

Mercury levels in the San Francisco Bay have been decreasing since RWQCB began its monitoring and are expected to continue decreasing. The mercury in the Bay is believed to originate in the Central Valley and to enter the Bay from the Bay-Delta. It is unknown whether mercury loads are increasing or decreasing within Alameda County because monitoring information specific to Alameda County is not yet available.

TMDL requirements for mercury, diazinon and PCBs are expected to become effective by 2006.

Stormwater Discharge Requirements

The RWQCB requires monitoring and control measures of illicit, commercial and industrial dischargers. Each agency is to develop a five-year Illicit Discharge Control Action Plan (Action Plan) to reduce and control sources of discharges as well as conduct investigations and local regulatory activities at industries and construction sites covered by NPDES permits. According to the ACCWP, all of the agencies under the NPDES permit have submitted Action Plans.

SWRCB's review of the ACCWP FY 2003-04 Annual Report mentioned that Berkeley has failed to implement a restaurant stormwater inspection program, as required by the permit, and the Board intends to submit a notice of violation to ensure the City's compliance with this element.[140] The City addressed this issue by launching a restaurant stormwater inspection program in October 2005.

Performance Standards

There are a variety of service performance standards and guidelines for providing stormwater service that derive from State and Federal requirements as well as from local ones. ACCWP outlines various performance standards in its Stormwater Quality Management Plan (SQMP) for July 2001 to June 2008 that implement State and Federal requirements as well as develop local standards of stormwater pollution control.

The collaborative ACCWP has delineated BMPs for dealing with all types of stormwater pollution and set standards for how municipalities and agencies should perform. The BMPs are broadly categorized as:

- Public information and participation
- Municipal maintenance activities
- New development and construction controls

[140] California Regional Water Quality Control Board, 2005, page 2.

- Industrial and commercial discharge controls
- Illicit discharge controls

The enactment of BMPs for cities and the County as a whole has only been in place since 2001 and many agencies are still in the study phase for certain activities.

Table 6-5 summarizes each agency's performance with respect to regulatory goals, listing areas of improvement and compliance concerns raised by RWQCB. Every jurisdiction provides public information and municipal maintenance, although a number of agencies could make improvements in the area of new development and construction controls. Service levels rise each year as agencies become more familiar with the requirements and ways to achieve them.

Table 6-5. Stormwater Regulatory Performance, FY 2003-04

	Areas Needing Improvement			Compliant with BMPs	
Area	Public Information	Municipal Maintenance	Construction Controls	Illicit Discharge	Industrial & Commercial
Alameda	none	none	yes	yes	yes
Albany	none	none	none	yes	yes
Berkeley	none	none	yes	yes	no
Dublin	none	none	yes	yes	yes
Emeryville	none	none	none	yes	yes
Fremont	none	none	yes	yes	yes
Hayward	none	none	yes	yes	yes
Livermore	none	none	none	yes	yes
Newark	none	none	yes	yes	yes
Oakland	none	none	yes	yes	yes
Piedmont	none	none	none	yes	yes
Pleasanton	none	none	none	yes	yes
San Leandro	none	none	yes	yes	yes
Union City	none	none	yes	yes	yes
Alameda County	none	none	yes	yes	yes

Public Information and Participation

The public information program BMPs have been enacted by all parties to the NPDES permit for Alameda County. Specific programs may include, but are not limited to, anti-pollution education campaigns, partnering with watershed stewardship groups, and support of restoration activities.

The cities of Albany, Fremont, Livermore and the Zone 7 Water Agency produce newsletters as part of their public information campaigns. The RWQCB reported very high levels of participation and compliance with the BMPs for public information for all permitees during the 2002-03 fiscal year. It is expected that the participation and compliance level will continue to be high in the foreseeable future. It should also be noted that the National Resources Defense Council considers the ACCWP's public information program as an effective and successful template for other counties.

Municipal Maintenance Activities

Cities and agencies can reduce the amount of polluted stormwater runoff through proper maintenance and procedures. The BMPs outlined for municipal maintenance include proper street

sweeping, efficient spill response and cleanup, maintenance of storm drains and watercourses, and the proper use of chemicals and petroleum products in all municipal activities.

All of the cities have active street sweeping, storm drain inspection and litter control programs as required by the NPDES permit, and monitor these activities through performance tracking.

New Development and Construction Controls

An appreciable amount of pollution leaves new developments and construction sites during storms and specific BMPs have been enacted to curb this influx of pollutants into the stormwater system. All new construction and areas of significant redevelopment are required to implement BMPs to manage stormwater pollution. These BMPs are designed not only to reduce the amount of pollution entering the stormwater system, but also aim to mitigate the effects of further urbanization by reducing runoff and implementing on-site treatment methods for runoff. The BMPs require cities and agencies to increase plan checking and inspection of new developments and construction sites. Not all measures are fully implemented yet, but many municipalities are already using the new guidelines as a template for their requirements. Problems do exist. Areas for improvement include greater reporting of source controls, the discontinuing of ineffective controls, implementation of controls on all projects, greater education efforts on construction-specific BMPs, increased clarity in reporting measures, as well as greater cooperation in developing new BMPs in moderate to high-density growth areas.

All of the cities and unincorporated areas of the County have met the performance standards for new development, redevelopment and construction BMPs. There is room for further exploration of onsite treatment options especially in the area of source and treatment controls for projects in the cities of Alameda, Berkeley, Dublin, Fremont, Hayward, Newark, Union City and unincorporated areas.[141] The RWQCB encourages agencies to consider bioretention designs for source and treatment controls, such as landscaping islands, planter boxes and courtyards. The City of Oakland and Alameda County have been lacking in their efforts to enforce post-construction controls. In Oakland, the RWQCB mentioned oversight of post-construction control requirements at Port of Oakland projects and other development sites. The Board is also concerned with the County's enforcement of post-construction controls, citing a lack of post-construction requirements in its CEQA documents.

Industrial and Commercial Discharge Controls

Each municipality is required to monitor the individual industrial and commercial permit holders within their jurisdiction. Specific BMPs have been developed for how and when inspections take place. Each agency is to develop a five year industrial and commercial business inspection plan to outline how inspection requirements will be met.

In Alameda County, 3,112 inspections of industrial and commercial businesses took place in FY 2003-04, an increase of more than 600 from the previous year. Oakland was the most active of the municipalities, inspecting 950 businesses within the City—an increase of 40 percent from the previous year. However, the cities of Alameda, Newark and Oakland were unable to meet industrial inspection goals for FY 2003-04.[142] The Board expects these agencies to meet their goals for the

[141] California Regional Water Quality Control Board, 2004.

[142] California Regional Water Quality Control Board, 2005, page 2.

following fiscal year. In August of 2005, the City of Berkeley received a NPDES permit violation notice for failure to implement a commercial food facility inspection program. The City addressed this issue by launching a restaurant stormwater inspection program in October 2005.

Illicit Discharge Controls

Each agency is responsible for providing an inspection program to curb illegal discharges, and BMPs have been developed to perform this activity effectively. The goal for agencies is to inspect high priority areas at least once per year and survey each agency's entire drainage area within a five-year period. The RWQCB has reported significant improvements in compliance with this set of BMPs for the 2002-03 fiscal year.[143] All permittees have illicit discharge programs that track problems and monitor the storm drainage system.[144] Other activities performed by agencies under the illicit discharge controls program include mercury thermometer exchange programs, distribution of mercury lamp fact sheets, inspection of high priority areas along channels or at catch basins at least once per year, and response to public reports or complaints. ACCWP agencies track illicit discharge investigations and summarize their findings in quarterly reports. ACCWP agencies are able to eliminate non-stormwater discharges when the source is known, but often illicit discharges are one-time incidents for which a source cannot be traced. In FY 2003-04, 1,033 illicit discharges were eliminated in Alameda County.[145]

Annual Monitoring Reports

In its review of ACCWP's FY 2003-04 Annual Report, the board commented that lack of summary reporting on monitoring efforts brings the ACCWP into potential violation of its NPDES permit. In response, the Board has requested a detailed outline of the monitoring information to be included in the Annual Report for FY 2004-05.

Source Control and Pollution Prevention Programs

As discussed above, the ACCWP coordinates several countywide efforts on source control as well as public education campaigns. In addition, at the city level the agencies administer various pollution prevention programs.

All agencies maintain illegal dumping prevention programs that include stenciling of "no dumping" on storm drains and public information and outreach. Illegal dumping enforcement is carried out through local agency response to spills and reports of illegal dumping. All agencies have begun regular facility inspections at potential runoff pollution sources. All agencies also participate in mercury disposal programs and in hazardous household waste recycling programs.

[143] California Regional Water Quality Control Board, 2004, page 5.

[144] See Chapter 4 for more details on illicit discharge control as it applies to water service.

[145] Alameda Countywide Clean Water Program, 2004.

Table 6-6. Stormwater Benchmark Indicators, FY 2003-04

Agency	Storm Drain Inspection Rate[1]	Response Time for Blockages	Street Sweeping Removal Rate[2]
Alameda	0.5	1 hour	31.9
Albany	0.7	< 1 hour	NA
Berkeley	1.4	1 hour	4.5
Dublin	1.3	10 min.	6.6
Emeryville	4.6	< 1 hour	8.4
Fremont	0.8	< 1 hour	9.6
Hayward	1.1	30 min.	12.3
Livermore	2.2	< 1 hour	8.6
Newark	7.2	< 2 hours	6.8
Oakland	1.0	< 1.25 hours	14.6
Piedmont	2.6	< 1 hour	NA
Pleasanton	1.3	< 30 min.	1.7
San Leandro	0.7	< 1 hour	NA
Union City	0.2	< 8 hours	NA
Alameda County	0.4	NP	2.2

(1) The number of times each storm drain was inspected.
(2) Annual cubic yards of material removed per curb mile.

Benchmark Indicators

In addition to meeting regulatory requirements, various service indicators can be used to measure stormwater service adequacy, including response time for storm drain and pipe blockages, inspection and cleaning rates, as shown in Table 6-6.

Newark has the highest rate of storm drain inspection of all stormwater service providers, while Union City and the City of Alameda have much lower inspection rates.

Response times for blockages vary greatly by agency. While the City of Dublin's response time is 10 minutes, Union City's is under eight hours. However, nine of 15 agencies maintain response times under one hour.

Street sweeping material removal rates show that the City of Alameda removes the highest volume of material per curb mile, while Pleasanton removes the lowest. Nearly half of the agencies remove between 5 and 10 cubic yards of material per curb mile annually. Differences in street sweeping removal rates may be attributable to higher amounts of natural debris and litter in some areas as opposed to others.

The agencies described a number of challenges involved in ensuring effective stormwater services. Prompt response is variable due to lengthy travel time or access issues; funding was cited as a major problem; and the enactment of new NPDES requirements pose challenges to the agencies. In Dublin, Livermore and Pleasanton, agencies face increasing strains on stormwater systems as a result of new development. These challenges are listed in Table 6-7. The Five Canyons CSA is included in the performance indicators for Alameda County.

Table 6-7. Service Challenges

Agency	Service Challenges
Alameda	Limited funds for stormwater services.
Albany	Reduction of winter flooding in some areas and funding capital improvements.
Berkeley	Compliance with stormwater performance standards and funding for capital improvements.
Dublin	Growth and new pollution requirements.
Emeryville	System capacity, funding needed capital improvements, and NPDES permit requirements.
Fremont	NP
Hayward	New NPDES permit requirements and inadequate funding.
Livermore	Increased flow capacity of the system and pumps as development occurs.
Newark	New NPDES permit requirements.
Oakland	Completion of the Storm Drain Master Plan, preventive maintenance and all NPDES requirements.
Piedmont	None
Pleasanton	New performance standards of the NPDES permit; construction and new development.
San Leandro	Flooding in southwest San Leandro.
Union City	New NPDES permit requirements and decreased flow in the County flood control system.
Alameda County	Inadequate funding levels for new NPDES pollution control requirements.
Five Canyons CSA	None

FINANCING CONSTRAINTS AND OPPORTUNITIES

Financing constraints and opportunities affecting service delivery are discussed in this section. The section identifies the revenue sources currently available to the service providers as well as long-term debt and reserves. Innovations for contending with financing constraints, cost-avoidance opportunities and opportunities for rate restructuring are also discussed.

FINANCING SOURCES

All cities in Alameda County provide stormwater services. All of the cities levy service charges and assessments to finance the services, except Dublin, Emeryville, Oakland, and Piedmont. General fund revenues are used to supplement the fees and assessments charged to residents or as the sole source of financing. Some cities create enterprise funds or special funds for accounting purposes to track stormwater finances separately.

Assessments used by some cities to finance stormwater service are based on the square footage of impervious surface or parcel size. The cities of Newark and San Leandro charge a flat rate of residential property. The assessment rates may differ between residential and commercial properties. Stormwater assessments charged by each provider are discussed below under "Opportunities for Rate Restructuring."

In addition, some cities impose development impact fees on new construction to defray the cost of public infrastructure and services to support the new development. These fees must be committed within five years to the projects for which they were collected, and the city must keep separate funds for each development impact fee.

The cities of Alameda, Berkeley, Livermore, and Union City levy stormwater-related development impact fees. The cities of Dublin, Fremont and Union City levy general capital facilities development impact fees that are sometimes used to finance stormwater-related infrastructure expansion. Other cities could potentially impose such stormwater service impact fees.

FINANCING CONSTRAINTS

The most significant constraints on the financing of stormwater services are legal requirements that limit property taxes and require voter approval of new taxes and tax increases.[146] Stormwater assessments are considered property-related fees under Proposition 218, and are subject to two-thirds voter approval requirements for imposition of new assessments and for fairness and equity in the assessments. Assessments in place prior to November 1996 did not require voter approval to be imposed. However, any increase in assessments requires approval by two-thirds of the voters.

In Alameda County, the average city receives approximately $35 per parcel in assessments and the unincorporated area assessment is only $7 per parcel. In all cases, the amount is eroded over time by inflation. Four cities have no assessment in place, as discussed above.

In February 2005, Governor Schwarzenegger proposed a constitutional amendment to exempt stormwater and flood control assessment increases from Proposition 218 voter approval requirements. The proposed constitutional amendment (A.C.A 13) must first be approved by a two-thirds vote in the Legislature before being submitted to voters statewide for approval.

General Fund Constraints

Several cities do not levy stormwater assessments and finance services from their general funds. The most significant general fund financing constraints are legal requirements that limit property taxes and require voter approval of new taxes and tax increases.

California cities are precluded from taxing incomes. Likewise, state and federal law precludes local agencies from taxing financial institutions, insurance companies, and sales of alcoholic beverages, tobacco, and gasoline.

Property tax limitations imposed by Propositions 13 and 98 and by the "triple flip" apply to city general funds, and are discussed in Chapter 3. Proposition 218 requires voter or property owner approval of increased local taxes, assessments, and property-related fees. Majority voter approval is required for imposing or increasing general municipal taxes, such as business license or utility taxes. Two-thirds voter approval is required for special taxes for which revenues are designated for specific purposes, such as stormwater services. However, majority approval by property owners is the required threshold for property-related fees, which may be used for financing stormwater services.

[146] See Chapter 3 for a discussion of these financing constraints.

FINANCING OPPORTUNITIES

Financing opportunities requiring voter approval include increases to stormwater assessments and various general fund taxes, and opportunities to borrow to finance stormwater improvements.

Jurisdictions submitting stormwater assessments to voters might consider restructuring assessments to include a pollutant load factor. As new regulatory requirements include pollutant abatement and remediation activities, these stormwater assessments could include a unit pollutant load factor, in addition to water runoff, for different land uses, like wastewater rates on different types of businesses.[147]

Financing opportunities that do not require voter approval include updating user fees associated with the stormwater program (e.g., plan review fees) and the following fee opportunities.

- Development Impact Fees: These fees are charged to mitigate the impact of increased development on the provision of stormwater services. The fees are based on land use and charged per dwelling unit, amount of impervious surface or parcel size.
- Inspection Fees: Charge fees for businesses that need a discharge control permit inspection.

OPPORTUNITIES FOR RATE RESTRUCTURING

Subject to two-thirds voter approval requirements, jurisdictions may impose or restructure stormwater assessments.

Assessments are levied based on the volume of stormwater runoff, type of land use or simply a flat rate per parcel. In order to compare across jurisdictions, assumptions were made about parcel size and amount of impervious surface for four types of properties, as shown in Table 6-8.

The assessments vary dramatically across the cities, as shown in Table 6-8. The median provider charges a $20 assessment for an urban home, $21 for a suburban home, $41 for a gas station, and $0 for a vacant parcel.

Table 6-8. Stormwater Assessments, FY 2004-05

Provider	Urban Home[1]	Suburban Home[2]	Gas Station[3]	Unimproved Vacant[4]
Alameda	$122	$243	$243	$0
Albany	$47	$47	$926	$0
Berkeley	$99	$198	$198	$198
Dublin	$0	$0	$0	$0
Emeryville	$0	$0	$0	$0
Fremont	$14	NP	NP	NP
Hayward	$29	$57	$68	$15
Livermore	$22	$22	$48	$11
Newark	$20	$20	$41	$2
Oakland	$0	$0	$0	$0
Piedmont	$0	$0	$0	$0
Pleasanton	$14	$14	$28	$8
San Leandro	$26	$26	$53	$0
Union City	$22	$22	$0	$0
Unincorporated	$7	$7	NP	NP

Notes:
(1) Assumed parcel size of 0.25 acres, with 38 percent of area impervious.
(2) Assumed parcel size of 0.5 acres, with 25 percent of area impervious.
(3) Assumed parcel size of 0.25 acres, with 85 percent of area impervious.
(4) Assumed parcel size of 1.0 acre, with 0 percent of area impervious.

[147] Hoag, 2004.

The cities of Dublin, Emeryville, Oakland, and Piedmont do not charge any assessments. Stormwater providers charging residential assessments lower than the median are Alameda County (for the unincorporated areas), Fremont, Pleasanton, and Newark. The cities of Alameda, Berkeley and Albany have the highest assessments for all property types. Albany has the highest assessments for gas stations.

Fee Restructuring Opportunities

In addition to opportunities for restructuring stormwater assessments, the jurisdictions also have opportunities to restructure user fees, regulatory fees and development impact fees. However, there are limits to the increases that may be enacted. In order to raise user fees, the jurisdiction must document that the fee recoups only the cost of providing the fee-related service. For development impact fees, the jurisdiction must justify the fees as an offset to the future impact that development will have on facilities. In setting regulatory fees such as stormwater permit fees, the jurisdiction may impose fees that include the costs of inspection, enforcement and administration.

As discussed in the section entitled "Financing Sources," the jurisdictions vary significantly in their practices of imposing user fees and development impact fees. There are opportunities for jurisdictions to increase these fees, and many jurisdictions do increase the fees on an annual basis.

COST AVOIDANCE OPPORTUNITIES

Cost avoidance opportunities are potential actions to eliminate unnecessary costs. Unnecessary costs may involve duplication of service efforts, higher than necessary administrative costs, use of outdated or deteriorating infrastructure and equipment, underutilized equipment, buildings or facilities, overlapping or inefficient service boundaries, inefficient purchasing or budgeting practices, and lack of economies of scale.[148]

Stormwater service levels and related costs are generally increasing due to regulatory mandates and service monitoring and inspection requirements on cities and the County. The most significant stormwater expense is street sweeping, and few opportunities exist for reducing related costs due to a lack of economies of scale for this service.

The countywide planning efforts in place help reduce the significant planning costs associated with meeting new and dynamic regulatory requirements. The existing collaboration through ACCWP is expected to result in future cost avoidance opportunities as stormwater regulations and service evolve.

Avoidance strategies identified as a result of this study include:

- Use of court appointees and volunteers for litter removal;
- Transition from individual agency manual inspection tracking system to the ACCWP central database, as was done by the cities of Newark, Union City and Albany;
- Incentive-based management to provide bonuses or other incentives for department heads to reduce ongoing costs through innovation.

[148] Alameda Local Agency Formation Commission Guidelines, 2002.

POLICY ANALYSIS

This section provides policy analysis that is focused on the local government agencies which provide stormwater services. The policy analysis includes assessment of local accountability and governance, evaluation of management efficiencies, as well as identifying government structure options that may be considered by LAFCo.

LOCAL ACCOUNTABILITY AND GOVERNANCE

The section provides an overview of indicators of local accountability and governance for the multipurpose agencies.

The assessment of local accountability and governance is generally an agency-wide assessment. Table 6-9 provides accountability indicators for each of the multipurpose agencies, and Appendix A provides additional details on the local accountability and governance at these agencies. All agencies hold open elections for their governing bodies, prepare meeting agendas and minutes, and have accessible staff and elected officials.

Table 6-9. Accountability Indicators

	Alameda	Albany	Berkeley	Dublin	Emeryville	Fremont	Hayward	Livermore
Direct service provider	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Service recipients are constituents	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uncontested elections since 1994	No	No	No	No	No	No	No	No
Latest contested election	Nov 04	Nov 04	Nov 04	Nov 04	Nov 03	Nov 04	Mar 04	Nov 03
Latest voter turnout rate	78%	81%	77%	81%	25%	76%	41%	36%
Countywide turnout rate	77%	77%	77%	77%	22%	77%	44%	22%
Efforts to broadcast meetings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituents updated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes	Partially	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Partially	Yes	Yes	Yes	Yes

	Newark	Oakland	Piedmont	Pleasanton	San Leandro	Union City	Five Canyons CSA
Direct service provider	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Service recipients are constituents	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uncontested elections since 1994	No	No	No	No	No	No	None
Latest contested election	Nov 01	Mar 04	Mar 02	Nov 04	Nov 04	Nov 04	Nov 02
Latest voter turnout rate	26%	40%	51%	84%	77%	75%	52%
Countywide turnout rate	21%	44%	35%	77%	77%	77%	53%
Efforts to broadcast meetings	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituents updated	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Solicits constituent input	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Discloses finances	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Posts public documents on web	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Assessment of each multipurpose agency's accountability will be finalized in the third volume of this MSR series, as multipurpose agencies will be covered in that report. The assessment of local accountability and governance at the multipurpose agencies is generally agency-wide.

EVALUATION OF MANAGEMENT EFFICIENCIES

This section provides analysis of management efficiencies at the local stormwater agencies and considers the effectiveness of each agency in providing efficient, quality public services. Efficiently managed agencies are deemed those that consistently implement plans to improve service delivery, reduce waste, eliminate duplications of effort and contain costs.

Cost Issues

Stormwater service cost comparisons across the providers cannot be made due to the variety of accounting methods used by each of the providers in tracking stormwater costs. Only four of the agencies track all expenditures through enterprise accounting. The remainder account for stormwater costs through special stormwater fund accounting, general fund, wastewater enterprise fund, and even gas tax funds.

The California State Water Resources Control Board recently conducted a survey of various California cities on the costs of providing service related to the NPDES permit requirements. The study found that the average stormwater program cost $29-46 per household in FY 2002-03. Street sweeping activities are the most expensive activity, accounting for 41 percent of the average program costs. Catch basin cleaning and drain maintenance accounts for 20 percent of stormwater program costs on average. Overall management of the stormwater program accounts on average for 14 percent of costs. All other activities, including monitoring, inspection, watershed management, and public education, account for 25 percent of stormwater costs.

Fremont participated in the survey and reported that the most expensive element of the service was pollution prevention, such as street sweeping and litter removal. Such prevention measures totaled 68 percent of costs.[149] Fremont accounts for assessments through a special fund, for street sweeping and other programs through its general fund, and for certain capital expenditures through gas tax funds.

Management Practices

Management practices used by stormwater service providers in Alameda County include implementing master plans and monitoring performance to improve service delivery.

Best practices in stormwater service include active education outreach efforts performed by Alameda and Berkeley inspectors to the business community. The cities of Alameda and Pleasanton mailed BMP brochures to restaurants, food retailers and school cafeterias. Albany annually distributes BMP brochures to restaurants. Fremont mailed newsletters on BMPs to restaurants. Alameda County assists horse boarding facilities with stormwater pollution prevention and has worked with ACRCD on manure management.

Though each agency administers and operates its own stormwater services, agency planning of service practices and improvements is done at the regional level through the Alameda Countywide Clean Water Program (ACCWP). All stormwater service providers follow the planning efforts and policies contained within the ACCWP countywide planning document—the Stormwater Quality Management Plan adopted in 2001 with a planning horizon of seven years. Some of the stormwater

[149] California State Water Resources Control Board, January 2005.

service providers have adopted planning documents specific to stormwater service in their jurisdiction. Only the cities of Albany and Berkeley have adopted stormwater service master plans.

Table 6-10. Management Practices

	Alameda	Albany	Berkeley	Dublin	Emeryville	Fremont	Hayward	Livermore
Benchmarking	No	No	No	No	No	No	No	No
Performance Evaluation	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Performance-based Budgeting	No	No	Yes	No	No	No	No	No
Workload Monitoring	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Newark	Oakland	Piedmont	Pleasanton	San Leandro	Union City	Five Canyons CSA
Benchmarking	No	Yes	No	No	No	No	No
Performance Evaluation	Yes	Yes	No	Yes	Yes	Yes	Yes
Performance-based Budgeting	No	Yes	No	No	No	No	Yes
Workload Monitoring	Yes	Yes	No	Yes	Yes	Yes	Yes

Agency management practices—benchmarking, performance evaluation, performance-based budgeting, and workload monitoring—are shown in Table 6-10. Most agencies could improve management practices by benchmarking and by tracking workload and performance.

Oakland participates in service benchmark studies (i.e., comparing the City's basic performance indicators to those in comparable jurisdictions) and is developing performance-based budgeting and monitoring of workload. The City of Berkeley and the County also include performance measures in their annual budgets. Albany, Emeryville and Piedmont monitor workload as part of the budget process; although the other service providers indicated that they make efforts to monitor productivity, the agencies' budgets track accomplishments rather than workload and performance indicators. Five Canyons CSA management practices include performance evaluation through annual service reviews onsite at the CSA facilities and in the service area with interested property owners and residents.

Contingency Reserves

Local agencies maintain contingency reserves to cover costs during economic downturns, unexpected expenses, and sometimes cash flow shortages.

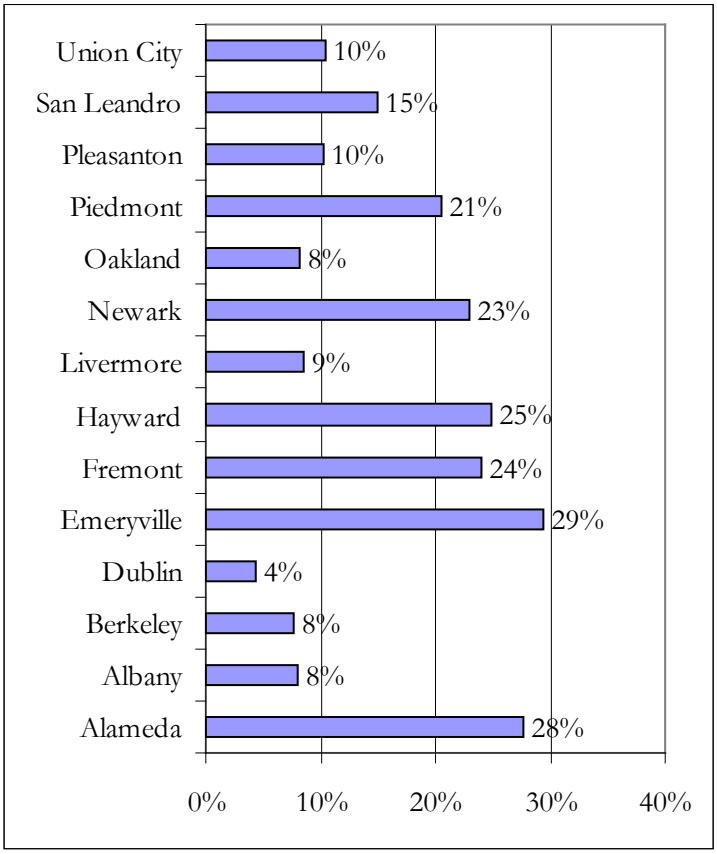
Only four of the stormwater service providers use enterprise accounting for their stormwater operations. The cities of Berkeley, Hayward, Pleasanton, and San Leandro use enterprise accounting and, therefore, have stormwater reserve funds. Pleasanton had the most reserves at the end of FY 2002-03, with reserves constituting 128 percent of annual stormwater operating expenses. Hayward's stormwater reserve ratio was 62 percent.[150] San Leandro's stormwater reserve ratio was 25 percent. Berkeley had no stormwater enterprise reserves at the end of FY 2002-03.

Most stormwater providers do not yet use stormwater enterprise accounting. These providers rely on a variety of funding sources, including general fund revenues to fund their stormwater programs. The Government Finance Officers Association (GFOA) recommends that agencies maintain reserves representing at least 5-15 percent of general fund revenue. The contingency

[150] Hayward's stormwater enterprise covers the subset of stormwater-related services financed by assessments.

reserve needs vary among local agencies due to differences in revenue sources and the use of bond financing for short-term cash flow needs.[151]

Figure 6-11. Reserve Ratios, FY 2002-03



All of the cities maintained contingency reserves that meet or exceed the GFOA guidelines, as shown in Figure 6-11.[152] The median city in Alameda County maintained contingency reserves that constituted 13 percent of general fund revenues in FY 2002-03.

Large cities with larger budgets typically maintain a smaller share of resources as general fund contingency reserves.

The Dublin City Council formally designated reserves within GFOA guidelines in FY 2003-04, achieving a reserve ratio of seven percent.

Conclusion

In conclusion, it is difficult to assess agency management efficiencies fully due to relatively new regulations, a dynamic regulatory environment and financing differences between the agencies. The RWQCB is scheduled to adopt new regulations affecting stormwater providers by 2006. Governor Schwarzenegger is advocating a constitutional amendment that would allow cities to impose stormwater assessments without voter approval. Substantial changes in stormwater laws and financing may occur before the next MSR cycle, and should be evaluated at that time.

[151] Agencies that rely heavily on property taxes or business license taxes may require larger reserves to finance cash flow needs, because property tax payments are made to local agencies twice annually and most business tax payments are made to cities once annually. Some local agencies issue short-term bonds—Tax and Revenue Anticipation Notes (TRANs)—to cover cash flow needs relating to revenue cycles. For example, the cities of Albany, Berkeley, Fremont, and Oakland issued TRANs in FY 2003-04, and the cities of Alameda and Livermore occasionally issue TRANs to finance mid-year cash flow needs.

[152] Contingency reserves include the unreserved fund balance and any contingency reserves (i.e., contingency reserves, reserves for economic uncertainties, and cash flow reserves) that are included in the reserved or designated fund balance. The reserve ratio reflects the ratio of contingency reserves to general fund revenues. The reserve ratio was calculated based on each agency's CAFR for reserves at the end of FY 2002-03. Local agencies also maintain fund balances that are reserved or designated for specific purposes such as anticipated capital expenditures; such balances are not contingency reserves. In the case of Dublin, the City has in practice maintained contingency reserves of at least five percent, although the Council's formal designation of contingency reserves at this level did not occur until FY 2003-04.

GOVERNMENT STRUCTURE OPTIONS

The MSR identifies government structure options, advantages and disadvantages, and evaluation issues, but does not make recommendations about these options. The Commission or the affected agencies may or may not initiate future studies of these options, although LAFCo is required to update all SOIs by January 1, 2006.

One government structure option under LAFCo's jurisdiction—special district formation to finance treatment services—was identified and is discussed in this section along with alternative approaches not under LAFCo's jurisdiction.

Special District Formation

The only government structure option potentially under LAFCo's jurisdiction is formation of a special sanitary district to provide supplemental stormwater treatment service. It is unlikely that special district formation for stormwater treatment purposes would be proposed in the next five years for the reasons discussed below.

Stormwater treatment service is provided in the City and County of San Francisco but is not currently provided in Alameda County.

. In an effort to combat pollution of the Bay, RWQCB has ordered EBMUD to study the feasibility of stormwater treatment by 2009. EBMUD has excess treatment capacity which is used to handle peak wet weather flows for up to a five-year design storm. This excess capacity may also be used to treat stormwater flows diverted into the wastewater system. This approach could be particularly applicable to the "first flush" stormwater flows early in the rainy season. Compared with rain events later in the season, these flows tend to carry a higher pollutant loading and occur when peak flows at the treatment plant are at lower levels. EBMUD is conducting feasibility studies on treating stormwater generated in its wastewater service area, and plans to complete them by 2009.

Wastewater treatment facilities in the County south of the EBMUD service area lack excess capacity during wet weather to accommodate stormwater treatment. In the event that RWQCB requires stormwater treatment in the future, the cities outside the EBMUD service area and the County might consider formation of a special district or a JPA to finance and govern a stormwater treatment entity. This scenario is hypothetical and does not merit further consideration unless and until RWQCB requires stormwater treatment or related feasibility studies in this area. It is unlikely that RWQCB would take such steps before the 2009 completion of the EBMUD stormwater treatment feasibility studies. The ACCWP currently opposes stormwater treatment for cost-effectiveness reasons. There is limited coastal land available that would be large enough to accommodate new treatment facilities.

This government structure option should be considered when the Commission prepares its 2010 MSR and SOI updates. Some potential areas on which evaluation might focus include: (1) opportunities to absorb excess wastewater treatment capacity; (2) potential water quality improvements; (3) projected capital and operating costs of stormwater treatment; (4) potential service areas with stormwater infrastructure that could drain to a treatment facility; and (5) alternative approaches.

CHAPTER 7: SOLID WASTE SERVICES

This chapter reviews the solid waste collection and disposal services provided by local government agencies in Alameda County. The chapter reviews how these services are provided by the cities and special districts. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, and financing constraints and opportunities. Policy analysis—including shared facilities, cost avoidance, rate issues, government structure options, evaluation of management efficiencies, and local accountability and governance—is focused on service providers under LAFCo's jurisdiction.

SERVICE OVERVIEW

This section provides an overview of the solid waste limited-purpose agencies, the multipurpose agencies and the non-LAFCo service providers in Alameda County.

LIMITED PURPOSE AGENCIES

The limited purpose agencies in Alameda County are the Castro Valley Sanitary District, the Oro Loma Sanitary District and the Curbside Recycling County Service Area (CSA).

The Castro Valley Sanitary District (CVSD) administers franchise agreements with solid waste collection and recycling providers, and is responsible for offering various programs in Castro Valley to encourage recycling and to reduce the amount of solid waste disposed at landfills. In addition, the District provides refuse collection at district-owned facilities and public thoroughfares. Through Waste Management, Inc. of Alameda County, the District provides weekly solid waste collection and recyclable collection services to residents. The District requires businesses to use the private hauler for solid waste collection and compost materials; businesses may choose their own recycling collection service.

The Oro Loma Sanitary District (OLSD) provides service to portions of the City of San Leandro and the unincorporated areas of San Lorenzo, Cherryland, Ashland and Fairview. The District administers franchise agreements with solid waste collection and recycling providers, and is responsible for offering various programs to encourage recycling and to reduce the amount of solid waste disposed at landfills. In addition, the District provides refuse collection at district-owned facilities and in public spaces. Through Waste Management, Inc. of Alameda County, the District offers weekly solid waste collection and biweekly recyclable collection services to residents. The District requires businesses to use the private hauler for solid waste collection; businesses choose their own recycling collection service.

The Curbside Recycling CSA was created in 1999 to provide curbside recycling services to residents in unincorporated areas in Cherryland and Fairview, and in unincorporated islands in Hayward not served at the time by either Oro Loma or Castro Valley Sanitary Districts. The CSA is not a direct service provider; it arranges for service by Waste Management, Inc. via franchise agreement administered by the County.

Table 7-1. Solid Waste Providers, 2005

Service Area	Service Provider		Solid Waste Collection Service			Recycling Service		
	Collection Provider	Recycling Provider	Single-Family	Multi-Family	Commercial	Single-Family	Multi-Family	Commercial
Alameda	Alameda County Industries	Alameda County Industries	weekly	weekly	mandatory	biweekly	weekly	open market
Albany	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	weekly	weekly	open market
Berkeley	Berkeley	Ecology Center	weekly	weekly	open market	weekly	weekly	open market
Dublin	Amador Valley Industries	Amador Valley Industries	weekly	weekly	mandatory	weekly	weekly	open market
Emeryville	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	weekly	weekly	open market
Fremont	Browning-Ferris Industries	Browning-Ferris Industries	weekly	weekly	mandatory	weekly	varies	open market
Hayward	Waste Management, Inc.	CurbCycle	weekly	weekly	mandatory	weekly	weekly	open market
Livermore	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	weekly	weekly	open market
Newark	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	weekly	none	open market
Oakland	Waste Management, Inc.	Waste Management, Inc. & California Waste Solutions	weekly	weekly	mandatory	biweekly	weekly	open market
Piedmont	Republic Services, Inc.	Republic Services, Inc.	weekly	weekly	mandatory	weekly	weekly	open market
Pleasanton	Pleasanton Garbage Co.	Pleasanton Garbage Co.	weekly	weekly	mandatory	weekly	weekly	mandatory
San Leandro	Alameda County Industries & OLSD	Alameda County Industries & OLSD	weekly	weekly	mandatory	biweekly	biweekly	mandatory
Union City	Allied Waste	Tri-CED	weekly	weekly	mandatory	weekly	weekly	open market
Unincorporated	Pleasanton (Sunol) & Waste Management, Inc. (all other)	Pleasanton (Sunol) & Tri-CED (all other)	weekly	weekly	open market	None (Sunol) & biweekly (all other)	None (Sunol) & biweekly (all other)	none
Recycling CSA	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	biweekly	biweekly	none
CVSD	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	weekly	weekly	open market
OLSD	Waste Management, Inc.	Waste Management, Inc.	weekly	weekly	mandatory	biweekly	varies	open market

MULTIPURPOSE AGENCIES

The multipurpose agencies provide solid waste collection and recycling services as well as other types of services.

Waste Management, Inc. (WMI) provides solid waste and recycling collection to six cities in the County and unincorporated parts of the County, as shown in Table 7-1. In the prior year, eight cities relied on WMI. At the end of FY 2004-05, Dublin and Union City terminated franchises with WMI in favor of other providers. The City of Berkeley is the only city that does not contract for solid waste collection.

OTHER PROVIDERS

A number of solid waste providers are not under LAFCo's purview. Waste Management, Inc. (WMI) and Republic Services of California, both private companies, operate landfills and recycling facilities in the County. In addition to these two companies, there are a number of other private companies providing solid waste hauling and recycling collection services. These include Allied Waste, Alameda County Industries, Amador Valley Industries, Browning-Ferris Industries, Pleasanton Garbage Company, Tri-CED, and CurbCycle.

Service Area

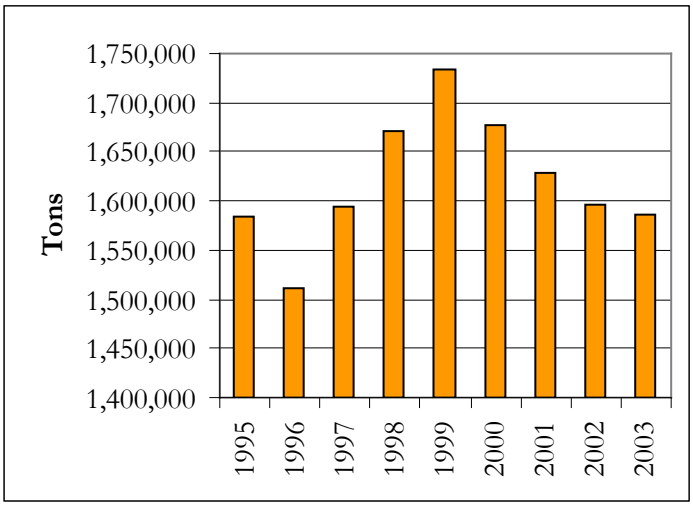
Most of the agencies in Alameda County primarily serve residents of their own jurisdictions. Oro Loma Sanitation District serves parts of San Leandro.[153]

SERVICE DEMAND

This section provides various indicators of service demand, such as solid waste tons disposed and projected service demand. Please refer to Chapter 2 for the residential population and job base in each agency, projected population and job growth rates, and a description of growth areas.

SOLID WASTE DISPOSED

Figure 7-2. Solid Waste Disposed, 1995-2003



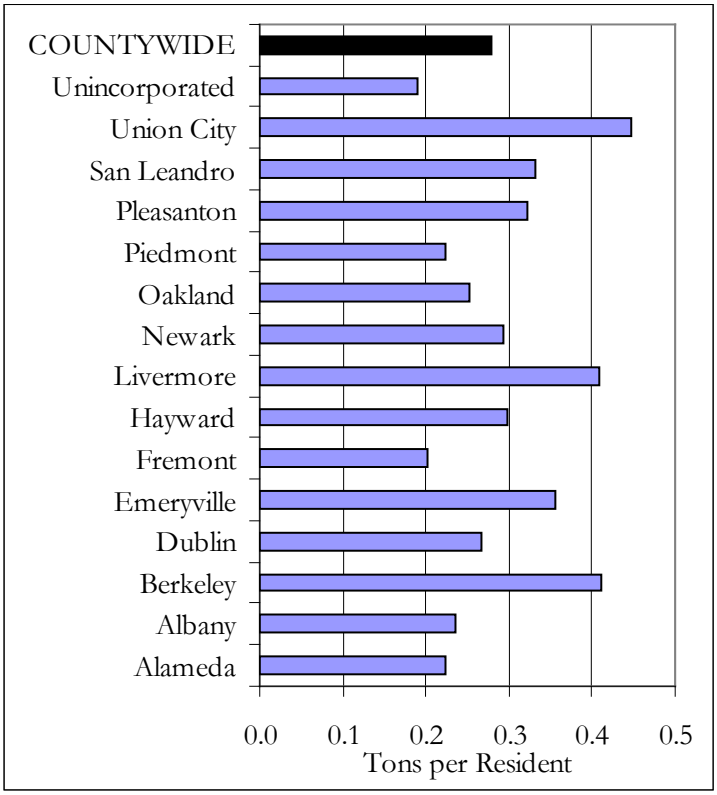
The amount of trash disposed in Alameda County has declined from 1,733,255 tons in 1999 to 1,585,601 in 2003, as shown in Figure 7-2. This represents a decline of nine percent since 1999 when the tonnage disposed peaked.

The decline in tons disposed over this period has occurred despite growth in population and employment.

Businesses generate more trash than residents. Restaurants, medical services, retail trade, and construction are the industries generating the most trash in the County. Overall, 74 percent of the disposed trash is collected from businesses in the County. In 2003, the average resident generated 1.5 pounds of trash daily, whereas the average employee generated 8.6 pounds daily.

[153] City of San Leandro website, http://www.ci.san-leandro.ca.us

Figure 7-3. Residential Trash per Capita, 2003

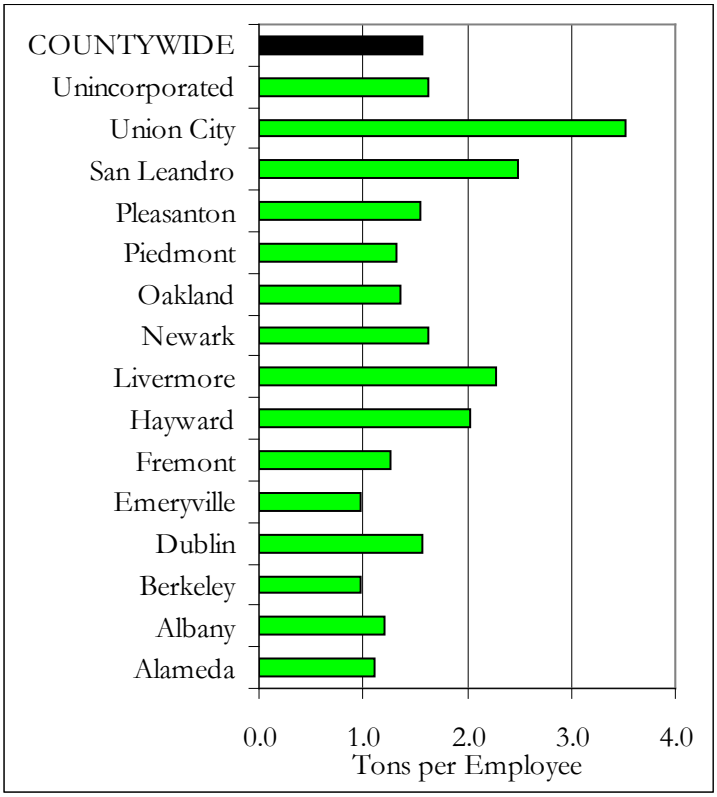


In 2003, the average Alameda County resident disposed of 0.3 tons, which equates to 1.5 pounds per day. As shown in Figure 7-3, residential trash per capita in 2003 was lowest in Fremont, Albany, Piedmont, and the unincorporated areas. Union City, Berkeley and Livermore had the highest residential trash per capita.

Due to significant trash generated by businesses and the differences between jurisdictions in the concentration of businesses, jurisdictions differ significantly in overall trash disposed per capita.

Comparable disposal statistics are not available for CVSD and OLSD. CVSD and OLSD are both included in the unincorporated area statistics.

Figure 7-4. Business Trash per Employee, 2003



The average business in Alameda County disposed of 1.6 tons per employee, which equates to 8.6 pounds per day. As shown in Figure 7-4, business trash per employee in 2003 was lowest in Berkeley, Emeryville and Alameda. Union City, San Leandro and Livermore had the highest business trash per capita.

RECYCLING

The amount of trash disposed is not the only indicator of service demand. While each jurisdiction has faced decreasing demand for trash disposal in landfills, the agencies have faced increasing demand for recycling services over the period.

Data on the tonnage recycled was not available from the California

Integrated Waste Management Board (CIWMB). The Board releases the landfill diversion rates achieved by each jurisdiction. Please refer to the section below on service adequacy for this information.

For a discussion of recycling and landfill diversion requirements, refer to the section below on service standards.

PROJECTED SERVICE DEMAND

Figure 7-5. Projected Solid Waste

The amount of residential solid waste disposed in Alameda County is projected to increase from 456,410 to at least 474,383 over the next five years and to 517,740 in the next 15 years under the assumption that future solid waste output per capita will remain the same (Figure 7-5).[154] The amount of commercial solid waste in Alameda County is projected to increase from 1,231,242 to 1,338,512 in the next five years and to 1,541,658 in the next 15 years. The projection uses 2000 residential and commercial population ratios to calculate future population ratios. The calculation does not take into account any future diversion rate increases accomplished in Alameda County.

There are opportunities for demand management strategies to be used to reduce growth in the amount of solid waste disposed. Potential demand management strategies include offering lower solid waste collection rates to residents and businesses that opt for recycling services. Another strategy is to combine recycling streams and make recycling collection weekly to make it easier for residents to recycle. For details on agency rates and recycling services, see Appendix A.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

In the context of solid waste service, infrastructure needs signify disposal facilities that do not provide adequate capacity to accommodate current or projected demand for service for the region as a whole or for areas within the County.

[154] Projected solid waste outputs in 2010 are calculated by taking 2000 solid waste output and multiplying by the change in ABAG-projected residential population in 2010 from 2000.

DISPOSAL

The solid waste originating in the cities and special districts in the County is disposed in 28 different landfills located throughout the Bay Area. The top five landfills (shown in Table 7-6) accommodate 93 percent of the County's solid waste, and the top 10 landfills accommodate 99 percent of the County's waste. Agencies, private haulers and private parties select landfill destinations for solid waste primarily based on proximity and disposal costs, and are not required to dispose their waste at landfills within the County. Similarly, landfills accept waste without regard to the jurisdiction of origin.

Table 7-6. Top Five Disposal Sites, 2003

Facility	Location	Tons Disposed 2003		Agencies Using Facility
		Alameda County	Total	
Altamont Landfill	Livermore	679,822	1,289,354	All agencies
Vasco Road Landfill	Livermore	365,257	431,031	All agencies
Tri-Cities Recycling	Fremont	297,710	297,710	Fremont, Newark and Union City
Redwood Landfill	Novato (Marin)	96,555	358,978	All agencies
West Contra Costa Landfill	Richmond (Contra Costa)	35,745	291,085	Alameda, Albany, Berkeley, Emeryville, Hayward, Livermore, Oakland, Piedmont, San Leandro, Union City

The principal regional solid waste infrastructure needs involve landfills, materials recovery facilities, and food composting facilities.

Altamont Landfill and Resource Recovery in Livermore received 43 percent of the waste originating in Alameda County in 2003. The landfill is owned and operated by Waste Management, Inc. The disposal area is 230 acres and is divided into two units. Unit 1 is unlined, meaning that there is no barrier between the waste and the underlying soil, and is permitted to receive up to 11,500 tons per day of municipal solid waste. Unit 2 has a composite liner—a plastic liner and compacted soil used to prevent harmful materials from contaminating underlying soil or groundwater—and is permitted to receive 2,000 tons per day of asbestos. The waste originating in the County accounted for 53 percent of all waste disposed at the landfill in 2003, with the remainder originating in various communities throughout the Bay Area. The cities of San Francisco, Oakland and Hayward are the largest users of the landfill. The facility includes a gas recovery system.

Vasco Road Sanitary Landfill in Livermore received 23 percent of the waste originating in Alameda County. The landfill is owned and operated by Republic Services of California. The disposal area is 222 acres and is partially lined. The landfill is permitted to receive up to 2,518 tons per day. The landfill accepts municipal solid waste but does not accept hazardous waste. The waste originating in the County accounted for 85 percent of all waste disposed at the landfill in 2003. The landfill accepts waste from various communities throughout the Bay Area. The cities of Pleasanton, Livermore and Berkeley are the largest users of the landfill. The facility includes gas monitoring stations, groundwater monitoring wells and surface water test stations.

Tri-Cities Recycling and Disposal Facility in Fremont received 19 percent of the waste originating in Alameda County in 2003. The landfill is owned and operated by Waste Management,

Inc. The disposal area is 115 acres and has no liners. The landfill is permitted to receive up to 2,346 tons per day. The landfill accepts municipal solid waste and biological hazardous waste. The waste originating in the County—Fremont, Newark, Union City—accounted for 100 percent of all waste disposed at the landfill in 2003. The facility includes groundwater monitoring wells, surface water monitoring points and gas probes.

Redwood Sanitary Landfill in Novato received six percent of the waste originating in Alameda County. The landfill is owned and operated by Redwood Sanitary Landfill, Inc. The landfill has a disposal area of 210 acres and has no liners. The landfill is permitted to receive up to 2,300 tons per day. The landfill accepts municipal solid waste and biological hazardous waste. The waste originating in the County accounted for 27 percent of all waste disposed at the landfill in 2003. The landfill accepts waste from various communities throughout the Bay Area. The cities of San Leandro, Oakland and San Francisco are the largest users of the landfill. The facility includes groundwater monitoring wells.

West Contra Costa Sanitary Landfill in Richmond received two percent of the waste originating in Alameda County. The landfill is owned and operated by West Contra Costa Sanitary Landfill, Inc. The landfill has a disposal area of 160 acres, and has no liners. The landfill is permitted to receive up to 2,500 tons per day. The landfill accepts municipal solid waste and contaminated soil. The waste originating in the County accounted for 12 percent of all waste disposed at the landfill in 2003. The landfill accepts waste from various communities throughout the Bay Area. The cities of Berkeley, Oakland and San Francisco are the largest users of the landfill. The facility includes groundwater monitoring wells.

In addition to these five landfills, Alameda County relies on 23 other landfills and disposal facilities.

There are no food compost facilities in the County. Currently, food waste from Oakland is transported to facilities in Gilroy and Vacaville.[155] Alameda County Waste Management Authority seeks to encourage construction of a food composting facility in the County to increase waste diversion rates. The Authority is considering a joint project with Materials Recovery, Inc. to build a facility in the Sunol area.[156]

FACILITY CONDITIONS

Nine of the top ten landfills used by Alameda County meet State minimum standards for solid waste handling and disposal. State minimum standards regulate the design and operation of solid waste facilities in order to protect public health and safety and the environment. Explosive gas control at the Forward, Inc. Landfill in San Joaquin County was found deficient in 2004, and the owner was placed under enforcement action to remedy the problem.[157]

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[155] Oakland Tribune, June 18, 2004.

[156] Contra Costa Times, January 24, 2005.

[157] The Forward, Inc. Landfill is owned and operated by Allied Waste Systems, Inc., where approximately two percent of solid waste in Alameda County is disposed.

Each of the landfills is inspected monthly by the Alameda County Department of Environmental Health (ACEH).

Among landfills in the County, none have been recently notified by regulatory agencies of areas of concern, according to the CIWMB's landfill facility compliance studies and website information.

OPPORTUNITIES FOR SHARED FACILITIES

The agencies engage in extensive sharing of disposal facilities and haulers indirectly via the contracted companies. These solid waste haulers are disposing of waste at common sites. For example, Altamont Landfill, Vasco Road Landfill and Redwood Landfill are destinations for waste originating in all of the solid waste service providers' territory. In addition, the Tri-Cities Recycling and Disposal Facility is shared by Fremont, Newark and Union City. Several of the haulers serve multiple jurisdictions (e.g., Waste Management, Inc. is the primary hauler for 11 agencies).

In addition, the agencies engage in shared planning efforts as well as financial and technical assistance through participation in the Alameda County Waste Management Authority (ACWMA). ACWMA is a JPA composed of the County, each of the 14 cities and the two sanitary districts. The JPA has a 17-member board composed of elected officials appointed by each member agency. ACWMA is responsible for preparation of the Alameda County Integrated Waste Management Plan and Alameda County Hazardous Waste Management Plan required by the State. It manages a long-range program for development of solid waste facilities and offers other programs in the areas of source reduction and recycling, market development, technical assistance, and public education. Funding is provided by per ton disposal and waste import mitigation fees. ACWMA is discussed further in the section below.

No additional facility sharing opportunities were identified.

SERVICE STANDARDS AND ADEQUACY

ADEQUACY

In order to assess infrastructure deficiencies and needs, it is necessary to analyze the adequacy of the facilities and related services in meeting the needs of the populace. Within the County, adequacy can be gauged by various factors including diversion rates.

Diversion Rates

In 1989, California passed historic legislation that sought to radically decrease the amount of materials deposited in the state's landfills. Assembly Bill 939 (A.B. 939) mandates that cities reduce trash delivered to landfills by 50 percent in the year 2000 from 1990 delivery estimates. Under the law, the State can fine a city $10,000 a day for failing either to prepare an approved diversion plan or to make a good faith effort to implement such a plan. A Senate bill passed in 1997 offered extensions through 2005 to jurisdictions falling short of the A.B. 939 standards, which have made a "good faith effort" to comply. Within Alameda County, the voter-initiated diversion goal is 75 percent by 2010.

Although data on the tonnage recycled was not available from the California Integrated Waste Management Board (CIWMB), the Board releases the landfill diversion rates achieved by each jurisdiction.

Table 7-7. Landfill Diversion Rates, 2002

Alameda	64% *	Newark	50% *
Albany	66% *	Oakland	50% *
Berkeley	47% *	Piedmont	63% *
Dublin	51% *	Pleasanton	32%
Emeryville	54% *	San Leandro	55% *
Fremont	63% *	Union City	61% *
Hayward	49% *	Unincorporated	63% *
Livermore	55% *		
** indicates CIWMB has approved the agency's diversion rate*			

By 2002, the median jurisdiction in the County had succeeded in diverting 55 percent of its trash from landfills compared with 1990. By 2002, Pleasanton, Berkeley, and Hayward were not meeting the 50 percent diversion rate standards established by A.B. 939, as shown in Table 7-7. Hayward achieved a preliminary diversion rate of 51 percent in 2003. Pleasanton received a Board-approved time extension so its biennial review has been delayed. Berkeley's diversion rate has hovered around 50 percent in recent years, and the Board has approved Berkeley as making a good faith effort.

The CIWMB does not track diversion rates for special districts. The diversion rate for unincorporated areas reflects diversion activity in CVSD, OLSD, the Curbside Recycling CSA, and other unincorporated areas.

Recycling Efforts

Alameda County Waste Management Authority (ACWMA) offers several options for the County, OLSD, CVSD and all 14 cities to reach the countywide goal of 75 percent diversion rate.

The ACWMA offers both financial and technical assistance to member agencies. The financial assistance includes rewards for performance and is used to support and start recycling efforts. The ACWMA also promotes expanded capacity for recycling facilities or the creation of new facilities; funding preference is given in to in-county facilities. The manufacture and purchase of recycled goods is promoted by the ACWMA as is waste prevention. All agencies in the County have contracts for residential curbside recycling and greenwaste, as shown in Table 7-8. Residential hazardous waste recycling services are provided by 13 of the 18 agencies. Commercial and industrial on-site recycling is provided by all agencies. Only Dublin, Newark and Oakland offer commercial on-site greenwaste services. Food waste composting is provided by nine of the 18 agencies.

In the City of Alameda, small businesses can receive recycling services through Alameda County Industries (ACI). Waste Management of Alameda County provides recycling services to businesses in Albany upon request from the business. Waste Management, Inc. also provides recycling services to businesses on request for six of the 12 agencies with which it has franchise agreements. Fremont businesses can request commercial recycling from Browning-Ferris Industries. In Piedmont, Republic Services, Inc. also offers commercial business recycling for businesses that request it. Oro Loma Sanitary District, Pleasanton and Union City offer business recycling through an exclusive franchise. OLSD also directs its franchisee to offer discounts to businesses for commercial recycling. Berkeley offers free (i.e., not financed though direct charges) recycling throughout the City to residents and businesses. San Leandro has sharply reduced refuse rates for businesses that recycle from 20 to 40 percent.

Table 7-8. Recycling Services, 2002

	Recycling Provider	Residential Curbside Recyclable	Residential Curbside Greenwaste	Residential Hazardous Waste	Commercial On-Site Recyclable	Commercial On-Site Greenwaste	Food Waste Composting
Alameda	Alameda County Industries	Yes	Yes	Yes	Yes	No	No
Albany	Waste Management, Inc.	Yes	Yes	Yes	Yes	No	Yes
Berkeley	Ecology Center	Yes	Yes	No	Yes	No	Yes
Dublin	Amador Valley Industries	Yes	Yes	No	Yes	Yes	Yes
Emeryville	Waste Management, Inc.	Yes	Yes	Yes	Yes	No	Yes
Fremont	Browning-Ferris Industries	Yes	Yes	Yes	Yes	No	Yes
Hayward	CurbCycle	Yes	Yes	Yes	No	No	No
Livermore	Waste Management, Inc.	Yes	Yes	No	Yes	Yes	Yes
Newark	Waste Management, Inc.	Yes	Yes	Yes	Yes	Yes	No
Oakland	Waste Management, Inc. & California Waste Solutions	Yes	Yes	Yes	Yes	No	Yes
Piedmont	Republic Services, Inc.	Yes	Yes	No	Yes	No	No
Pleasanton	Pleasanton Garbage Co.	Yes	Yes	No	Yes	No	No
San Leandro	Alameda County Industries & OLSD	Yes	Yes	Yes	Yes	No	Yes
Union City	Tri-CED	Yes	Yes	Yes	Yes	No	No
Unincorporated	Pleasanton (Sunol) & Tri-CED (all other)	Yes	Yes	Yes	Yes	No	No
Recycling CSA	Waste Management, Inc.	Yes	Yes	Yes	Yes	No	No
CVSD	Waste Management, Inc.	Yes	Yes	Yes	Yes	Yes	Yes
OLSD	Waste Management, Inc.	Yes	Yes	Yes	Yes	No	No

Nine of the 18 agencies in Alameda County provide used-oil pickup. Three of the nine agencies that provide used-oil pickup also pickup used oil filters. Five of the 19 agencies provide pickup services for recyclable plastics. The City of Alameda also provides pickup services for aluminum foil while Berkeley provides pickup services for both aluminum foil and aluminum pie plates. Oakland provides services for the pickup of aerosol cans and latex paint.

FINANCING CONSTRAINTS AND OPPORTUNITIES

Financing constraints and opportunities impact the delivery of services. This section discusses the major financing constraints faced by solid waste service providers and identifies the revenue sources currently available to the service providers. The section discusses innovations for contending with financing constraints, cost-avoidance opportunities and opportunities for rate restructuring.

FINANCING SOURCES

The landfills rely on tipping fees (see Opportunities for Rate Restructuring below). In most cases, the private hauler collects refuse collection charges directly from its customers. As a direct service provider, the City of Berkeley collects solid waste charges by billing its residents to finance its solid waste collection services.

In general, the agencies rely on service charges, recycling fees, Alameda County Waste and Recycling Act (Measure D, 1990) fees, and general fund revenues to finance recycling and related services aimed at reducing the amount of trash disposed. California communities may issue private bonds for solid waste/recycling facilities. Bond proceeds may be used to finance the acquisition, rehabilitation or construction of solid waste facilities and the acquisition of new equipment. Public

service providers in Alameda County have not relied on bond financing, however, as major facilities are privately owned.

Statewide Fees for Recycling

Under A.B. 939, the County of Alameda imposes a $1.50/ton solid waste management fee charged to the operators of the three landfills located in Alameda County (Altamont, Vasco Road, and Tri-Cities) to fund the Alameda County Waste Management Authority. The landfill operators are also charged a $2.15/ton household hazardous waste management fee.

Measure D Fees

For Altamont Landfill and Vasco Road Recycling, Measure D (1990) imposes a $6.95/ton fee to be collected by the Alameda County Source Reduction and Recycling Board (ACSRB).[158] The fee is apportioned according to Measure D (1990) between the ACSRB and the cities. Fifty percent of Measure D funds go to cities to fund waste reduction efforts. No Measure D fees are imposed for the Tri-Cities Recycling and Disposal Facility which serves Newark, Fremont and Union City. These three cities have imposed an equivalent fee by increasing the franchise fees charged to private haulers by a commensurate amount.

Franchise Fees

Table 7-9. Franchise Fees

City	Type	Rate
Alameda	Charter	10%+
Albany	Charter	13.58%
Berkeley	Charter	26%
Dublin	General Law	15.60%
Emeryville	General Law	24%
Fremont	General Law	10% residential plus IWMF of 16%; 12% commercial plus IWMF of 13.5%
Hayward	Charter	12.50%
Livermore	General Law	10%
Newark	General Law	20%
Oakland	Charter	+/-35%
Piedmont	Charter	5.50%
Pleasanton	General Law	$1.50 per year/account
San Leandro	Charter	10%
Union City	General Law	20%
CVSD	Special District	10%
OLSD	Special District	10%

Franchise fees are paid to the municipality for the use of city streets and rights of way. These fees are generally a percentage of the franchisee's gross service charges, as shown in Table 7-9. Solid waste franchise fees are levied by all cities in Alameda County on privately owned utility companies and businesses. Solid waste franchise fees are not limited by state statute. Except for Berkeley, all solid waste services are provided by private companies through exclusive contracts.

The City of Pleasanton is the only city that charges a flat fee per its solid waste franchise agreement. The City of Fremont charges 10 percent for residential municipal solid waste (MSW) and 12 percent for commercial MSW. The Integrated Waste Management Fee (IWMF) of 16 percent is added to residential rates and 13.5 percent is added to commercial rates. Oakland, Berkeley and Emeryville have the highest solid waste franchise fees. Piedmont, Alameda, Livermore, and San Leandro have the lowest solid waste franchise fees.

[158] The ACSRB was created in 1990 through the Measure D ballot initiative. The eleven-member board includes six citizen experts appointed by the Alameda County Board of Supervisors and five elected officials from the Alameda County Waste Management Authority.

FINANCING CONSTRAINTS

For a discussion of financing constraints applicable to general fund revenue streams, please refer to Chapter 6.

LONG-TERM DEBT

Long-term debt per capita is relatively high in Oakland and Berkeley. Given Emeryville's substantial commercial population, the debt per capita comparison based on residential population is biased; the debt per capita based on the 24-hour population reflects a significantly lower debt load.

The City of Berkeley is the sole provider of direct refuse collection services. The City of Berkeley has not incurred any debt to finance its solid waste collection services. Private haulers are not required to provide financial information.

Castro Valley Sanitary District had $0.5 million in long-term debt at the end of FY 2002-03. This debt amounts to $10 per capita. The District's debt consists of "deposits." The CVSD financial statements do not indicate whether the debt relates to its wastewater or solid waste operations.

Oro Loma Sanitary District had $7.5 million in long-term debt at the end of FY 2002-03. This amounts to $60 per capita. This sewer-related debt consists entirely of bonded debt; the sewer bond financed improvements and renovations to aging collection and treatment facilities and new safety technology.

OPPORTUNITIES

Financing opportunities include increases to various general fund taxes (such as business license taxes) with voter approval, the imposition of unique fees, and opportunities to increase various fees.

There are several different approaches used to finance solid waste services. These examples have been used by service providers in Alameda County:

- The City of Berkeley could charge commercial recycling collection fees to finance its recycling efforts.
- Piedmont requests "Measure D like" fees for all franchised solid waste. The fee applies to waste deposited outside Alameda County.

Other approaches used elsewhere in California, but not currently used in Alameda County include:

- Revenue bond financing is available for solid waste collection services.
- Cities can enter into cost-sharing agreements with electronics manufacturers to provide funding for electronics recycling programs.
- Varied collection rates are possible based on the level of waste disposal.

- Cities can charge a per ton fee for all estimated construction and demolition (C&D) activities. The City of Atherton charges a $50/ton fee for all waste estimated from C&D projects.
- Permits for C&D projects can require deposits be returned to the agency when the agency can prove that it has attempted to recycle a portion of the C&D waste. The City of Cotati requires a deposit of $200 from agencies undertaking C&D projects.

The next section on opportunities for rate restructuring provides additional financing opportunities.

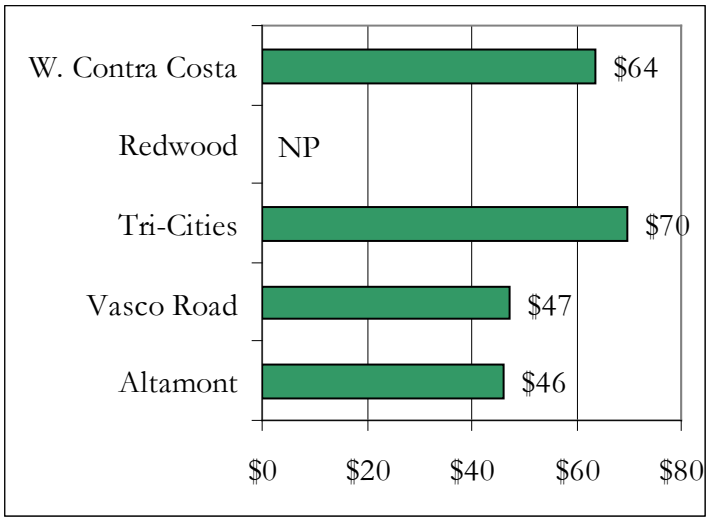
OPPORTUNITIES FOR RATE RESTRUCTURING

There are few opportunities for rate restructuring. Other than the City of Berkeley, agencies contract with private haulers and are not directly involved in setting rates. Agencies may indirectly influence collection rates through franchise negotiations and competitive bid processes with haulers. There are opportunities for cities with low franchise fees to negotiate higher fees for solid waste services. Pleasanton can change its franchise agreement from a flat fee per account to a fee calculated as a percentage of gross service charges.

Disposal Rate Restructuring Opportunities

The rates currently charged for disposing solid waste differ among the top landfills used by cities in the County. The tipping fees per ton of municipal solid waste are shown in Figure 7-10.

Figure 7-10. Municipal Solid Waste Rates (per ton), 2004



The tipping fees charged by the privately-owned Altamont and Vasco Road landfills are less than the fees charged by the other landfills, presumably due to lower costs. The fees are not significantly different, but there may be opportunities for Altamont and Vasco Road to increase their fees especially with the expected closure of the Tri-Cities Recycling and Disposal Facility in 2006. Redwood Landfill has not provided tipping fees.

Fremont has proposed a Fremont Recycling and Transfer Station be established to consolidate wastes before transferring it to landfills and appropriate disposal facilities after the Tri-Cities landfill closes in 2006. Legal issues over the location of the proposed transfer station have occurred with Newark. It is not known how the proposed transfer station will structure fees.

Collection Rate Restructuring Opportunities

Rate restructuring opportunities are limited in that the rates are established on a cost-of-service basis. Collection rates may be restructured through franchise negotiations and competitive bid processes. Changes in service level and franchise fees also affect rates. Collection rates (for weekly service) in FY 2004-05 differed significantly among the service areas, as shown in Table 7-11.

Table 7-11. Solid Waste Collection Rates, FY 2004-05

	Residential Monthly Rate	Commercial Monthly Rate
	30-35 Gallons	Per Cubic Yard
Alameda	21.54	80.23
Albany	22.07	87.98
Berkeley	18.44	91.38
Dublin	10.15	43.46
Emeryville	10.42	59.06
Fremont	22.41	60.83
Hayward	17.27	13.55
Livermore	11.14	52.36
Newark	15.53	60.88
Oakland	21.58	113.40
Piedmont	19.84	25.65
Pleasanton	22.50	84.33
San Leandro	18.05	72.19
Union City	20.06	71.42
Unincorporated	Various	Various
Recycling CSA	14.33	66.50
CVSD	18.05	74.77
OLSD	14.33	66.50

The rates charged for residential weekly collection by Waste Management, Inc. in Dublin, Emeryville and Livermore were the lowest residential monthly rates. The highest rates were charged in Fremont and Pleasanton by Browning-Ferris and Pleasanton Garbage Company. Differences in rates relate primarily to service cost factors, such as automated collection, density and traffic congestion, and secondarily to jurisdictional differences in franchise fees. Rate differences are only partly determined by franchise fees, which are relatively high in Fremont, Berkeley and Oakland and relatively low in Livermore, Piedmont and San Leandro.

Commercial rates also differ significantly among providers and service areas due to service costs and franchise fees. Commercial rates are lowest in Piedmont, Dublin and Livermore, and highest in Oakland, Berkeley and Albany.

COST AVOIDANCE OPPORTUNITIES

The providers are already reaping cost avoidance benefits as a result of inter-agency planning collaboration through ACWMA. However, several cost avoidance opportunities may be pursued:

- Cities or their franchisees may switch from single stream recycling to reduce collection costs and worker injury, although the net benefit is limited because single stream recycling increases processing costs.[159]
- Cities or their franchisees may automate waste collection for suburban areas by replacing manual trucks with automated trucks that only require a single driver to operate. Automated trucks reduce collection costs and worker injury, and are feasible in suburban areas.

[159] Single stream is a system in which all recyclables items are mixed together in a collection truck, instead of being sorted into separate commodities (e.g., newspaper, cardboard, plastic, glass, etc.) by the resident.

- For collection of bulky waste, switching from citywide collection days to use of on-call pickups reduces service costs.

POLICY ANALYSIS

This section provides policy analysis that is focused on the agencies under LAFCo's purview. The policy analysis includes assessment of local accountability and governance and evaluation of management efficiencies.

LOCAL ACCOUNTABILITY AND GOVERNANCE

The section discusses local accountability and governance for the limited purpose agencies, provides an overview of indicators of local accountability and governance for the multipurpose agencies, and discusses agency data disclosure practices in response to LAFCo inquiries.

Limited Purpose Agencies

Table 7-12. Accountability Indicators, Limited Purpose Agencies

Indicator	CVSD	OLSD	Curb-Recycle CSA
Direct service provider	Partially	Partially	No
Service recipients are constituents	Yes	Yes	Yes
Uncontested elections since 1994	None	None	None
Latest contested election	Nov 04	Nov 04	Nov 02
Latest voter turnout rate	81%	75%	52%
Countywide turnout rate	77%	77%	53%
Efforts to broadcast meetings	No	No	Yes
Constituents updated via outreach	Yes	Yes	Yes
Solicits constituent input	Yes	No	Yes
Discloses finances	Yes	Yes	Yes
Discloses plans	Yes	Yes	Yes
Posts public documents on web	Yes	Partially	Yes

All agencies hold open elections for their governing bodies, prepare meeting agenda and minutes, and have accessible staff and elected officials, as shown in Table 7-12.

Castro Valley Sanitary District is not a direct service provider and contracts through a private hauler to provide solid waste and recycling collection services. Although not a direct provider of collection services, the District is responsible for administering recycling programs and other solid waste diversion practices. CVSD is governed by a five-member Board of Directors elected by district voters to serve four-year terms. Each Board member must be a resident of the District. Board meeting agendas and minutes are posted on the District's website and agendas are sent to various community organizations, public entities and the local newspaper. The meetings are not broadcast on local television.

Oro Loma Sanitary District is not a direct service provider and contracts with private haulers for solid waste and recycling services. Although not a direct provider of collection services, the District is responsible for administering recycling programs and other solid waste diversion practices. OLSD was formed as an independent special district to provide sewer and solid waste services in the San Lorenzo and surrounding areas. The District is governed by a five-member Board of Directors

elected at large to serve four-year terms. OLSD Board meeting agendas and minutes are posted on the District website. The Board meetings are not broadcast live on local television.

The Curbside Recycling CSA is not a direct service provider and contracts with private haulers for solid waste and recycling services. The CSA was formed as a dependent special district with the Alameda County Board of Supervisors as its governing body. There are five members of the governing body of the CSA. The five supervisors are elected by district to four-year terms of office. The Board Clerk provides notice for meetings and disseminates minutes, and Board actions and meeting minutes are available via the Internet. Through the County website, the public has access to live audio webcasts and archived audio webcasts of regular Board meetings for online use at their convenience. The agency also discloses finances, plans and other public documents via the Internet.

Multipurpose Agencies

Assessment of each multipurpose agency's accountability will be finalized in the third volume of the MSR series, as multipurpose agencies will be covered in that report. The assessment of local accountability and governance at multipurpose agencies is generally an agency-wide assessment. Solid waste-related accountability indicators include each provider's planning efforts discussed below in the section on management efficiencies.

Accountability indicators relating to solid waste services include whether or not an agency is a direct service provider and if it cooperated with the MSR study. Berkeley is the only direct service provider of solid waste collection services. The remaining service providers are responsible for promoting and administering recycling programs and other solid waste diversion practices.

All agencies hold open elections for their governing bodies, prepare meeting agendas and minutes, and make accessible their staff and local officials. In addition, all of the solid waste data used in the MSR was collected from central sources and agency documents; therefore, each multipurpose agency's cooperation with the MSR process relates to other utility services reviewed.

Table 6-7 in the stormwater chapter provides accountability indicators for each of the multipurpose agencies. Additional details on the local accountability and governance of the multipurpose agency solid waste providers can be found in Appendix A.

EVALUATION OF MANAGEMENT EFFICIENCIES

This section provides analysis of management efficiencies of solid waste service providers and considers the effectiveness of each agency in providing efficient, quality public services. Efficiently managed agencies are deemed those that consistently implement plans to improve service delivery, reduce waste, eliminate duplications of effort, and contain costs.

Reserve Ratios

Each of the cities maintains adequate general fund contingency reserves, as discussed in Chapter 6. CVSD and OLSD reserves are adequate, as discussed in Chapter 4.

Management Practices

There are various management practices used by solid waste service providers in Alameda County, including implementing master plans and monitoring performance to improve service delivery, as shown in Table 7-13.

CVSD management practices include financial audits and performance evaluation. It prepares monthly reports on solid waste service referrals and solid waste collection to track performance. The District also conducts a review of each employee's performance annually. The District conducts annual financial audits. The District does not conduct performance-based budgeting or benchmarking studies.

OLSD management practices include financial audits and performance evaluation. The District conducts performance evaluations annually during budget preparation. The District monitors productivity through monthly activity reports. Additional management practices conducted by the District include annual financial audits. The District does not conduct performance-based budgeting or benchmarking.

The Curbside Recycling CSA did not identify how performance evaluation is conducted or how productivity is monitored. Management practice conducted by the County includes performance-based budgeting and annual financial audits. The CSA did not identify benchmarking practices. The CSA does not have service-related master planning documents.

Table 7-13. Management Practices, Multipurpose Agencies

	Alameda	Albany	Berkeley	Dublin	Emeryville	Fremont	Hayward
Benchmarking	No	No	No	No	No	No	No
Performance Evaluation	Yes	Yes	Yes	Yes	No	Yes	Yes
Performance-based Budgeting	No	No	Yes	No	No	No	No
Workload Monitoring	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Livermore	**Newark**	**Oakland**	**Piedmont**	**Pleasanton**	**San Leandro**	**Union City**
Benchmarking	No	No	Yes	No	No	No	No
Performance Evaluation	Yes	Yes	Yes	No	Yes	Yes	Yes
Performance-based Budgeting	No	No	Yes	No	No	No	No
Workload Monitoring	Yes	Yes	Yes	No	Yes	Yes	Yes

Oakland participates in service benchmark studies (i.e., comparing the City's basic performance indicators to those in comparable jurisdictions), monitors workload and conducts performance-based budgeting. The City of Berkeley and the County also include performance measures in their annual budgets. Albany, Emeryville and Piedmont monitor workload as part of the budget process; although the other service providers indicated that they make efforts to monitor productivity, the agencies' budgets track accomplishments rather than workload and performance indicators.

Most agencies could improve management practices by benchmarking and by tracking workload and performance.

Best practices include weekly collection of single-family residential recyclables and plant debris, which tends to result in higher diversion rates than biweekly program. Also, on-call bulk waste pickup may lead to higher diversion rates and lower collection costs compared with regular bulk

waste collection. Promotion of reuse programs can also reduce the amount of bulky waste disposed by allowing non-profits a "first pass" on disposed items, such as furniture.

Similar to agency planning for stormwater services, solid waste service is also planned at the countywide level by the service providers. All of the solid waste service providers in Alameda County are members of the Alameda County Waste Management Authority (ACWMA). The member agencies have delegated to ACWMA the responsibility to develop a countywide Integrated Waste Management Plan, as required by the State. The plan includes policies and programs for waste reduction and ways to address the County's landfill and other waste disposal needs. The Alameda County Integrated Waste Management Plan was adopted in February of 2003 and has a planning horizon of 15 years.[160]

GOVERNMENT STRUCTURE OPTIONS

No government structure options relating directly to solid waste were identified. Two options—CVSD-OLSD consolidation and CVSD detachments—are discussed in Chapter 4; these districts administer solid waste services provided by a private hauler.

Various options for spheres of influence are discussed in Chapter 9.

[160] The California Integrated Waste Management Act of 1989 (i.e., A.B. 939).

CHAPTER 8: RESOURCE CONSERVATION SERVICES

This chapter reviews the resource conservation services provided in Alameda County. The chapter reviews how these services are provided and addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, and financing constraints and opportunities. The policy analysis includes shared facilities, cost avoidance, rate issues, government structure options, evaluation of management efficiencies, and local accountability and governance.

SERVICE OVERVIEW

This section provides an overview of the Alameda County Resource Conservation District (ACRCD). ACRCD is the only resource conservation district in Alameda County. The ACRCD was formed on May 9, 1972 by consolidation of two districts (the Eastern Alameda County Soil Conservation District established in 1946 and the Western Alameda County Soil Conservation District established in 1955) into a single independent special district.[161]

ACRCD was formed to conduct and lead conservation efforts on agricultural lands.[162] The District functions as Alameda County's lead agency responsible for agricultural enhancement programs, providing project cost-share funding and technical assistance for various agriculture and natural resource conservation efforts. The District provides creek restoration, habitat restoration, rural watershed, permit coordination, education, technical, and grant administration services. It serves as an advisor to many other agencies and stakeholder groups, primarily at the county level.

ACRCD is an active partner with ACFCD and others in several habitat restoration projects and educational endeavors, including Palomares Creek and the restorations of Eden and Cull Canyons, Mission Creek and Arroyo de la Laguna in the Pleasanton area.

Educational activities provided by the District include technical assistance for proper equine facilities management, watershed awareness, responsible agriculture programs, and programs for schoolchildren. Specific programs include Watershed Adventures, an interactive program for fourth-grade students, and watershed tours.

ACRCD, in collaboration with U.S. Department of Agriculture's National Resources Conservation Service (NRCS), also known as the Conservation Partnership, serve as the gateway for several Farm Bill programs funded by the NRCS, including the Environmental Quality Incentive Program, Wildlife Habitat Incentive Program and the Grassland Reserve Program.

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[161] For further discussion of ACRCD, please refer to MSR Appendix Chapter A-2. For a map of the agency, please refer to MSR Appendix B.

[162] The enabling act authorizes RCDs for purposes of soil and water conservation, the control of runoff, the prevention and control of soil erosion, and erosion stabilization, including, but not limited to, these purposes in open areas, agricultural areas, urban development, wildlife areas, recreational developments, watershed management, the protection of water quality and water reclamation, the development of storage and distribution of water, and the treatment of each acre of land according to its needs (California Public Resources Code, §9001).

ACRCD has also been an active collaborator with citizen and landowner organizations such as the Livermore Valley Winegrowers Association, Alameda County Agriculture Advisory Committee, various equine advocacy groups, Cattleman's Association, South Livermore Valley Agricultural Land Trust, and Tri-Valley Conservancy.

Service Area

The District's boundary area includes undeveloped areas in the southern and eastern portions of the County, most territory in the cities of Dublin, Pleasanton and Livermore, and undeveloped hill and marsh areas in the cities of Hayward, Fremont, Newark, and Union City. The District primarily provides services to agricultural and rural areas of Alameda County within its boundaries. The District also provides public education services to urban areas, and its watershed restoration activities benefit urban as well as rural areas. The District serves as a resource to agencies outside its boundaries including the cities of Oakland and Berkeley, EBMUD, EBRPD, and several agencies and organizations outside Alameda County.

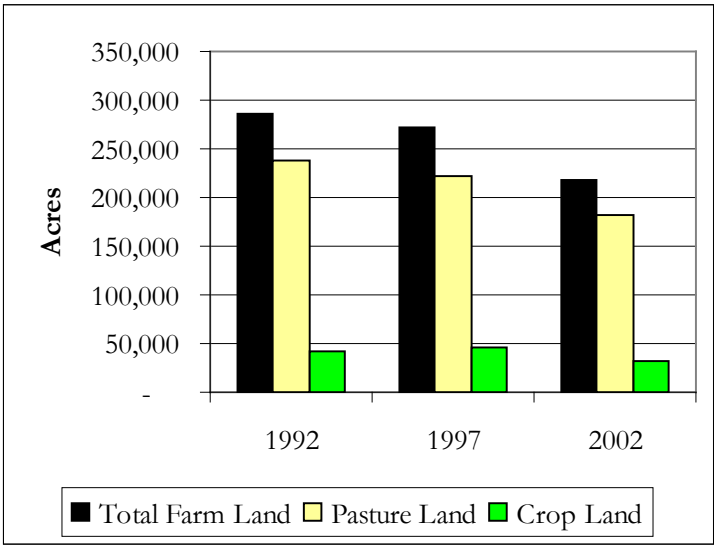
The District's boundary area includes not only the rural areas of the County but also urban areas in Dublin, Pleasanton, Livermore and Union City. The boundary represented the rural portion of the County when its predecessors' boundaries were established between 1946 and 1955.[163] Over time, urbanization spread into formerly rural areas, cities annexed additional territory and new cities formed. The RCD boundaries were not updated to reflect these historical changes.

SERVICE DEMAND

This section provides indicators of service demand for resource conservation services.

Figure 8-1. Alameda County Farm Land, 1992-2002

The farming community and farm acreage generally has been declining in Alameda County. Nearly half (46 percent) of all land in Alameda County is farm land, most of which is used as pasture and range land as opposed to crop land.[164] The total land in farms fell 24 percent from 1992 to 2002. In California as a whole, total land in farms fell by five percent over the same period.



[163] The boundary area excludes unincorporated areas such as Sunol, San Lorenzo, Ashland, Cherryland, and the western portion of Castro Valley that had been urbanized by the time the predecessors' boundaries were established. The boundary area excludes the historic downtown areas of Livermore and Pleasanton, but includes most of the territory currently in these cities. The boundary area includes marsh and hillside areas in Hayward, Fremont, Newark and Union City.

[164] U.S. Department of Agriculture, National Agricultural Statistics Service, Census of Agriculture 1992, 1997, and 2002. Of 218,094 acres classified as farm land in 2002, only 7,926 acres are used as harvested cropland.

The future demand for resource conservation education and creek restoration programs may relate to population growth. The ACRCD boundary area includes a number of growth areas, particularly in the Tri-Valley area. The population in the ACRCD boundary area is expected to grow from 345,176 in 2005 to 374,220 by 2010; by 2015, the population is expected to reach 397,255. Two cities within the District—Pleasanton and Livermore—are projected to experience a combined population increase of 50,000 by the year 2030.

Please refer to Chapter 2 for additional details on the residential population, job base, projected population and job growth rates, and a description of growth areas.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

This section discusses infrastructure needs or deficiencies, service adequacy and opportunities for shared facilities.

FACILITIES

The ACRCD does not own or maintain any infrastructure. The District rents office space. The office facilities were recently upgraded by a move to the new Alameda County Agriculture Center, which also houses various Alameda County branch offices. There are currently no facility needs or deficiencies.

OPPORTUNITIES FOR SHARED FACILITIES

The District shares its office space with the Local Partnership Office (LPO) of the National Resources Conservation Service (NRCS) a division of the U.S. Department of Agriculture. The Executive Officer reports that this arrangement provides synergies, efficiency and access to NRCS staff expertise.

ADEQUACY

In order to assess infrastructure deficiencies and needs, it is necessary to analyze the adequacy of the facilities and related services in meeting the needs of the populace. Service adequacy can be gauged by service complaints and by the continued willingness of agencies and landowners to work with and contract with the District.

The District's Executive Officer reports that she has not received any recent complaints.

The District continues to be awarded contracts and projects by the Alameda County Clean Water Program, State Water Resources Control Board, the California Bay Delta Authority, and the California Department of Water Resources. Further, the District continues to work as a liaison with other agencies and organizations, including Tri-Valley Vision 2010, ACFCD, Zone 7, ACCWP, Alameda County Planning Department, RWQCB, California Department of Fish and Game, local school districts, and United States Fish and Wildlife Service, among others.

FINANCING CONSTRAINTS AND OPPORTUNITIES

Financing constraints and opportunities impact the delivery of services. This section discusses the major financing constraints faced by the District and identifies the revenue sources currently available to the service provider. The section discusses innovations for contending with financing constraints, cost-avoidance opportunities, and opportunities for rate restructuring.

FINANCING CONSTRAINTS

The most significant financing constraints for resource conservation services are legal requirements that limit property taxes and require voter approval of new taxes and tax increases. Due to the reliance on property tax, ACRCD is affected by the State budget crisis and property tax take-aways.

As discussed in Chapter 3, the ACRCD faces the following financing constraints:

- limitation of the ad valorem property tax rate (Proposition 13)
- a formulaic allocation of property taxes (A.B. 8)
- property tax vulnerability to State budget needs (Proposition 98, ERAF III)
- voter approval requirements for special taxes or assessments (Propositions 13 and 218)

The ACRCD was formed prior to the passage of Proposition 13 and receives a dedicated share of the one percent property tax. Although the District has been subject to a temporary diversion of a portion of property tax revenues to ERAF for FY 2004-05 and FY 2005-06, the District's property tax revenues have not changed as this reduction has been offset by growth in property values.

Other financing constraints faced by the District include the cost-recovery nature of the District's contracts and decisions by the U.S. Congress with respect to future funding of NRCS programs.

FINANCING SOURCES

The District's total revenue was projected to be $0.6 million in FY 2004-05. The total revenue amounts to $2 per capita. The District's primary revenue source is project funds from the Alameda County Clean Water Program, the NRCS, State Water Resources Control Board, the California Bay Delta Authority (CALFED) and the California Department of Water Resources, which accounted for 83 percent of revenues. Property taxes accounted for 17 percent of revenues in FY 2002-03. For further information on financing sources, please refer to Appendix Chapter A-2.

LONG-TERM DEBT

The District had no long-term debt at the end of FY 2002-03. Because it has no bonded indebtedness, the District has not received a credit rating from Moody's or Standard and Poor's.

OPPORTUNITIES

Financing opportunities include future contract funding from additional agencies. For example, the District anticipates future opportunities with the U.S. Fish and Wildlife Service for wildlife habitat services. The District may also compete for grant funding.

OPPORTUNITIES FOR RATE RESTRUCTURING

The District has no opportunities for restructuring property tax rates. The District does not charge fees or service charges other than to cover its project costs. Agencies contracting with the District pay service charges on a cost-of-service basis.

COST AVOIDANCE OPPORTUNITIES

The District expended a total of $595,000 in FY 2002-03. In FY 2002-03, the District employed an Executive Officer, two conservationists, a bookkeeper, a watershed coordinator and five part-time employees at a salary expense of $125,299. The District conserves on expenses by relying on volunteers and by sharing office space with NRCS experts in environmental engineering, conservation and ecology. The District has no election expenses, as the Board is appointed and not elected.

No additional cost avoidance opportunities were identified.

POLICY ANALYSIS

The policy analysis includes assessment of local accountability and governance, evaluation of management efficiencies, and identifies several government structure options that may be considered.

LOCAL ACCOUNTABILITY AND GOVERNANCE

The section discusses local accountability and governance, provides an overview of indicators of local accountability and governance, and discusses agency data disclosure practices in response to MSR inquiries.

The Alameda County Board of Supervisors appoints the ACRCD governing body. The District prepares meeting agendas and has accessible staff and officials. The District mails annual reports to all project partner organizations, cities, the County, advisors and other interested parties.

The Board updates constituents, solicits constituent input, and discloses its finances. ACFD cooperated with the LAFCo MSR process.

To update constituents on District activities, ACRCD sends out occasional press releases, posts a description of programs and activities on the District's website, and gives presentations at constituent and partner meetings.

MSR Cooperation

ACRCD disclosed the information that was requested by LAFCo relating to resource conservation service. ACRCD provided information on service costs and regional collaboration efforts.

EVALUATION OF MANAGEMENT EFFICIENCIES

This section provides analysis of management efficiencies and considers the effectiveness of the agency in providing efficient, quality public services.

Service Costs

The District's service costs are modest. The District expended $594,627 in FY 2002-03. On a per capita basis, this amounts to $1.80 per resident of the boundary area. Much of the District's financing is received from other governmental agencies. Property tax revenues raised within the boundary area amounted to $0.34 per capita.

Reserve Ratios

Local agencies maintain contingency reserves to cover costs during economic downturns, unexpected expenses, and sometimes cash flow shortages.[165] The reserve ratio provides a strong indicator of an agency's financial health; however, there are other factors such as revenue and expenditure timing that are not necessarily reflected in the reserve ratio.

The District's policy is to maintain reserves equivalent to the prior year's property tax revenues, which recently have constituted 13-17 percent of revenues. The District has succeeded not only in meeting this policy but in maintaining more ample reserves. The District maintained contingency reserves that constituted 43 percent of revenues in FY 2002-03. Similarly, the District's reserve ratio was 47 percent in the preceding fiscal year. The District maintained approximately six months of working capital.

There are no official guidelines or widely accepted standards to guide independent special districts in the accumulation and use of contingency reserves. However, the issue of special district reserves was raised in May 2000 by the Little Hoover Commission in its report entitled *Special Districts: Relics of the Past or Resources for the Future?* The report characterized special district reserves at some enterprise districts as "unreasonably large," pointing to the significant number of districts with reserves that are more than three times higher than annual revenue. The report also characterized special district reserves as obscure and not integrated into regional infrastructure planning.

ACRCD reserve policies and practices have been reasonable and conservative and could not be characterized as excessive.

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[165] Contingency reserves include the unreserved fund balance and any contingency reserves (i.e., contingency reserves, reserves for economic uncertainties, and cash flow reserves) that are included in the reserved or designated fund balance. The reserve ratio reflects the ratio of contingency reserves to total revenues. The reserve ratio was calculated based on the agency's CAFR for reserves at the end of FY 2002-03.

Management Practices

The District conducts performance evaluations with annual financial audits, as well as monthly and mid-year staff reports to the Board of Directors. The District's finance committee reviews expenditures, assets, project status and budget status on a monthly basis.

The District monitors productivity with monthly staff reports to the Board that portray each staff person's workload within the context of the District's annual work plan. Another report tracks contract and grant budgets, timeline and staff assignments. Finance committee reports demonstrate budget status and indicate workload and progress.

The District does not conduct performance based budgets or benchmark studies.

The District's future plans are highlighted by its current mission statement and long range objectives as well as its detailed annual work plan. The District's planning efforts include future goals and opportunities, future service capacity and review of past performance.

GOVERNMENT STRUCTURE OPTIONS

In addition to maintaining the status quo, two government structure options were identified and are discussed in this section. The MSR identifies the option, advantages and disadvantages, and evaluation issues. The Commission or the affected agencies may or may not initiate studies on these options in the future, although LAFCo is required to update all SOIs by January 1, 2006.

Status Quo

The first option is to maintain the existing boundaries. As discussed earlier in this chapter, the boundaries reflect the non-urbanized areas of the County at the time the District's predecessors were established between 1946 and 1955. Historically, territory has not been detached from the District as urbanization occurred. The current boundaries no longer reflect the rural portion of the County. The District includes the City of Dublin and most of the cities of Livermore and Pleasanton, but excludes the older cities, Sunol and other unincorporated urbanized areas.

The advantage of maintaining the status quo is to minimize transition costs and the administrative burden of boundary change. The disadvantage of the status quo is that the boundary is no longer logical, as it no longer represents the rural portion of the County.

Countywide Boundaries

The second option is to expand the District's boundary area to become countywide. Advantages and disadvantages are highlighted in Table 8-2. The District is interested in such a change, as it has proposed that its sphere of influence include the entire county.

If the Commission believes that the District does and should provide services to urban areas, a countywide boundary area would be logical. The scope of some of the District's resource conservation programs do extend beyond its current boundaries, including education programs on clean water and creek management, watershed management, and the providing of federal funding to land owners (including other special districts and agencies) for conservation planning and easements in all areas of the county including bayside wetlands and upland watersheds.

Table 8-2. Advantages and Disadvantages of Countywide ACRCD

	Advantages of Countywide ACRCD	Disadvantages of Countywide ACRCD
Purpose	The enabling act authorizes services in urban areas.	The District's primary mission is rural in nature—preventing soil erosion and rural watershed maintenance.
Service	The District provides education and outreach throughout the County. Clean water benefits all County residents.	The District is primarily engaged in services to rural landowners and locations.
Electorate	None identified.	None identified.
Accountability	Urban interests would be better represented on the appointed Board.	Rural interests would face reduced representation on the appointed Board.
Financing	The District may attract more urban projects and related funding.	None identified.
Cost Avoidance	None identified.	None identified.

If the Commission determines that evaluation of this government structure option is warranted, issues to be examined might include (1) the proportion of District staff time and budget currently expended on rural and urban services; (2) the specific services that the District would like to provide in urban areas; and (3) the perspectives of rural and urban stakeholders.

Detach Urban Areas

A third policy option is to realign ACRCD boundaries with the original rural vision. Table 8-3 highlights advantages and disadvantages. This would involve detachment of urban territory in the cities of Dublin, Pleasanton and Livermore from the District. The urban area could be defined based on municipal boundaries or urban growth boundaries. If it were based on the latter, the ACRCD boundaries would be consistent with the agricultural and open space areas within the County.

The enabling act recommends that the territory included within the boundaries of a resource conservation district be lands of value for agricultural purposes including farm and range use, but California Public Resources Code §9152 authorizes other lands to be included if necessary for the control of runoff, the prevention or control of soil erosion, the development and distribution of water, land improvement, and for fully accomplishing the purposes for which the district is formed. California Public Resources Code §9153 authorizes non-contiguous boundaries for RCDs.

While a rural boundary area would have been consistent with the ACRCD scope of services several decades ago, current ACRCD services address watershed quality and education within urban areas as well as rural areas.

Table 8-3. Advantages and Disadvantages of Rural ACRCD

	Advantages of Rural ACRCD	Disadvantages of Rural ACRCD
Purpose	The enabling act recommends agricultural lands be the territory included in the District.	The District serves urban areas. RCD services, such as prevention of soil erosion and watershed management, benefit urban areas.
Service	The District is primarily engaged in services to rural landowners and	The District provides education and outreach services to urban constituents,

	locations.	and erosion and watershed services benefit urban constituents.
Accountability	Rural interests would face increased representation on the appointed Board.	Urban interests would potentially lose representation on the appointed Board.
Financing	None identified.	The District's property tax revenues would decrease.
Cost Avoidance	None identified.	Maintaining a rural boundary would be complicated and increase agency costs.

If the Commission determines that evaluation of this government structure option is warranted, issues to be examined might include the same issues as identified in the prior structure option. The financial effect of detaching urban territory from the ACRCD on the District's property tax revenues should also be considered.

Analysis

The desirability of each of the government structure options relates to whether the District should be financed by and provide services to urban areas as well as rural areas.

In other urban counties, there are a variety of RCD boundary circumstances, as shown in Table 8-4. In Orange and San Francisco counties, there is no RCD. The rural RCD approach is used in four counties. The urban RCD approach is used in six counties. In the remainder of the counties, a hybrid approach is in effect. In Santa Clara and San Mateo counties, the boundary approach represents historical non-urban areas. In Los Angeles and Sacramento counties, there are multiple RCDs in formerly rural areas that also include recently urbanized areas.

Table 8-4. ACRCD Boundary Coverage in Urban Counties

County	Boundary Coverage
Alameda	At formation, RCD included non-urban areas. RCD detachments did not occur subsequently as new cities formed and municipal annexations occurred. Current boundary includes some urbanized and incorporated areas.
Contra Costa	Countywide, including rural and urban areas.
Fresno	Collectively, the eight RCDs cover the unincorporated portions of the County and exclude the cities.
Los Angeles	Two RCDs cover territory in outlying areas and include some more recently incorporated areas and urbanized areas.
Marin	One RCD with only rural areas included.
Napa	Virtually all of the County is included in the RCD boundaries.
Orange	No RCD exists. Voters dissolved the RCD in the 1980s. NRCS funds are distributed to Orange County landowners by an adjoining County.
Riverside	Seven RCDs include incorporated and urbanized areas.
Sacramento	The four RCDs are primarily in rural areas, but include cities and towns in outlying areas of the County. Collectively, they include about 60 percent of the County's territory and exclude the older urbanized areas.
San Bernardino	The four RCDs include incorporated and urbanized areas.
San Diego	Collectively, the three RCDs cover the whole County.
San Francisco	No RCD exists.
San Mateo	The RCD excludes most urban and incorporated territory. At formation, RCD included only rural areas. Urban RCD detachments did not occur subsequently. Current boundary include some urbanized and incorporated areas.
Santa Barbara	Multi-county RCD includes all of Santa Barbara County, but only rural portions of San Luis Obispo and Kern counties.
Santa Clara	At formation, the two RCDs included only rural areas. Urban RCD detachments did not occur subsequently. Current boundary of both RCDs includes some urbanized and incorporated areas.
Santa Cruz	RCD includes unincorporated areas and one of four cities. Two RCDs were consolidated in 1978 with additional territory placed under RCD jurisdiction. In 1983, the City of Capitola annexed to the RCD.
Ventura	RCD includes unincorporated territory only.

CHAPTER 9: SPHERE OF INFLUENCE OPTIONS

This chapter identifies SOI policy options for the agencies providing utility services and recommends SOI options for the limited purpose agencies. Vicinity maps corresponding to the various SOI policy options are located in Appendix B.[166] For agencies exclusively providing utility services, the Commission will consider updating SOIs after adoption of this report. This report recommends SOI policy options only for limited purpose agencies not engaged in services to be reviewed in the third MSR volume. This report does not provide analysis or recommendations of SOI policy options for cities or other multipurpose agencies. The consultant is charged with recommending SOI policy options for multipurpose agencies **after** completing MSR studies of all other services under LAFCo's purview.

Before updating the SOIs, the CKH Act and LAFCo's guidelines require that the Commission review and consider a number of factors, including the following:

- Existing and planned land uses and policies,
- Potential effects on agricultural and open space lands,
- Opportunity for infill development rather than SOI expansion,
- Projected growth in the affected area,
- Services to be provided to any areas added to the SOI,
- Service capacity and adequacy,
- The location of facilities, infrastructure and natural features such as rivers and ridge lines,
- Effects on other agencies,
- Potential for consolidations or other reorganizations when boundaries divide communities, and
- Social or economic communities of interest in the area.[167]

[166] For all agencies with existing SOIs, Appendix B agency maps have been reviewed and approved by both the affected agency and by LAFCo as generally depicting the agency's current SOI.

[167] Guidelines, Policies and Procedures, Alameda Local Agency Formation Commission, 2003.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

The Alameda County Flood Control and Water Conservation District (ACFCD) was formed in 1949 by the State Legislature as a County-governed dependent special district. The District was created to provide flood control maintenance and engineering services in Alameda County. The District boundaries are countywide.[168] LAFCo has not established an SOI for the District.

The District is divided into 10 zones corresponding to watersheds or drainage basins. Most of the territory within the District has been included in one of these zones.[169] The cities of Alameda, Albany, Berkeley, and Piedmont and unincorporated EBMUD watershed lands lie outside the zoned territory. Each zone was approved separately by voters in the relevant area.

LAFCo counsel has determined that the Commission need only establish an SOI for the Zone 7 Water Agency and not for the remainder of the zones. The SOI for the Zone 7 Water Agency is discussed at the end of this chapter.

Thus far, one option has been identified with respect to adopting an SOI for ACFCD:

1) **Coterminous SOI**: If the Commission determines that the existing District boundary is appropriate, the District's SOI should be established as coterminous with its boundary.

ANALYSIS

The ACFCD boundary is countywide. LAFCo has jurisdiction over the District's boundary, but does not have jurisdiction over the boundaries of ACFCD zones (except Zone 7). The Board of Supervisors has jurisdiction over zone formation and boundaries.

The probable future boundary of the District is countywide. Although cities are authorized to withdraw from the District through a popular vote (with the election results certified by the Board of Supervisors), it is unlikely that cities would formally vote to detach from the District.

Table 9-1. ACFCD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Adopt countywide SOI coterminous with existing boundary.
Services to be provided	Flood control
Existing and planned land uses	The recommended SOI does not conflict with planned land uses. The District has no authority over land use. County policies support the provision of adequate flood control services for County residents.

[168] Alameda County Flood Control and Water Conservation District Act, California Water Code Appendix Section 55-26.1.

[169] Unzoned territory includes the upper San Leandro reservoir, Anthony Chabot Regional Park area, as well as certain marshes and submerged lands in the San Francisco Bay. See map in Appendix B.

Potential effects on agricultural and open space lands	Flood control services are already provided throughout the County. The recommended SOI boundaries are coterminous and countywide. Flood control services are needed in all areas and do not, by themselves, induce or encourage growth on agricultural or open space lands. No Williamson Act contracts will be affected.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a steadily growing population needing services.
Services to be provided to any areas added to the SOI	Not applicable as flood control services are already provided by the District and a coterminous SOI is recommended.
Service capacity and adequacy	The District maintains flood control infrastructure throughout most of its boundary area. The District identifies needed capacity enhancements in flood control channels through its capital improvement planning process. Channel capacity enhancements are needed, but some projects are delayed by federal and local financing constraints. The District is in compliance with NPDES permit requirements. There have been no recent expansions in the 100-year flood plain. Services appear to be adequate.
Location of facilities, infrastructure and natural features	Flood control infrastructure—channels, pipes and pump stations—is located within the District's boundaries and SOI.
Effects on other agencies	The cities of Alameda, Albany, Berkeley, and Piedmont are within District boundaries, but outside the District's zones. These cities provide flood control services directly as part of their municipal stormwater programs, and do not rely on the District.
Potential for consolidations or other reorganizations when boundaries divide communities	No government structure options were identified because the District is countywide and governed by the Board of Supervisors.
Social or economic communities of interest in the area	The District was formed to provide flood control service throughout the County. Residents in the zoned portion of the District voted in favor of flood control services.
Willingness to serve	The District wishes to continue to provide services within its boundaries and SOI.

RECOMMENDATION

The authors recommend that LAFCo adopt a countywide SOI for the District.

ALAMEDA COUNTY RESOURCE CONSERVATION DISTRICT

The Alameda County Resource Conservation District (ACRCD) provides creek restoration, clean water education and other resource conservation services. The District was created to conduct and lead soil conservation efforts on agricultural lands. The ACRCD was formed in 1972 by

consolidation of two soil conservation districts. The consolidation efforts were spearheaded by the U.S. Department of Agriculture to produce a viable district for soil conservation service purposes.[170] The boards of both soil conservation districts unanimously approved the consolidation.[171] The current boundary area reflects the undeveloped portion of the County at the time the original soil conservation districts were formed (1948-1955). The SOI was established in 1984 as coterminous with ACRCD bounds. No SOI amendments have been adopted since SOI creation. The District has recommended that its SOI become countywide.

Thus far, four SOI options have been identified:

1) **Reduced SOI (Rural-Outside UGB)**: If the Commission determines the District's bounds should include only rural and open space lands in the County, then LAFCo should reduce the SOI to exclude urban areas inside urban growth boundaries of the relevant cities and the County.

2) **Reduced SOI (Rural-Unincorporated)**: If the Commission determines the District's bounds should include only unincorporated lands in the County, then LAFCo should reduce the SOI to exclude territory within and between the boundaries of the cities of Dublin, Fremont, Hayward, Livermore, Newark, Oakland, Pleasanton, and Union City.

3) **Expand SOI (Countywide)**: If the Commission determines the District's bounds should include all urbanized areas, then expansion of the District's SOI to be countywide is appropriate.

4) **Status Quo**: If the Commission determines the District's bounds should include historical rural and open space lands in the County, then LAFCo should retain the existing SOI.

ANALYSIS

Other than consolidating the districts and adopting an SOI for the ACRCD, LAFCo has not taken any other action with respect to the ACRCD boundary, or the predecessor agencies' boundaries, throughout its history. As a result, the ACRCD boundary no longer reflects rural and open space areas. The boundary excludes older cities, such as Oakland and other northern County cities, and includes most territory in the Tri-Valley cities. Specifically, the ACRCD boundary excludes territory that was incorporated at the time the predecessor agencies were formed—such as the historic downtown areas of the cities of Pleasanton and Livermore—but includes territory that was subsequently incorporated or annexed into the cities of Fremont, Newark, Union City, Hayward, Pleasanton, Livermore, and Dublin. The boundary excludes the unincorporated communities of Sunol, Ashland, Cherryland, San Lorenzo, and Fairview, but includes more recently developed areas in Five Canyons, Cull Canyon and Crow Canyon.

To update the ACRCD SOI in keeping with its original rural mission would involve reduction of the SOI to exclude urban areas. One approach to a rural SOI would involve removing urban

[170] Letter from LAFCo Executive Officer Jack F. McKay to the Commissioners, May 25, 1971.

[171] The Western Alameda County Soil Conservation District, which had been established in 1955, had been inactive "almost from its beginning," according to former LAFCo Executive Officer Jack McCay. The board of the Eastern Alameda County Soil Conservation District, which had been established in 1946, was designated as the successor board.

territory as reflected in the UGBs of the County and the respective cities. The rural (outside UGB) SOI option would involve removing in a logical fashion territory outside UGBs from the SOI. Specifically, territory within the boundaries of the cities but inside their respective UGBs would be removed (e.g., the Warm Springs area in southern Fremont, Alvarado and other areas west of I-880 in Union City). Similarly, unincorporated areas inside the County's UGB would be removed; this would affect the Oakland Hills, Crow Canyon, Cull Canyon, and Five Canyons areas.

A simpler approximation of a rural SOI would involve removing from the SOI incorporated areas and unincorporated areas sandwiched between cities.[172] Under this approach, more recently developed areas in Five Canyons, Cull Canyon and Crow Canyon would remain in the SOI. .

By comparison, there are various boundary approaches with respect to RCDs in other California urban counties. The rural RCD approach is used in four surrounding and large urban counties (as shown in Table 8-4). The urban RCD approach is used in six counties. In two counties, there is no RCD. In the remainder of the counties, a hybrid approach is in effect. The boundary approach represents historical non-urban areas in Santa Clara and San Mateo counties. In Los Angeles and Sacramento counties, there are multiple RCDs in formerly rural areas that also include more recently urbanized areas.

The District has recommended that its SOI become countywide because its programs benefit all citizens in the County with enhanced natural resources, conserved open space and viable agriculture. In addition to serving rural landowners, the District currently provides education and outreach services to urban residents. The District serves as a lead technical agency in the County for public and private organizations and rural and urban landowners to develop partnerships, funding, and education for natural resources conservation and agricultural issues.

When LAFCo originally formed the ACRCD, proponents wanted the cities to be included. LAFCo opted to consolidate the two districts with their existing boundaries and not to annex additional urban territory to the consolidated district.

As discussed in the section on Government Structure Options in Chapter 8, the enabling act recommends that RCD territory include lands of value for agricultural purposes, but authorizes more expansive boundaries if necessary for accomplishing the purposes for which the District was formed.

Table 9-2. ACRCD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Countywide SOI
Services to be provided	Resource conservation services include creek restoration, equine facilities management, watershed management, erosion prevention, and facilitation of federal conservation programs.
Existing and planned land uses	The recommended SOI does not conflict with planned land uses. The District has no authority over land use. County policies

[172] The rural (unincorporated) SOI option would involve removing not only incorporated territory in the cities of Dublin, Fremont, Hayward, Livermore, Newark, Oakland, Pleasanton, and Union City, but also certain unincorporated areas. Specifically, the authors have assumed that the unincorporated islands within Livermore and Pleasanton as well as the unincorporated areas between Union City and Hayward would be removed under this option. As shown in Appendix B, the EBMUD watershed area would not be contiguous, as it would be separated by eastern Hayward from the remainder of the District. California Public Resources Code §9153 authorizes non-contiguous boundaries for RCDs.

	support the provision of adequate resource conservation services for County residents.
Potential effects on agricultural and open space lands	The District's boundary and SOI include all agricultural lands in the County. ACRCD will continue to provide agriculture enhancement services. No Williamson Act contracts will be affected.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a growing population which needs urban resource conservation services (i.e., education, creek restoration), and a declining farm population. In the next five years, the population is projected to grow by eight percent in the District's boundary area and by three percent in the SOI expansion area (i.e., the remainder of the County).
Services to be provided to any areas added to the SOI	ACRCD already provides public education, creek restoration and technical advisory services to the SOI expansion area. The District will continue to provide those services, and may provide additional services to urban areas upon request.
Service capacity and adequacy	ACRCD has the capacity to serve additional areas. The District continues to receive project funding from federal, state and local agencies, and continues to collaborate with and advise agencies. The District has received no recent complaints. Services appear to be adequate.
Location of facilities, infrastructure and natural features	ACRCD does not own or maintain any infrastructure. The District rents office space in the Livermore area.
Effects on other agencies	The cities and the County are affected in that portions of each of them are located within the recommended SOI expansion area. Affected agencies do not provide resource conservation services.
Potential for consolidations or other reorganizations when boundaries divide communities	There is no potential for consolidation or reorganization. The District provides a unique service to all communities in the County.
Social or economic communities of interest in the area	All County residents benefit from services provided by ACRCD.
Willingness to serve	The District wishes to continue to provide services and is willing to serve the SOI expansion area.

RECOMMENDATION

The authors recommend that LAFCo expand the District SOI to be countywide. ACRCD services and programs benefit all residents of the County, including those in urban areas, through enhanced natural resources and conserved open space.

ALAMEDA COUNTY WATER DISTRICT

The Alameda County Water District provides water service to the cities of Fremont, Union City, Newark and southwest portions of the City of Hayward. The District was originally created to protect the groundwater basin, conserve Alameda Creek Watershed, and develop supplemental water supplies, primarily for agricultural use. In 1930, the District became a water distributor.

The District's SOI is more expansive than its boundary area and includes outlying hill areas and marshlands within the SOIs of Fremont, Union City and Newark. In the Hayward area, the SOI is coterminous with the District's bounds except in the Eden Shores area. In the Eden Shores area, 130 acres were detached from ACWD in November 2004 but were not removed from the SOI pending completion of the MSR project. An adjacent 119-acre area in Eden Shores was detached in 1999 without a corresponding SOI amendment. The District's eastern SOI is generally coterminous with the respective SOIs of the cities of Fremont and Union City. The eastern Union City SOI overlaps the Zone 7 Water Agency boundary, as does the ACWD SOI in this area. The eastern Fremont SOI is coterminous with the western boundary of the Zone 7 Water Agency with the exception of the northeastern corner of Fremont. In this area (crossed by the Union Pacific railroad tunnel), the Fremont and ACWD SOIs overlap the Zone 7 boundary area. The District's SOI has not changed since it was adopted in 1979.

The District has recommended no changes to its SOI or boundaries. The District wishes to extend service in the future to areas in the existing SOI. The District indicated it would be appropriate to remove Eden Shores from its SOI.

At the present time, we have identified three SOI options:

1) **Retain Existing SOI**: If the Commission considers the existing agency boundary/SOI relationship to be the desired government structure option, retention of the existing SOI is appropriate.

2) **Reduced SOI (Eden Shores)**: If the Commission determines that the Eden Shores area in the District's SOI should be removed, then it is appropriate to remove the territory from ACWD's SOI.

3) **Reduced SOI (Zone 7)**: If the Commission determines that the Zone 7 boundary area in the District's SOI should be removed, then it is appropriate to remove the territory from ACWD's SOI.

ANALYSIS

The District's SOI includes 249 acres in the Eden Shores area in Hayward that were detached from the District and are served by the City of Hayward. The District has indicated that it would be appropriate to remove the detached areas from its SOI.

The original LAFCo staff report on the ACWD SOI recommended that the ACWD SOI be consistent with the SOIs of Fremont and Union City, and also that the ACWD SOI should not overlap Zone 7.[173]

The ACWD SOI cannot be consistent both with the existing SOIs of the cities of Fremont and Union City and with the Zone 7 Water Agency boundary. The Zone 7 Water Agency provides water wholesale services; whereas, ACWD provides water retail services. ACWD has expressed interest in eventually providing retail water service within SOI areas that overlap Zone 7; Zone 7 has no objection because it does not intend to provide retail water service. Both agencies conduct groundwater replenishment and management within their respective areas for distinct basin areas. The agencies have agreed that ACWD would be responsible for groundwater management in any overlapping boundary area. In the event that ACWD annexes territory in the Zone 7 boundary area, ACWD would be the retail water and groundwater management service provider and Zone 7 would be the flood control service provider.[174]

The overlapping SOI issue is generally outside the respective growth limits for both the cities of Fremont and Union City. These cities have limited development in the eastern hillside areas through voter initiatives. The Fremont hills are subject to density limits of one home per 100 acres in unincorporated areas by Measure D (2000), to the same density limit for unincorporated areas annexed to Fremont in the future by Measure T (2002), and to density limits of one home per 20 acres by Measure T. The Union City hillside area is subject to development limits (minimum lot size of 200 acres) in areas designated as open space under the Hillside Area Plan adopted by voters in 1995.

Table 9-3. ACWD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Remove Eden Shores area from SOI and otherwise retain existing SOI subject to approval of the ACWD-Zone 7 service agreement by the respective boards.
Services to be provided	Retail water and groundwater management
Existing and planned land uses	The recommended SOI does not conflict with planned land uses. The District has no authority over land use. City and County policies support the provision of adequate water services for residents.
Potential effects on agricultural and open space lands	The District SOI extends into open space areas—Hayward marshlands, eastern hillside areas and regional parks. Extension of water service into the hillside areas is limited by the cities of Fremont and Union City to low-density development. No Williamson Act contracts will be affected.
Opportunity for infill development rather than SOI	None. The District is not a land use authority and has no control over the location of infill development.

[173]Alameda LAFCo, *Proposed Spheres of Influence for All Agencies in Washington Township*, May 1978, page 32. The report discusses the ACWD SOI in the Fremont area as being consistent with the Zone 7 boundary. "Since Zone 7 is a water wholesaler, this appears to be a rational choice as an ultimate boundary for an adjacent water district. Development at this elevation may never take place, but it makes a good dividing point," the report stated.

[174] June 10, 2005 verbal agreement between ACWD General Manager Paul Piraino and Zone 7 General Manager Dale Meyers. Under the agreement, Zone 7 would retain its property tax share within the overlap area. The agreement has not been formalized or adopted by the respective governing boards.

expansion	
Projected growth in the affected area	There is a growing population needing water services. The District population is expected to grow by three percent in the next five years.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the District's SOI are under consideration.
Service capacity and adequacy	ACWD has diversified sources of water supply and projects its water supplies to be adequate to accommodate growth through buildout. Water quality, drought preparedness, emergency preparedness, planning efforts, response times, and water pressure are adequate. Breaks and leaks in the ACWD distribution system are frequent, but ACWD meets industry standards for distribution system water loss rates. ACWD practices all water conservation BMPs. The District conducts benchmarking and performance evaluation to improve service efficiency.
Location of facilities, infrastructure and natural features	The District's two water treatment plants are located in eastern Fremont adjacent to the South Bay Aqueduct. A water blending facility is located in northern Fremont and a desalination facility is located in Newark. ACWD maintains an aquifer system known as the Niles Cone Basin, which is formed at the western front of the Mission Hills and extends west under the San Francisco Bay. Alameda Creek flows through the ACWD area; its runoff is used to recharge the Niles Cone aquifer system.
Effects on other agencies	Zone 7 is affected in that the ACWD SOI extends into the Zone 7 boundary area; however, the agencies' managers have agreed on service and tax issues in the overlapping area. The cities of Fremont, Union City, Newark, and Hayward are affected in that they are wholly or partly located in the ACWD boundary and SOI area. The City of Hayward is affected in that it serves the recommended Eden Shores SOI reduction area.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified consolidation with USD as a potential government structure option. This option was deemed improbable.
Social or economic communities of interest in the area	Residents and businesses located in Fremont, Newark and Union City rely on ACWD for water and groundwater management services.
Willingness to serve	The District wishes to continue to provide water service within its boundary and service area and is willing to serve within its SOI.

RECOMMENDATION

The authors recommend that the Eden Shores area be removed from the SOI and that otherwise the existing SOI be retained subject to ACWD and Zone 7 adoption of an agreement regarding service and tax issues in an overlapping SOI area.

CASTRO VALLEY SANITARY DISTRICT

The Castro Valley Sanitary District (CVSD) was formed to provide sewer services to the growing Castro Valley residential community. The CVSD SOI is not coterminous with the District's bounds.[175] The CVSD SOI generally follows the Castro Valley Planned Urban Area existing at the time of SOI adoption, in addition to a small area in eastern Castro Valley near Sunnyslope Avenue. The SOI areas that extend beyond the District's bounds are located north of the District, with most of the area east of Crow Canyon Creek. Development is limited in these SOI areas by a voter-initiated urban growth boundary (i.e., Measure D). A 2.5-acre area on Grove Way annexed to the District in 2004 may be outside the SOI, and should be clarified through the SOI update process. The District has not recommended changes to its SOI.

Thus far, four potential policy approaches have been identified with respect to SOI update for the District:

1) **Retain Existing SOI**: If the Commission considers the existing agency boundary/SOI relationship to be the desired government structure, retention of the existing SOI is appropriate.

2) **Expand SOI (Palo Verde Road)**: If the Commission determines that service areas currently outside the District's SOI should be included, then it is appropriate to expand the SOI to include this area served by the District.

3) **Expand SOI (Eden Canyon)**: If the Commission determines that Eden Canyon Road should be included in the CVSD service area, then it is appropriate to expand the SOI to include the territory between the current CVSD and DSRSD SOIs.

4) **Reduce SOI (Coterminous)**: If the Commission determines that SOI areas in canyonlands outside the County UGB should not receive sewer service, then it is appropriate to reduce the SOI to be coterminous with the current CVSD boundary.

ANALYSIS

The CVSD currently provides service to two areas outside its boundary. One area is an adjacent regional park. Another is a personal care facility south of East Castro Valley Blvd. at Palo Verde Road; the facility ran a private sewer connection across the District boundary to receive service. If a new school locates in this area, it would require CVSD sewage service. There are no other logical wastewater service providers for this area. However, the affected area has a rural character and the County's UGB (Measure D) designates the area for limited development.

Territory along and adjacent to Eden Canyon Road in the Sunnyslope neighborhood lies between the SOIs of both CVSD and DSRSD. The affected area has a rural character and the County's UGB designates the area for limited development. DSRSD has not proposed that its SOI be extended to Eden Canyon Road, and prefers that its SOI remain consistent with the City of

[175] Alameda LAFCo Resolution No. 83-3, established SOI for Oro Loma and Castro Valley Sanitary Districts.

Dublin SOI. In other words, DSRSD prefers that its SOI not be extended to Eden Canyon Road unless the City of Dublin SOI is also extended.

Extraterritorial SOI areas north of CVSD bounds include canyonland areas in Cull, Crow, Norris and Eden Canyons. The affected areas have a rural character and the County's UGB designates these areas for limited development.

Table 9-4. CVSD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Reduce SOI to be coterminous with boundary and confirm that the coterminous SOI includes the 2.5 acres in the Grove Way area
Services to be provided	Wastewater collection and solid waste
Existing and planned land uses	The District has no authority over land use. County policies support the provision of adequate wastewater service for County residents. County land use policies limit urban development east of Castro Valley.
Potential effects on agricultural and open space lands	The SOI reduction area extends into open space areas in the canyons. Extension of sewer service into the canyon areas is limited by the County UGB to low-density development. No Williamson Act contracts will be affected.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a slowly growing population which needs sewer services, with a one percent population increase expected in the next five years. Growth within the recommended SOI reduction area is expected to be modest due to five-acre minimum lot size and other UGB development limitations.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the District's SOI are under consideration.
Service capacity and adequacy	Wastewater treatment capacity is inadequate. Treatment capacity restoration is scheduled for completion in 2007. A relatively high sewer overflow rate indicates collection system capacity and integrity may be inadequate.[176] The sewer collection system is subject to infiltration and inflow. Sewer blockage response times and inspection practices are adequate. The District conducts performance evaluation and planning efforts. A private waste hauler has the capacity to serve the area and serves a number of other jurisdictions in the County. The unincorporated area as a whole meets the required 50 percent diversion rate for solid waste. Solid waste services appear to be adequate.
Location of facilities,	The sewer collection system extends throughout the existing

[176] Agencies were asked to report the number of overflows in 2004 related to limitations or problems with the collection system under the control of the agency, and to exclude overflows caused by limitations/problems with customer-controlled piping/facilities. Thus defined, overflows reflect the capacity and condition of collection system piping and the effectiveness of routine maintenance.

infrastructure and natural features	CVSD boundary area, but does not extend into the recommended SOI reduction area. Creeks run through the canyons in the SOI reduction area.
Effects on other agencies	OLSD provides wastewater treatment services and EBDA provides disposal services. SOI reduction would limit growth in future wastewater flows requiring treatment and disposal. SOI reduction would have no foreseeable effect on the County as the area would continue to rely on private septic systems and on the County for solid waste services.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified consolidation with OLSD and detachment of areas outside the County UGB as government structure options. Hence, there is potential for consolidation and detachment.
Social or economic communities of interest in the area	Residents and businesses in Castro Valley rely on CVSD for sewer and solid waste services. Residents in the affected canyonlands rely on private septic systems.
Willingness to serve	The District wishes to continue to provide services within its boundary.

RECOMMENDATION

The authors recommend that the CVSD SOI be reduced to be coterminous with the existing boundary. Updating the SOI to be coterminous will ensure that the 2.5 acres annexed in the Grove Way area lies within the agency's SOI.

CURBSIDE RECYCLING CSA

The County Service Area (CSA) for Curbside Recycling is a dependent special district governed by the Alameda County Board of Supervisors. The CSA was formed in 1999 to provide curbside recycling services for six neighborhoods in the Fairview area and in unincorporated islands in Hayward described as the West A Street and Mt. Eden areas. The CSA SOI was established in 1999 as coterminous with its boundaries. No SOI amendments have been adopted since SOI creation. The District has not recommended any changes to its SOI or boundaries.

One option has been identified with respect to SOI update for the District:

1) **Retain Existing SOI**: If the Commission determines that the existing coterminous agency boundary/SOI boundary is the desired option, retention of the existing SOI is appropriate.

ANALYSIS

The Curbside Recycling CSA SOI is coterminous. There have been no proposals to annex territory to the CSA. There is no basis for expanding the SOI.

Table 9-5. Curbside Recycling CSA SOI Issues Analysis

Issue	Comments
SOI update recommendation	Retain existing SOI
Services to be provided	Recycling through administration of curbside recycling franchise

	agreements
Existing and planned land uses	Existing land use within the CSA includes small pockets of residential communities. County land use policies support the provision of adequate curbside recycling services for CSA residents. The CSA has no authority over land use.
Potential effects on agricultural and open space lands	The CSA does not have agricultural or open space lands within its boundaries; therefore, there are no potential effects. No Williamson Act contracts will be affected.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a growing population which needs curbside recycling services. CSA population is expected to grow by four percent in the next five years.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the CSA's SOI are under consideration.
Service capacity and adequacy	A private waste hauler has the capacity to serve the area and serves a number of other jurisdictions in the County. The unincorporated area as a whole meets the required 50 percent diversion rate for solid waste. Services appear to be adequate.
Location of facilities, infrastructure and natural features	There are no facilities maintained by the CSA.
Effects on other agencies	The CSA SOI is currently coterminous with the CSA service area and boundary. In 1999, LAFCo found that the CSA is the most efficient and practical means for the County to provide curbside recycling services to an underserved population. Other curbside recycling service providers will not be affected by maintaining the existing SOI for the CSA.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR did not identify the potential for consolidation or reorganization with other solid waste service providers.
Social or economic communities of interest in the area	The CSA's SOI includes pockets of residential communities in unincorporated areas of the County.
Willingness to serve	The CSA wishes to continue to provide services within its boundary and SOI.

RECOMMENDATION

The authors recommend that LAFCo retain the existing SOI.

DUBLIN SAN RAMON SERVICES DISTRICT

The Dublin San Ramon Services District (DSRSD) provides retail water and wastewater service to the Dublin and San Ramon communities. In northeast Dublin, the District's boundary excludes the Tassajara Creek Regional Park and portions of the Camp Parks Reserve Forces Training Area. The District's Alameda County SOI was established as coterminous with the City of Dublin's SOI.

In western and northeastern Dublin, the SOI lies outside the District boundary. The District has recommended that the Alameda County portion of its SOI be consistent with the City of Dublin SOI.[177]

Thus far, three SOI options have been identified:

1) **Reduced SOI (Doolan Road)**: If the Commission determines the District's SOI should be coterminous with the City of Dublin's SOI, then removal of the upper portion of Doolan Road near Croak Road is appropriate.

2) **Reduced SOI (Urban Growth Boundary)**: If the Commission determines that areas designated for no development should be excluded from the DSRSD SOI, it is appropriate to exclude the areas outside the City of Dublin and County UGBs from DSRSD's SOI.

3) **Retain Existing SOI**: If the Commission determines that the existing District boundary/SOI boundary is the desired government structure, retention of the existing SOI is appropriate.

ANALYSIS

The Alameda County portion of the DSRSD SOI is similar to the City of Dublin SOI, except that the DSRSD SOI includes an area that has been removed from the City of Dublin's SOI—the upper portion of Doolan Road near Croak Road.[178] LAFCo has not yet removed this area from the DSRSD SOI. Otherwise, the DSRSD SOI issues are similar to those for the City of Dublin, because the SOI includes areas outside the District's boundaries in eastern and western Dublin. DSRSD and the City of Dublin both have long-standing policies and practices to match boundaries and spheres of influence.

In western Dublin, the SOI lies outside both the District boundary and the City of Dublin's adopted 30-year UGB. In 2002, the City of Dublin considered removing a large western portion (2,164 acres) of its western SOI area; however, after a series of meetings the City Council concluded that the area should remain in the City's SOI. The eastern portion of the western SOI area was not considered for reduction by the City due to City plans to create a regional open space area there.

In northeastern Dublin, the SOI lies outside the District boundary and is partially outside the City's adopted 30-year UGB. Also in the northeast, there are SOI areas above the City-designated development elevation cap (770-foot) where Dublin does not plan to extend public services before the year 2027; however, DSRSD is willing to extend service to such areas.

Table 9-6. DSRSD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Reduce the SOI to exclude the Doolan Road area.
Services to be provided	Water and wastewater
Existing and planned land uses	The recommended SOI does not conflict with planned land uses.

[177] Based on emerging information at the time this report was accepted by LAFCo, DSRSD was reconsidering whether the Doolan Road area should be removed from its SOI.

[178] This territory was formally removed from Dublin's SOI per LAFCO Resolution No. 90-27.

	The District has no authority over land use. City and County policies support the provision of adequate water and wastewater services for City and County residents. City plans include continued residential and commercial development in the eastern portion of the City. The City UGB limits land use outside its western boundary.
Potential effects on agricultural and open space lands	There is a limited amount of agricultural and open space land within the District. The District mostly serves urban areas where services are already being provided so growth inducement is not a factor. No Williamson Act contracts will be affected. LAFCo found the SOI would have "no impact on the environment" in 1984 when the SOI was adopted.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a substantial growing population which needs water and wastewater services. Within Alameda County, the District population is expected to grow by 22 percent in the next five years. According to District projections, water demand in Alameda County is expected to grow by 14 percent in the next five years.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the District's SOI are under consideration.
Service capacity and adequacy	The District has adequate water supplies for the next five years. District requires additional Zone 7 supplies as well as three reservoirs and four pump stations due to new development. The District is fully compliant with six of the 14 water conservation practices set by the CUWCC. Water quality, drought preparedness, emergency preparedness, planning efforts, distribution system integrity, response times, and water pressure are adequate. The District's wastewater collection system and treatment capacity are adequate. Treatment effectiveness, collection system integrity, planning efforts, and response times are adequate. In 2002, the District was penalized for exceeding effluent limitations on four occasions. Otherwise, the District has complied with regulatory requirements.
Location of facilities, infrastructure and natural features	In 1990, LAFCo found there is not a need for public facilities and services in Doolan Canyon. In addition, LAFCo found the upper Doolan Canyon area to be geographically distinct and within a separate watershed when it decided to remove the area from the City of Dublin's SOI.
Effects on other agencies	The SOI boundaries are contiguous to the City of Pleasanton along DSRSD's southern boundary. The District includes territory in the City of Dublin. Reducing the SOI is consistent with the general and specific plans and does not conflict with

	other agencies.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR did not identify the potential for consolidation or reorganization with other utility service providers.
Social or economic communities of interest in the area	The District was primarily formed to serve the residents of the Dublin and San Ramon when they were both unincorporated communities.
Willingness to serve	The District wishes to continue to provide services within its boundary and is willing to extend service within its SOI.

RECOMMENDATION

The authors recommend that LAFCo remove the Doolan Road area from the District's SOI so that the SOI is consistent with the City of Dublin SOI.

EAST BAY MUNICIPAL UTILITY DISTRICT

The East Bay Municipal Utility District was formed in 1923 to provide water service. Since 1951 the District has also provided wastewater treatment for various cities. EBMUD serves parts of both Alameda and Contra Costa counties, but the SOI options only apply to the Alameda adopted SOI. The District's SOI, established in 1983, includes only the City of San Leandro and the unincorporated areas of Ashland, Cherryland, Castro Valley, Fairview, and San Lorenzo.[179] The District has not recommended any changes to its SOI or boundaries.

At the present time, we have identified two SOI options:

1) **Expand SOI (northern cities)**: If the Commission determines that the SOI should be expanded to include the six northern cities already served by the District, then expansion of the SOI is appropriate.

2) **Retain Existing SOI**: If the Commission determines that the existing agency boundary/SOI boundary is the desired government structure, retention of the existing SOI is appropriate.

ANALYSIS

The EBMUD SOI excludes the cities of Oakland, Emeryville, Alameda, Albany, Berkeley, and Piedmont, even though EBMUD provides water and sewer service in these cities. The exclusion of cities was consistent with LAFCo Guidelines at that time, but not with LAFCo practices in establishing other agencies' SOIs and including the City of San Leandro in the SOI.[180] The exclusion of the six cities appears to have been related to LAFCo's approach of studying SOIs by county planning area and the fact that EBMUD spans multiple planning areas.

[179] Alameda LAFCo Resolution No. 83-5, Exhibit V (Map of EBMUD SOI).

[180] In establishing the SOIs for ACWD and Union Sanitary District in 1979, LAFCo included the cities of Fremont, Union City and Newark in the District SOI.

The 1973 Guidelines defined the term SOI to mean "unincorporated areas adjacent to a city or special district which are of concern in long-range planning and development of such areas." A 1978 LAFCo report explained the philosophy: "[T]he spheres of influence law is generally considered to be aimed at unincorporated and urbanizing areas."[181] LAFCo adopted new SOI Guidelines later in 1983 that define SOIs in a manner consistent with state law: "probable ultimate physical boundaries and service area of a local government agency," but did not update EBMUD's SOI to be consistent with this philosophical change.

Table 9-7. EBMUD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Expand SOI to include the cities of Oakland, Emeryville, Alameda, Albany, Berkeley, and Piedmont
Services to be provided	Water and wastewater
Existing and planned land uses	The District has no authority over land use. City and County polices support the provision of adequate water and wastewater services for City and County residents. The County policies limit land use east of Castro Valley and the Upper San Leandro Reservoir area.
Potential effects on agricultural and open space lands	There is a limited amount of agricultural and open space land within the District. The District SOI excludes the open space lands surrounding the Upper San Leandro Reservoir area. The District mostly serves urban areas where services are already being provided so growth inducement is not a factor. No Williamson Act contracts will be affected.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a growing population which needs water and wastewater services. The District population is expected to grow by three percent in the next five years. Water demand is expected to grow by one percent in the next five years, according to EBMUD projections.
Services to be provided to any areas added to the SOI	Services are already provided to the areas that will be added to the SOI.
Service capacity and adequacy	District water supply may not be sufficient to meet long-term customer demands during a drought. The District is fully compliant with nine of the 14 water conservation practices set by the CUWCC. Water quality, treatment effectiveness, emergency preparedness, planning efforts, distribution system integrity and water pressure are adequate. The District has enhanced drought preparedness by acquiring supplemental water for use in a drought. The District has adequate wastewater treatment capacity. The District needs to investigate options to improve peak wet weather treatment and enhance peak storage capacity. Treatment effectiveness and planning efforts are adequate.

[181] Alameda LAFCo, *Proposed Spheres of Influence for All Agencies in Washington Township*, May 1978, page 2.

Location of facilities, infrastructure and natural features	District facilities are located to provide adequate water and wastewater services. EBMUD water service is west of the Eden and Hollis Canyons and the Upper San Leandro Reservoir. The Mokelumne River flows from Alpine County into Alameda County through an aqueduct.
Effects on other agencies	The District's SOI boundaries overlap the SOIs of CVSD, OLSD and the cities of Oakland, Emeryville, Alameda, Albany, Berkeley, and Piedmont where it provides both water and wastewater services, and the cities of San Leandro and Hayward and the unincorporated communities of Castro Valley, Fairview, Ashland, Cherryland, and San Lorenzo where it provides only water service. The District's SOI boundary is consistent with the general and specific plans and does not conflict with the spheres of influence of affected agencies.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified annexation of unincorporated Oakland Hills areas to EBMUD and the City of Oakland as a government structure option.
Social or economic communities of interest in the area	The District was formed to serve the residents of northern Alameda County as well as a large portion of Contra Costa County. The northern cities make up 74 percent of the residents served in Alameda County. There are various communities where District services are expected to expand, including Alameda Point and the UC Village in Albany.
Willingness to serve	The District wishes to continue to provide services within its boundary and SOI.

RECOMMENDATION

The authors recommend that LAFCo expand the SOI to include the cities of Oakland, Emeryville, Alameda, Albany, Berkeley, and Piedmont.

LIVERMORE-AMADOR VALLEY SEWER STUDY CSA

The Livermore-Amador Valley Sewer Study CSA (S-1984-1) is a dependent special district governed by the Alameda County Board of Supervisors. The CSA was formed in 1984 to finance feasibility and planning studies and to purchase easements for a contemplated sewer disposal pipeline extending from Pleasanton to Suisun Bay. The Suisun Bay pipeline project was never constructed. The County is not a member of Livermore-Amador Valley Water Management Agency (LAVWMA), an agency that has constructed wastewater disposal pipelines extending from Pleasanton to San Leandro. LAVWMA is a joint powers agency with the cities of Dublin, Livermore and Pleasanton as member agencies. The CSA has been inactive for nearly 20 years and does not provide any municipal services.

The CSA boundary area includes all unincorporated areas in the eastern portion of the County. The boundary is similar to the boundary of Alameda County Flood Control and Water Conservation District Zone 7, except that the CSA boundary excludes the lands within the corporate limits of Dublin, Fremont, Hayward, Livermore, Union City, and Pleasanton. LAFCo has not adopted an SOI for the CSA. The District has not recommended any changes to its boundaries.

Due to the current inactive status of the CSA, only one policy option has been identified with respect to adopting an SOI:

1) **Zero SOI**: If the Commission determines that the inactive CSA should be dissolved, then adoption of a zero SOI would be appropriate.

ANALYSIS

The CSA has been inactive for nearly 20 years. There is no purpose for the CSA to exist. It was formed to fund a proposed sewer project that did not materialize. The County no longer administers the CSA, and the CSA lost its funding source in the early 1990s. The CSA is not a relevant vehicle for expanding Tri-Valley sewer disposal capacity, which is scheduled to reach 41.2 mgd in 2005.

Table 9-8. Sewer Study CSA SOI Issues Analysis

Issue	Comments
SOI update recommendation	Adopt a zero SOI
Services to be provided	None
Existing and planned land uses	The CSA has no authority over land use.
Potential effects on agricultural and open space lands	None. Although there is substantial agricultural and open space land within the CSA, the CSA provides no services.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	Population in the CSA is approximately 4,300 and is projected to grow to 6,200 in the next five years.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the CSA's SOI are under consideration.
Service capacity and adequacy	The CSA is not active and does not provide services.
Location of facilities, infrastructure and natural features	The CSA does not maintain facilities. Most properties within CSA boundaries rely on private septic systems, although some rely on DSRSD, Livermore or Pleasanton for sewer service.
Effects on other agencies	None
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified dissolution of the CSA as a government structure option.
Social or economic communities of interest in the area	The CSA boundary includes Sunol and other unincorporated territory in eastern Alameda County.
Willingness to serve	The CSA no longer provides sewer study services.

RECOMMENDATION

The authors recommend that LAFCo adopt a zero SOI for the CSA.

ORO LOMA SANITARY DISTRICT

The Oro Loma Sanitary District (OLSD) provides sewer and solid waste services in San Lorenzo, Fairview, the southern portion of the City of San Leandro, and northern areas in the City of Hayward. The District's SOI is not coterminous with its bounds.[182] The District's SOI includes portions of the cities of San Leandro and Hayward and the unincorporated areas of San Lorenzo, Cherryland, Ashland, and Fairview. The District did not propose any changes to its SOI.

Thus far, four potential policy approaches have been identified with respect to SOI update for the District:

1) **Reduced SOI (Skywest)**: If the Commission determines that the SOI territory within the City of Hayward but not within OLSD boundaries or service area should be excluded from the SOI, then it is appropriate to remove the territory from OLSD's SOI.

2) **Expanded SOI (Floresta Gardens)**: If the Commission determines that the Floresta Gardens neighborhood within the City of San Leandro should be included in the SOI, then it is appropriate to add the territory to OLSD's SOI.

3) **Retain Existing SOI**: If the Commission considers the existing agency boundary/SOI relationship to be the desired government structure, retention of the existing SOI is appropriate.

4) **Coterminous SOI**: If the Commission considers a coterminous agency boundary/SOI relationship to be the desired government structure, adoption of a coterminous SOI is appropriate.

ANALYSIS

Within the OLSD SOI, there is an area within the Hayward city limits (including the Skywest Golf Course, portions of the Hayward municipal airport, several industrial properties on Hesperian Boulevard, and Kennedy Park) that lies within Hayward but outside the OLSD bounds.

Outside the OLSD SOI, there is an area (Floresta Gardens) in San Leandro where San Leandro provides collection services and OLSD provides treatment services. This area should not be annexed to the District, however, because the City provides and will continue to provide wastewater collection services in the affected area.

Table 9-9. OLSD SOI Issues Analysis

Issue	Comments
SOI update recommendation	The authors recommend that the SOI be reduced to exclude territory outside District bounds that is within the City of Hayward.
Services to be provided	Wastewater and solid waste
Existing and planned land uses	The District has no authority over land use. City and County

[182] Alameda LAFCo Resolution No. 83-3, established SOI for Oro Loma and Castro Valley Sanitary Districts.

	policies support the provision of adequate wastewater and solid waste services for City and County residents.
Potential effects on agricultural and open space lands	None. The affected area includes golf course and airport lands, a park and marsh areas. With the exception of Kennedy Park and the Skywest Golf Course clubhouse, the area lies within Hayward's sewer service area.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a growing population which needs wastewater and solid waste services. The City of Hayward plans redevelopment or infill projects along Hesperian Blvd. in the recommended SOI reduction area.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the SOI are under consideration.
Service capacity and adequacy	Wastewater treatment capacity is inadequate. Treatment capacity restoration is scheduled for completion in 2007. A relatively high sewer overflow rate indicates collection system capacity and integrity may be inadequate.[183] Sewer blockage response times and inspection practices are adequate. The District conducts performance evaluation and planning efforts. A private waste hauler has the capacity to serve the area and serves a number of other jurisdictions in the County. The unincorporated area as a whole meets the required 50 percent diversion rate for solid waste. Solid waste services appear to be adequate.
Location of facilities, infrastructure and natural features	The OLSD treatment plant is located in the western portion of the boundary area. The sewer collection system extends throughout the District's boundaries.
Effects on other agencies	The SOI reduction area lies within the City of Hayward boundaries and sewer service area, except that OLSD serves Kennedy Park and the Skywest Golf Course clubhouse.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified consolidation with CVSD as a government structure option.
Social or economic communities of interest in the area	The District includes portions of the cities of San Leandro and Hayward and the unincorporated areas of San Lorenzo, Cherryland, Ashland, and Fairview.
Willingness to serve	The District wishes to continue to provide wastewater and solid waste services within its boundary and service area.

[183] The agencies were asked to report the number of overflows in 2004 related to limitations or problems with the collection system under the control of the agency, and to exclude overflows caused by limitations/problems with customer-controlled piping/facilities. The OLSD reported six sewer overflows in 2004; the OLSD overflow rate (per 100 miles of collection system piping) was 2. By comparison, the median provider in Alameda County and in the 2003 QualServe survey had an overflow rate of less than one.

RECOMMENDATION

The authors recommend that the OLSD SOI be reduced to exclude territory outside district bounds that is within the City of Hayward.

UNION SANITARY DISTRICT

The Union Sanitary District (USD) provides wastewater services to the cities of Newark, Fremont and Union City. The USD SOI is not coterminous with the District's boundaries. The USD SOI is essentially the perimeter of the combined SOI of the three cities (Fremont, Newark and Union City), including undeveloped marshlands and hill areas that are not within the District's boundaries. The SOI also includes several small islands within the eastern portion of the service area that are not within the District's boundaries. The District has not recommended any changes to its SOI and no boundary changes beyond routine annexations.

Thus far, two potential policy approaches have been identified with respect to SOI update for the District:

1) **Retain Existing SOI**: If the Commission considers the existing agency boundary/SOI relationship to be the desired government structure option, retention of the existing SOI is appropriate.

2) **Reduced SOI (Hillside)**: If the Commission determines that eastern hillside areas designated by the cities of Fremont and Union City for limited development should be excluded from USD, it is appropriate to exclude these areas from USD's SOI.

ANALYSIS

The USD SOI is subject to considerations similar to those for the cities of Fremont and Union City. Both cities have limited development in the eastern hillside areas through voter initiatives. The Fremont hills are subject to density limits of one home per 100 acres in unincorporated areas by Measure D (2000), to the same density limit for unincorporated areas annexed to Fremont in the future by Measure T (2002), and to density limits of one home per 5-20 acres by the 1981 Fremont Hill Initiative. The Union City hillside area is subject to development limits (minimum lot size of 200 acres) in areas designated as open space under the Hillside Area Plan adopted by voters in 1995.

The eastern USD and ACWD SOIs are coterminous and generally follow the eastern SOIs of Fremont and Union City. In northeast Fremont and along Union City's eastern border, the SOI area overlaps the boundary of the Zone 7 Water Agency.

Table 9-10. USD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Retain existing SOI
Services to be provided	Wastewater collection and treatment
Existing and planned land uses	The District has no authority over land use. City policies support the provision of adequate wastewater services for City residents. Land use policies for the cities of Union City and Fremont limit land use in the eastern hillside areas within their boundaries to

	non-urban development.
Potential effects on agricultural and open space lands	There is substantial open space land within the District. The District's current SOI includes open space and salt marsh lands that do not require wastewater services. The District currently discharges treated effluent into the Hayward marshlands to help preserve the marshland environment. The District mostly serves urban areas where services are already being provided so growth is not a factor. When the SOI was adopted in 1979, LAFCo found the District SOI will "result in substantial growth in the hills above Fremont and Union City" and "[permit] the extension of sewage" services. Regarding development of the eastern hills, LAFCo stated that such land use authority is under the jurisdiction of the cities, but by including the hillside area within the District's SOI, if developed, the District is the logical provider.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a steadily growing population which needs wastewater services. The District population is expected to grow by three percent in the next five years.
Services to be provided to any areas added to the SOI	There is no additional territory to be added to the SOI.
Service capacity and adequacy	The District's treatment plant will need effluent storage capacity for future wet weather flow. Expansion of dry weather capacity to 38 mgd will require expansion of secondary clarifiers and sludge digestion facilities. Collection system capacity is adequate. The District's treatment effectiveness, planning and regulatory compliance are adequate. The District conducts performance evaluation, productivity monitoring and benchmarking to improve service efficiency.
Location of facilities, infrastructure and natural features	District facilities are located to provide adequate wastewater services.
Effects on other agencies	The District's current SOI is contiguous to the City of Hayward's SOI along its northern boundary. The District's SOI includes territory in the cities of Fremont, Newark and Union City. Retaining the existing SOI would not directly affect other agencies.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified potential for consolidation with the Alameda County Water District as a government structure option. This option was deemed improbable.
Social or economic communities of interest in the area	The District was formed to serve the residents of southern Alameda County, including Fremont, Newark and Union City.
Willingness to serve	The District wishes to continue to provide services within its boundary and SOI.

RECOMMENDATION

The authors recommend that LAFCo retain the existing SOI for the District.

WASHINGTON TOWNSHIP HEALTH CARE DISTRICT

The Washington Township Health Care District (WTHCD) owns and operates Washington Hospital in Fremont, and through its affiliates, operates various other clinics and facilities.[184] The District's boundary area includes the cities of Fremont, Newark and Union City, the southern portion of Hayward, and the unincorporated community of Sunol. The District's SOI is coterminous with its boundaries. The District has not recommended any changes to its SOI.

One option has been identified for the SOI update for the Washington Health Care District:

1) **Retain Coterminous SOI**: If the Commission determines that the existing coterminous agency boundary/SOI boundary is the desired government structure, retention of the existing SOI is appropriate.

ANALYSIS

The District's hospital is located centrally within the District; however, the District faces competition within its service area with the recently opened Kaiser Hospital in Fremont. The District does not have a defined service area; the boundary only affects board elections.

Within the next five years, it is unlikely that any annexation proposals will be made. Hence, it is unlikely that the SOI will need to extend beyond the existing boundary within the next five years.

[184] The District and its operations and services were extensively discussed in MSR Volume I—Public Safety Services. SOI update for the District was deferred pending completion of this MSR report due to preliminary indications that the District relies on a water well. This MSR found that the District is not a utility provider, that the water well is used for landscape purposes, and that the hospital relies on ACWD for potable water. The SOI update findings and recommendation from the first MSR volume are repeated here, because the Commission may now act upon those findings.

Table 9-11. WTHCD SOI Issues Analysis

Issue	Comments
SOI update recommendation	Retain existing SOI, which is coterminous with the boundary.
Services to be provided	Health care
Existing and planned land uses	The District has no authority over land use. City and County policies support the provision of adequate health care for City and County residents. City and County plans include land uses and population growth needing supportive health care services.
Potential effects on agricultural and open space lands	There is substantial agricultural or open space land within the existing and recommended SOI boundaries. However, hospital and health care services are needed in all areas and do not, by themselves, induce or encourage growth on agricultural or open space lands. No Williamson Act contracts will be affected. LAFCo found that the SOI would not adversely affect agricultural or open space land or be growth-inducing in 1984 when the SOI was adopted.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a growing population needing emergency, acute care and other medical services. District population is expected to grow by four percent in the next five years. The senior share will grow substantially, further increasing the need for heath care services.
Services to be provided to any areas added to the SOI	Not applicable as no additions to the District's SOI are under consideration.
Service capacity and adequacy	The District is fully accredited for hospital services. It has received service awards for overall hospital services, cardiac services and maternity services. The District's annual management report reveals consistently increasing patient volume, dedication to community service and charitable care, and responsible approaches to cost savings. Based on hospital bed occupancy, heart attack death rates and capital investment, services appear to be adequate. Although the hospital's emergency room capacity in 2002 was strained, ER capacity in the District has since been enhanced due to the 2003 opening of a private hospital.
Location of facilities, infrastructure and natural features	The Washington Hospital is centrally located and is accessible to District residents.
Effects on other agencies	The District's SOI boundaries are contiguous with the Eden Township Health Care District along its northern boundary. The District includes territory in the cities of Fremont, Newark, Union City, and Hayward and the unincorporated Sunol community. The District SOI boundary is consistent with the general and specific plans and does not conflict with the SOIs of affected agencies.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR identified potential for consolidation with the Eden Township HCD, but indicated that option was unlikely. No potential options for reorganization with other agencies were identified.

Social or economic communities of interest in the area	The District was formed primarily to serve the residents of southern Alameda County, including Fremont, Newark, Union City, southern Hayward, and Sunol. Approximately 85% of patients served by Washington Hospital in 2001 were District residents. County residents located outside the District also use District services and have an interest in the cost and adequacy of such services.
Willingness to serve	The District wishes to continue to provide services within its boundary and SOI.

RECOMMENDATION

The authors recommend that LAFCo retain the existing coterminous SOI for the District.

ZONE 7 WATER AGENCY

The Alameda County Flood Control and Water Conservation District (ACFCD) Zone 7 was formed by a vote of local residents to procure a reliable drinking water supply and to provide storm drainage and flood control services. Zone 7 differs from all other ACFCD zones in that it was created under special legislation and has an independently elected board. Zone 7 was created pre-LAFCo and does not have an adopted SOI. The boundary area of Zone 7 includes the cities of Dublin, Livermore and Pleasanton and the surrounding unincorporated areas of eastern Alameda County. The District's boundary currently overlaps ACWD's SOI in northeast portions of the cities of Fremont and Union City. The Zone has recommended that its SOI be coterminous.

Thus far, two potential policy approaches have been identified with respect to adopting an SOI for the District:

1) **Adopt Coterminous SOI**: If the Commission considers a coterminous agency boundary/SOI relationship to be the desired government structure, adoption of a coterminous SOI is appropriate.

2) **Adopt ACWD-Consistent SOI**: If the Commission determines the Zone 7 boundary area within ACWD's SOI should be removed from Zone 7 boundaries, then excluding the territory within ACWD's SOI from Zone 7's SOI is appropriate.

ANALYSIS

The Zone 7 boundary overlaps the ACWD SOI. ACWD has expressed interest in eventually providing retail water service within SOI areas that overlap Zone 7; Zone 7 has no objection because it does not intend to provide retail water service. Both agencies conduct groundwater replenishment and management within their respective areas for distinct basin areas. The agencies have agreed that ACWD would be responsible for groundwater management in any overlapping boundary area. In the event that ACWD annexes territory in the Zone 7 boundary area, ACWD

would be the retail water and groundwater management service provider and Zone 7 would be the flood control service provider.[185]

Table 9-12. Zone 7 SOI Issues Analysis

Issue	Comments
SOI update recommendation	Establish a coterminous SOI subject to approval of the ACWD-Zone 7 service agreement by the respective boards.
Services to be provided	Water treatment and distribution, groundwater management, flood control
Existing and planned land uses	The District has no authority over land use.
Potential effects on agricultural and open space lands	There is substantial agricultural and open space land within Zone 7. Zone 7 provides retail water service to agricultural accounts within its bounds. Groundwater management and flood control services benefit agriculture.
Opportunity for infill development rather than SOI expansion	None. The District is not a land use authority and has no control over the location of infill development.
Projected growth in the affected area	There is a growing population which need water supplies and flood control services. The District population is expected to grow by 12 percent in the next five years.
Services to be provided to any areas added to the SOI	As there is no existing SOI for Zone 7, its entire boundary area would be added to the SOI. Zone 7 already provides water treatment and distribution, groundwater management and flood control services within its boundary and recommended SOI.
Service capacity and adequacy	Zone 7 has adequate water supplies to accommodate projected growth and is constructing a new treatment plant to accommodate growth. Treatment processes need to be upgraded to address high mineral content in the western portion of the service area, and seismic upgrades are needed at the Patterson WTP. Drought preparedness, emergency preparedness and distribution system integrity are adequate. Zone 7 follows six conservation best management practices. The District maintains flood control infrastructure throughout most of its boundary area. Channel capacity enhancements are needed. The District identifies needed capacity enhancements in flood control channels through its capital improvement planning process. Although there have been no recent expansions in the 100-year flood plain, Zone 7 anticipates future flood plain expansions due to growth-related increases in runoff. The District is in compliance with NPDES permit requirements. Performance-based budgeting and program audits are used to promote efficiency.
Location of facilities, infrastructure and natural	District facilities are located to provide adequate water and flood control services.

[185] June 10, 2005 verbal agreement between ACWD General Manager Paul Piraino and Zone 7 General Manager Dale Meyers. Under the agreement, Zone 7 would retain its property tax share within the overlap area. The agreement has not been formalized or approved by the respective governing boards.

features	
Effects on other agencies	ACWD is affected in that the ACWD SOI extends into the Zone 7 boundary area; however, the agencies' managers have agreed on service and tax issues in the overlapping area. The cities of Dublin, Pleasanton and Livermore are affected in that they are located in the Zone 7 boundary.
Potential for consolidations or other reorganizations when boundaries divide communities	The MSR did not identify government structure options for Zone 7.
Social or economic communities of interest in the area	The cities of Dublin, Livermore and Pleasanton, Sunol and other unincorporated areas in the eastern portion of the County lie within Zone 7 boundaries.
Willingness to serve	The District wishes to continue to provide services within its boundary.

RECOMMENDATION

The authors recommend that LAFCo establish a coterminous SOI for Zone 7 subject to approval of the ACWD-Zone 7 service agreement by the respective boards.

MULTIPURPOSE AGENCIES

The SOI updates for multipurpose agencies, including two CSAs, the cities, and the East Bay Regional Park District, will be deferred until all applicable service reviews are complete.[186] For multipurpose agencies, recommendations regarding feasible policy options will be included in the third and final MSR report covering the remainder of municipal services.

The cities of Hayward, Dublin, Livermore, Pleasanton, Fremont, and Union City have urban growth boundaries (UGBs) or the equivalent. The CKH Act charges LAFCo with preserving open-space and prime agricultural lands, but empowers LAFCo to make its own determinations about the relative importance of extending government services in an efficient manner. LAFCo decisions must consider but are not required to conform to locally adopted UGBs.[187] In adopting SOIs, LAFCo must consider and make determinations about the present and planned land uses in the area, including agricultural and open-space lands.[188]

[186] Pursuant to Government Code §56430, LAFCo may not update the SOIs of agencies until it has reviewed all relevant municipal services provided by those agencies. The SOIs of multipurpose agencies will be updated after review of street, park, library, and vector control and mosquito abatement services (covered in the third and final MSR).

[187] According to the Alameda County Counsel and *Growth Within Bounds*, in the case of certain SOI and annexation proposals, LAFCo must consider conformity with the County's general plan as a factor in its deliberations, but the existence of an urban growth boundary need not control LAFCo's ultimate decision (James Sorensen and Brian Washington, 2001; Commission on Local Governance for the 21st Century, 2000).

[188] California Government Code §56425(e)(1).

CASTLEWOOD CSA

The Castlewood CSA (R-1967-1) provides water delivery and sewer services to some areas in the CSA, in addition to street maintenance services on private roads.

The CSA boundary includes the Castlewood Country Club and adjacent unincorporated areas near southern Pleasanton.

The CSA's SOI was established in 1984. All of the areas in the Castlewood CSA SOI were annexed shortly after SOI adoption in August of 1984. Hence, the CSA's SOI is currently coterminous with its bounds.

Pursuant to an agreement between the City, County and developer, the sewage in an adjacent Pleasanton neighborhood is conveyed through the CSA sewer lines to the City of Pleasanton sewer lines. By law, the CSA may only include unincorporated areas, and may not include territory within city limits.

Two options are identified with respect to SOI update for the District:

1) **Retain Existing SOI**: If the Commission determines that the existing coterminous agency boundary/SOI boundary is the desired option, retention of the existing SOI is appropriate.

2) **Expanded SOI (Pleasanton)**: If the Commission determines that the area south of the CSA should be included in the SOI, then this area should be included in the CSA's SOI.

FIVE CANYONS CSA

The Five Canyons CSA (PW-1994-1) provides storm drainage services in addition to street maintenance on public roads, erosion control, and maintenance on various types of public space including walls, open space, landscaped areas, and monuments.

The CSA's SOI was established in 1994 as coterminous with its bounds. Since SOI adoption, Canyon Terrace (2.76 acres) was annexed to the CSA, with a corresponding SOI amendment.

The CSA indicated that it might propose changes to its SOI. The CSA is considering the addition of two areas. The first area under consideration is an area planned for development located partially within the CSA bounds. The second area under consideration includes the Gillrie property located northeast of the CSA boundary.

Two options are identified with respect to SOI update for the District:

1) **Retain Existing SOI**: If the Commission determines that the existing coterminous agency boundary/SOI boundary is the desired option, retention of the existing SOI is appropriate.

2) **Expanded SOI**: If the Commission determines that future annexations are likely in developing areas around the CSA, the CSA's SOI should be expanded to include those areas.

CITY OF HAYWARD

Hayward's SOI includes territory outside its boundaries and excludes the Ridgelands area that lies within its boundary. To date, the City has suggested that parcels along the east side of Oak Street north of Grove Way be added to the SOI.

Hayward's UGB prohibits the extension of urban services to shoreline and hill areas.[189] The protected shoreline area includes the Eden Landing Ecological Reserve, HARD Marsh (former Oliver Salt Ponds), public lands, and salt ponds owned by Cargill.[190] The UGB coincides with the Ridgelands Protection Boundary, which protects hill areas within Hayward's eastern city limits. The UGB protects some areas within Hayward's SOI, but much of this area is outside the SOI.

The County UGB does not affect territory within Hayward's city limits or SOI. However, Hayward's 2002 General Plan recommends that the Ridgelands area policies be reevaluated in light of Measure D.[191] Those policies were agreed upon by Hayward, Pleasanton and Alameda County in 1993 prior to Measure D.[192] Under the agreement, the majority of the Pleasanton Ridgelands would remain as unincorporated land; the City of Hayward would retain its existing SOI (west of Palomares Road); the City of Hayward would detach parcels east of Pleasanton Ridge and annex comparable area from the County; and the City of Pleasanton would amend its western SOI to lie at the top of the Pleasanton and Main Ridges.[193]

Hayward's SOI excludes territory that lies within its boundary in the vicinity of Pleasanton Ridge Regional Park, including Pleasanton Ridge itself which lies within the City of Pleasanton's SOI. Hayward has designated this area as open space, and the area lies entirely outside Hayward's UGB. This area was originally annexed in 1967 to accommodate rural home sites and is mostly in agricultural use.

Hayward's SOI also excludes territory that lies within its boundary south of Alameda Creek. This area is within the City of Fremont's SOI, even though it is within the City of Hayward's boundaries.

There is a small overlapping SOI area that resulted from an SOI amendment that was approved for neighboring Union City without a reciprocal action taken for Hayward.[194] The Union City SOI was expanded in 1989 to include a small (5.3 acre) area of Hayward that formed a land peninsula surrounded on three sides by Union City. Although this area was annexed to Union City, it appears that it was not removed from Hayward's SOI, and it should be.

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[189] Outside the UGB, density is limited to one home per 100 acres.

[190] Hayward's 2002 General Plan indicates that Cargill plans to cease operations at this location and consolidate its operations at its Newark plant. The Cargill lands may be used as a wildlife refuge.

[191] Measure D adopted a UGB for Alameda County in unincorporated areas. Density outside the County UGB is limited to one dwelling unit per 100-320 acres, with the precise density limit based on evaluation of the property and surrounding land.

[192] Subsequent court action invalidated only that section of the Ridgelands Area Policies that required the approval of all three jurisdictions for any subsequent amendments to the policies.

[193] City of Hayward General Plan, Policy 7, page J-2.

[194] LAFCo Resolution Nos. 89-17 and 89-18.

The Five Canyons area of the Hayward SOI was removed prior to the Castro Valley incorporation vote. Given the voters' rejection of incorporation, returning the area to Hayward's SOI may be appropriate. The City of Hayward provides fire and EMS service to the Fairview FPD. The Five Canyons portion of the Fairview FPD territory is outside Hayward's SOI. If the Five Canyons area is returned to Hayward's SOI, the entire area of the Fairview FPD would again be within Hayward's SOI.

The San Lorenzo unincorporated neighborhood between Hayward and San Leandro is not within the SOI of either city. The area lies outside the territory included in the City's land use planning map.

Eight options were identified with respect to SOI update for Hayward:

1) **Reduced SOI (UGB)**: If the Commission determines that areas designated for no development should be excluded from municipal SOIs, it is appropriate to exclude the area outside the City's UGB from Hayward's SOI. This exclusion would affect only the lands outside the City's boundary.

2) **Reduced SOI (Overlapping):** If the Commission determines that the Union City-Hayward overlapping SOI area should remain within Union City's boundaries, it would be appropriate to exclude this area from Hayward's SOI.

3) **Expanded SOI (Alameda Creek):** If the Commission determines that the Hayward area south of Alameda Creek should remain within Hayward, it would be appropriate to include this area in Hayward's SOI and remove it from Fremont's SOI.

4) **Expanded SOI (Pleasanton Ridge)**: If the Commission determines that the Pleasanton Ridge area should remain within Hayward, it would be appropriate to include this area in Hayward's SOI.[195]

5) **Expanded SOI (Five Canyons)**: If the Commission determines that the Five Canyons area, currently served by Hayward's Fire Department, should be annexed to Hayward in the next 5-15 years, the Hayward SOI should be expanded to include this area.

6) **Expanded SOI (San Lorenzo)**: If the Commission determines that the San Lorenzo area should be annexed by Hayward, the Commission should include this area within Hayward's SOI.

7) **Expanded SOI (East Oak Street):** If the Commission determines that the parcels on the east side of Oak Street should be annexed by Hayward, the Commission should include this area within Hayward's SOI.

8) **Retain Existing SOI**: If the Commission determines that the existing SOI is consistent with growth projections and other plans, it should retain the existing SOI.

[195] Please refer to the discussion of SOI options for the City of Pleasanton, as a portion of this area currently lies within the City of Pleasanton SOI.

CITY OF SAN LEANDRO

San Leandro's SOI includes the unincorporated Ashland area. The City is considering expanding its SOI to include the San Leandro Rock Quarry site (open space) located on the east side of town on Lake Chabot Road. The City's General Plan envisions inclusion of this area in the city limits.

The El Portal Ridge area of the San Leandro's SOI was removed in accordance with the proposed incorporation of the City of Castro Valley. As that the voters of Castro Valley defeated the proposed incorporation, returning this area to San Leandro's SOI may be appropriate.

The San Lorenzo unincorporated neighborhood between Hayward and San Leandro is not within the SOI of either city. The County Sheriff and fire departments currently serve the San Lorenzo community.

There are four options with respect to the SOI update for San Leandro:

1) **Expanded SOI (El Portal Ridge)**: If the Commission determines that the El Portal Ridge area should be annexed to San Leandro, the San Leandro SOI should be expanded to include this area.

2) **Expanded SOI (San Lorenzo)**: If the Commission determines that the San Lorenzo area should be annexed to San Leandro, San Leandro's SOI should be expanded to include this area.

3) **Expanded SOI (Quarry)**: If the Commission determines that the Rock Quarry site should be annexed to San Leandro, San Leandro's SOI should be expanded to include this area.

4) **Retain Existing SOI**: If the Commission determines that the El Portal Ridge, San Lorenzo and Rock Quarry areas should not be annexed to San Leandro, the existing SOI should not be changed.

CITY OF DUBLIN

Dublin's SOI extends outside its boundary in western and northeastern Dublin. Dublin has recently annexed a significant amount of land and has not recommended any changes to its SOI.

In the west, the SOI lies outside both the City's adopted 30-year urban limit line and the County's UGB. The western portion of the growth boundary coincides with the city limits; hence, the western SOI area is entirely outside the projected growth boundary. Density in the western SOI area is limited to one home per 100 acres, primarily because the area currently lacks water service. The City Council may approve denser residential development under certain conditions despite the urban limit line. In 2002, the City of Dublin considered removing a large western portion (2,164 acres) of its western SOI area; however, after a series of meetings, the City Council concluded that the area should remain in the City's SOI. The eastern portion of the western SOI area was not considered for reduction by the City due to City plans to create a regional open space area there.

Although unaffected by the City's urban limit line, portions of the northeastern SOI area are outside the County's UGB. If the City were to annex territory outside the County UGB, then that territory would no longer be subject to County density and development limits. The City is

reviewing several residential projects in this area for annexation purposes and indicated that removal of this area from the SOI would have a detrimental effect on these projects.[196]

Two options have been identified with respect to SOI update for Dublin:

1) **Retain Existing SOI**: If the Commission determines that the existing SOI is consistent with growth projections and other plans, it should retain the existing SOI.

2) **Reduced SOI (Urban Limit Line)**: If the Commission determines that areas designated for no development should be excluded from municipal SOIs, it is appropriate to exclude the western area outside the City's urban limit line from Dublin's SOI.

CITY OF LIVERMORE

Livermore's SOI is larger than its boundaries, and includes substantial unincorporated areas.[197] The City of Livermore recommended that its SOI be expanded to include all of a parcel located northwest of I-580 near Springtown Boulevard in order to correct a parcel split.

In 2000, the Livermore electorate adopted a UGB in the southern portion of the city. In December 2002, the Livermore City Council adopted a UGB that completed the UGB around the northern part of the city and removed all previously planned urban uses for the north Livermore area and replaced them with agricultural designations consistent with Alameda County's East County Area Plan. Any urbanization or extension of urban services into this area is prohibited unless voter approved. Density is limited to one home per 100 acres.

There are substantial SOI areas outside Livermore's UGB and city limits. The first such area is in northeast Livermore north of Raymond Drive, including Frick Lake. The City's eastern SOI lies outside the UGB, except that Lawrence Livermore National Lab (LLNL) and Sandia National Laboratories are inside the growth boundary. Areas of southeast Livermore including three wineries are outside the UGB but inside the SOI. In southern Livermore, areas west of Sycamore Grove Park and the Veterans Medical Center are outside the UGB, but inside the city limits.

There are two small areas in southern Livermore that are outside Livermore's UGB but inside the city limits. These areas are east and south of Ravenswood Park and include a winery.

Otherwise, there are only three areas that could be added to Livermore's SOI and be consistent with the City's UGB. These three areas are within Livermore's UGB but outside its current SOI. Two of these areas are south of the Livermore Municipal Airport; the other area is north of the I-580 near Las Colinas Road.

In addition to the City's UGB, there is a County-approved UGB allowing development outside that boundary only under very limited specified circumstances.[198] The County UGB limits

[196] Letter from City of Dublin City Manager Richard C. Ambrose to LAFCo Executive Officer, July 19, 2004.

[197] The Appendix B agency map has been approved by the agency, but has not yet been verified by LAFCo.

[198] Measure D limits sprawl development in eastern Alameda County as well as in the canyon lands east of Castro Valley, Hayward, Union City and Fremont. The Measure D density limit is one home per 100 acres.

development in unincorporated areas within Livermore's SOI, but does not prevent the annexation of those areas to Livermore.

The CKH Act charges LAFCo with the goal of preserving open space and prime agricultural lands, but empowers LAFCo to make its own determinations about the relative importance of efficiently extending government services and preserving open-space lands. LAFCo decisions must consider but are not required to conform to locally adopted UGBs. In adopting SOIs, LAFCo must consider and make determinations about the present and planned land uses in the area, including agricultural and open-space lands.

There are several options with respect to SOI update for Livermore:

1) **Reduced SOI (UGB)**: If the Commission determines that areas designated outside of the UGB should be excluded from SOIs, because growth is not anticipated in the near future, then it is appropriate to exclude areas outside the UGB from Livermore's SOI.

2) **Expanded SOI (Springtown)**: If the Commission determines that the split Springtown parcel should be annexed, the Livermore SOI should be expanded to include this area.

3) **Expanded SOI (Airport):** If the Commission determines that areas inside the Livermore UGB should be included in SOIs, it is appropriate to include the areas in Livermore's SOI. This inclusion would involve the lands south of the Livermore Municipal Airport, and potentially the area north of I-580 and southwest of the Springtown community.[199]

4) **Retain Existing SOI**: If the Commission determines that the existing SOI will accommodate Livermore's planned growth, the existing SOI may be appropriate.

CITY OF PLEASANTON

Pleasanton's SOI extends beyond its boundary.[200] The City did not recommend any changes in its SOI.

Pleasanton's SOI includes substantial lands located outside Pleasanton's UGB, including the Pleasanton Ridge area that is within the boundaries of the City of Hayward. Pleasanton's UGB lies inside its city limits in several areas and lies inside the SOI in most areas. Hence, there are substantial areas inside the SOI and limited areas within the city limits to which extension of urban services by the City is prohibited unless they are minor new developments and do not include new housing.

The largest SOI area excluded from the UGB is south of the City. The area includes parts of Pleasanton Ridge Regional Park and mostly undeveloped areas east of the park. The second area outside the UGB and within the City's SOI includes water storage areas east of the City and south of the Las Positas Golf Course in Livermore. This area extends east following the western boundary of the City of Livermore. The area includes many water storage ponds and restricted roads. Other areas include small pockets along the western edge of the City where the UGB is mostly consistent with

[199] The area north of I-580 and southwest of the Springtown community is inside the City's UGB, but is outside the County (Measure D) UGB.

[200] The Appendix B agency map has not yet been approved by the agency or verified by LAFCo, as of the date of this report.

the city boundaries, as well as northern pockets that include portions of Pleasanton Ridge Regional Park in the City of Hayward.

In the Pleasanton area, the City's UGB was also adopted as a County-approved UGB; development outside that boundary is allowed only under very limited specified circumstances.[201] The County UGB limits development in unincorporated areas within Pleasanton's SOI, but does not prevent the annexation of those areas to Pleasanton. Although the County UGB lies inside the Pleasanton city limits, it is not applicable within Pleasanton's city limits unless such areas are detached from Pleasanton.

LAFCo decisions must take into consideration locally adopted UGBs In all cases, LAFCo considers conformity with the existing general plans as a factor in its deliberations. In adopting SOIs, LAFCo must consider and make determinations about the present and planned land uses in the area, including agricultural and open-space lands.[202] The CKH Act charges LAFCo generally with the goal of preserving open-space and prime agricultural lands, but empowers LAFCo to make its own determinations about the relative importance of efficiently extending government services and preserving open-space lands.

Three options are identified with respect to the SOI update for Pleasanton:

1) **Reduced SOI (UGB)**: If the Commission determines that areas designated outside of the UGB should be excluded from SOIs, because growth is not anticipated in the near future, then it is appropriate to exclude areas outside the UGB from Pleasanton's SOI.

2) **Reduced SOI (Pleasanton Ridge):** If the Commission determines that the Pleasanton Ridge area in the City of Hayward should remain within the City of Hayward, then it is appropriate to remove this area from Pleasanton's SOI.

3) **Retain Existing SOI**: If the Commission determines that the existing Pleasanton SOI is appropriate, no change should be made.

CITY OF FREMONT

Fremont's SOI extends beyond its boundaries in the eastern area. Fremont has not recommended changes to its SOI.

There are two annexable areas in the Mission Peak and Vargas Plateau areas and a detachable area near Mission Creek. In the Coyote Hills area, the Fremont SOI follows Alameda Creek and includes a small portion of the City of Hayward. There are unincorporated areas east of Fremont that could be added to the SOI.

Development in the northeastern hill area is limited by several initiatives. The Fremont hills are subject to density limits of one home per 100 acres in unincorporated areas by Measure D (2000), to the same density limit for unincorporated areas annexed to Fremont in the future by Measure T

[201] Measure D limits sprawl development in eastern Alameda County as well as in the canyon lands east of Castro Valley, Hayward, Union City and Fremont.

[202] California Government Code §56425(e)(1).

(2002), and to density limits of one home per 20 acres by the Hill Area Initiative of 2002 (Measure T).

Development in the SOI area in eastern Mission Peak Regional Preserve is not subject to the Measure T and 1981 Fremont Hill Initiative as it is outside the affected area. However, if the area becomes part of the City of Fremont, Measure T would apply. The City considers the area east of its city limits to be part of an "Expanded Planning Area." The City's General Plan states that development in this area would have a significant impact on the City and adjacent lands.

Thus far, six potential policy approaches have been identified with respect to SOI update for the City of Fremont:

1) **Reduced SOI (Measure T/SOI)**: If the Commission determines that areas designated by Measure T for limited development should be excluded from Fremont, it would be appropriate to exclude the eastern hill areas outside the city limits from Fremont's SOI.[203] This exclusion would include only the lands outside the City's boundary.

2) **Reduced SOI (Mission Peak)**: If the Commission determines that the Mission Peak Regional Preserve area east of the City's current limits should be excluded from Fremont, it is appropriate to exclude the regional park from Fremont's SOI. This exclusion would presumably include only lands currently outside the City.

3) **Reduced SOI (Hayward)**: If the Commission determines that the portion of Hayward that is south of Alameda Creek should not be annexed to Fremont, it is appropriate to exclude this area from Fremont's SOI.

4) **Expanded SOI (Mission Creek)**: If the Commission determines that the Mission Creek area within Fremont's boundary but outside its SOI is planned for growth in the near future, then it is appropriate to include the area in Fremont's SOI.

5) **Coterminous SOI**: If the Commission determines that a coterminous city boundary/SOI boundary is the desired option, adopting a coterminous SOI is appropriate.

6) **Retain Existing SOI**: If the Commission determines that the existing SOI conforms to growth plans, the Commission may retain the existing SOI.

CITY OF NEWARK

Newark's boundary and SOI are coterminous and there are no adjacent unincorporated areas. The City has not recommended changes to its SOI.

One option is identified with respect to SOI update:

1) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, it should retain the existing SOI.

[203] Measure T limits new development to the same density (one dwelling unit per 100 acres) as the current County Measure D policy.

CITY OF UNION CITY

Union City's current SOI is nearly coterminous with its boundaries except for a small area within the City of Fremont. It includes two small areas that overlap with the SOIs of Hayward and Fremont, respectively.

The Union City SOI was expanded in 1989 to include a small (5.3 acre) area formerly in Hayward's city limits that formed a land peninsula surrounded on three sides by Union City; this area has not been removed from Hayward's SOI but has been both annexed to Union City and placed within Union City's SOI. In 1998, Fremont annexed a very small (0.2 acre) area near Mission Boulevard to correct three split parcels. Although Fremont's SOI was amended to include the area, Union City's SOI was not amended to remove the area. Hence, the area remains in both Fremont and Union City's SOIs.

The eastern hillside area, which is inside both the City's boundary and SOI, is subject to development limits under the Hillside Area Plan adopted by voters in 1995. Voter approval is required for any future development of this area pursuant to Measure II passed in 1996. The Hillside Area Plan requires a minimum lot size of 200 acres in areas designated as open space. Although there are unincorporated areas in the eastern hills of Union City along Palomares Road that could be added to the SOI, development in this unincorporated area is limited under Measure D and would be expected to be limited by Union City's development policies if annexed. Most of the Hillside Area cannot be developed due to topography; however, approximately 700 acres is developable with no more than three homes per acre.

Two options are identified with respect to SOI update for the City: [204]

1) **Reduced SOI (Overlapping)**: If the Commission determines the Union City-Fremont overlapping SOI area should remain within Fremont, it is appropriate to exclude this area from Union City's SOI.

2) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, no change should be made in the SOI.

CITY OF OAKLAND

Oakland's SOI is generally coterminous with its boundaries, with the exception of fringe eastern hill areas south of Redwood Road and outside Redwood Regional Park as well as three fringe areas—Manzanita Court, Starkeville and Diablo Courts—that are in Contra Costa County.[205] An additional fringe area on Winding Way in Contra Costa County is not included in the SOI. There are additional fringe areas north of Redwood Road and outside Redwood and Chabot Regional Parks that are not in Oakland's SOI or boundary.

LAFCo found that "there are many illogical boundaries involving parcels causing inefficient provision of public services that should be corrected," and recommended that development be

[204] The Draft MSR included an SOI option for reducing the Union City SOI to exclude the Measure II areas outside the city limits. This option has been deleted because there is no Measure II territory that is outside the city limits and inside the existing SOI.

[205] The Appendix B agency map has not yet been approved by the agency or verified by LAFCo, as of the date of this report.

precluded in Contra Costa County adjacent to Oakland until the area is annexed to Alameda County and the City of Oakland.[206] Before LAFCo may annex these areas to Oakland, the Boards of Supervisors of both Alameda and Contra Costa Counties must approve a county boundary change.

Oakland has not recommended changes to its SOI.

Five options are identified with respect to SOI update for the City:

1) **Reduced SOI (Contra Costa)**: If the Commission determines that Oakland is unlikely to annex the eastern hill areas, it is appropriate to remove the area from Oakland's SOI.

2) **Expanded SOI (Winding Way)**: If the Commission determines that Oakland is likely to annex the properties on Winding Way in Contra Costa County, it is appropriate to add the area to Oakland's SOI.

3) **Reduced SOI (Redwood)**: If the Commission determines that the fringe areas south of Redwood Road should not be annexed to Oakland, it is appropriate to exclude the eastern hill areas outside the city limits from Oakland's SOI.

4) **Expanded SOI (Redwood):** If the Commission determines that the sliver areas north of Redwood Road but outside Redwood and Chabot Regional Parks should be annexed, it is appropriate to include them in the SOI.

5) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, the existing SOI should be retained.

CITY OF BERKELEY

Berkeley's boundary and SOI are coterminous and there are no adjacent unincorporated areas. Berkeley has not recommended changes to its SOI.

Only one option is identified for the SOI update:

1) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, the existing SOI should be retained.

CITY OF ALAMEDA

Alameda's boundary and SOI are coterminous and there are no adjacent unincorporated areas. The City has not recommended changes to its SOI.

Only one option for the SOI is identified:

1) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, the existing SOI should be retained.

[206] Local Agency Formation Commission of Alameda County, Resolution No. 83-12.

CITY OF ALBANY

Albany's boundary and SOI are coterminous and there are no adjacent unincorporated areas. The City has not recommended changes to its SOI.

Only one option for the SOI has been identified:

1) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, the existing SOI should be retained.

CITY OF EMERYVILLE

Emeryville's boundary and SOI are coterminous and there are no adjacent unincorporated areas. The City has not recommended changes to its SOI.

Only one option for the SOI has been identified:

1) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, the existing SOI should be retained.

CITY OF PIEDMONT

Piedmont's boundary and SOI are coterminous and there are no adjacent unincorporated areas. The City has not recommended changes to its SOI.

Only one option for the SOI has been identified:

1) **Retain Existing SOI**: If the Commission determines that the existing city boundary/SOI boundary is appropriate, the existing SOI should be retained.

EAST BAY REGIONAL PARKS DISTRICT

The District includes all of Alameda and Contra Costa counties. The District's boundary and SOI are coterminous, and there is no potential for SOI expansion unless the District was to expand to other counties. The District has not recommended changes to its SOI.

The District acquires new park lands, working with the relevant city or the County on issues such as park access and park-related infrastructure needs. In certain areas like Hayward, regional parks located within or adjacent to cities have been excluded from the respective city's SOI. However, in other areas, regional parks have been included in city SOIs.

One potential policy approach has been identified with respect to SOI update for the District:

1) **Retain Existing SOI**: If the Commission determines that the existing District boundary/SOI boundary is appropriate, the current SOI should be retained.

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DATA SOURCES

Agency-specific data: responses to LAFCo Requests for Information, budgets, Comprehensive Annual Financial Reports, Capital Improvement Plans, General Plans, official statements, and miscellaneous plans

Agricultural acreage: U.S. Department of Agriculture, National Agricultural Statistics Service

Bond ratings: Moody's; Standard and Poor's

Demographic data: U.S. Bureau of the Census

Jobs and population projections: Association of Bay Area Governments

Long-Term Debt: California State Controller; MuniStatements; Moody's; Standard and Poors; Comprehensive Annual Financial Reports

Precipitation: U.S. National Weather Service

Revenue: California State Controller; Alameda County Auditor/Controller; Comprehensive Annual Financial Reports

Solid waste statistics: California Integrated Waste Management Board, ACWMA

Stormwater statistics: ACCWP

Wastewater spills: Governor's Office of Emergency Services

Water health and monitoring violations: California Department of Health Services

INTERVIEWS

The following agencies and individuals provided information by telephone or email interview.

Alameda County Agricultural Fair Association	Rick Pickering, CEO
Alameda County Auditor	Carol Gloria
Alameda County Clean Water Program	Jim Scanlin, Engineer Scientist
Alameda County Environmental Health	Tom Peacock Ronald Torres
Alameda County Flood Control District	Hank Ackerman Larry Johmann
Alameda County Resource Conservation District	Karen Sweet, Executive Officer
Alameda County Waste Management Authority	Deborah Kaufman Tom Padilla
Alameda County Water District	Paul Piraino, General Manager Ed Stevenson, Development Services Supervisor Bill Zanoni, CFO
American Water Works Association	Jim Ginley, Utility Quality Programs Manager
Association of Bay Area Governments	Brian Kirking
Bay Area Clean Water Agencies	Michelle Pla, Executive Director
Bay Area Water Supply and Conservation Agency	Nicole Sandkulla, Water Resources Analyst
California Water Resources Control Board	Steve Herrera, Permitting Chief
Castlewood and Five Canyons CSAs	Catherine Keith; Bill Lapere

Castro Valley Sanitary District	Janette Stuart, Administrative Services Supervisor Roland Williams, General Manager
City of Alameda	Christa Johnson
City of Albany	Judy Lieberman
City of Berkeley	Grace Maguire, Assistant to the City Manager Henry Yee, Supervising Engineer
City of Dublin	Fred Marsh, Finance Manager Joni Pattillo
City of Emeryville	Maurice Kaufman, Senior Civil Engineer Karen Hemphill, Assistant to the City Manager
City of Fremont	Harriet Commons, Finance Director Kathy Cote, Environmental Services Manager Lisa Goldman
City of Hayward	Marilyn Mosher, Administrative Analyst
City of Livermore	Darren Greenwood, Water Resources Manager Joel Waxdeck
City of Newark	Soren Fajeau, Associate Civil Engineer
City of Oakland	Gus Amirzehni, P.E.
City of Piedmont	Ann Swift, City Clerk
City of Pleasanton	Scott R. Baker, Acting Director of Public Works Daniel Smith, Utilities Superintendent
City of San Leandro	John Camp Eric Figueroa, Assistant to the City Manager Dean Wilson, WPCD Manager
City of Union City	Joan Malloy
Contra Costa Water District	Mark A. Seedall, Senior Planner
Curbside Recycling CSA	Ron Gee
Dublin San Ramon Services District	Dave Requa Aaron Johnson
East Bay Dischargers	Chuck Weir, General Manager
East Bay Municipal Utility District	Maura Bonnarens, Senior Civil Engineer Joseph Callahan, Manager New Business Regina Cullado, Customer Services Manager Jason Munkres, Associate Planner
East Bay Regional Park District	Dennis Wasby, Maintenance Supervisor
LAVWMA	Vivian Housen
Mohrland Mutual Water System	Jim Lovell, President Pat Clayton, Secretary-Treasurer
Oro Loma Sanitary District	Andreea Simon, Administrative Services Manager Ana Turon, Accounting Manager
Regional Water Quality Control Board	Lila Tang, Wil Bruhns, Johnson Lam, Greg Walker
Stivers Academy	Carol Stivers
Washington Township Health Care District	Tiffany Rowe, Director of Strategic Planning Kimberly Hartz-Foster, Chief of Strategic Management
Zone 7 Water Agency	David Houts, Assistant to the General Manager