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REPORT TO THE COMMUNITY

THEN AND NOW

Adapting to Change

Fiscal Years
2017/2018



ALAMEDA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
Report to the Community
Fiscal Years 2017/2018



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MESSAGE FROM THE DIRECTOR

Up until the 1950s and 1960s, many parts of Alameda County flooded. Businesses and schools had to close, transportation and utility services were interrupted, homes and lives were destroyed. As we reflect on fiscal years 2017 and 2018 in this annual report, we're happy to say that since the District was formed in 1949, flood protection has evolved into a service that the vast majority of Alameda County citizens can count on.

We know that change is constant—in our communities, in our climate, and in our environment. The District's biggest challenge is to evolve fast enough to stay in the vanguard of change.

Most major flood control infrastructure—channels, levees, and pump stations—in Western Alameda County is 60 to 70 years old. Most of this infrastructure was designed to meet the 15-year flood events of the time, which brought far less water than the storms we face today and are expected to see in the future.

The U.S. Army Corps of Engineers (USACE) and FEMA's National Flood Insurance Program (NFIP) now require flood control infrastructure to meet a 100-year storm event and to protect against more frequent, severe storms caused by climate change. This is the new order under which the District is moving forward.

We will continue our work to stay in front of these and other changes coming our way. This work will require new sources of funding, and above all else, our commitment to put the safety of Alameda County citizens first.

You can count on us to do our very best.

Daniel Woldesenbet, Ph.D., P.E.

General Manager, Alameda County Flood Control & Water Conservation District

Director, Alameda County Public Works Agency



THEN

Relatively stable weather patterns and temperatures were the norm decades ago. Flood control infrastructure was built to function with fairly predictable amounts of stormwater.

NOW

Climate change and global warming are a part of all District planning, infrastructure design, and operation. Preparing for more extreme weather and stormwater flows and planning for protection from sea level rise are both especially important for low-lying coastline.

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WINNING COMPETITION

In 2017, the **Resilient by Design Bay Area Challenge**—an international design competition—officially launched. This bold and prestigious initiative fostered innovative ideas for making the Bay Area more sustainable and resilient to climate change and earthquakes.

The District was honored to be chosen as a strategic partner by **Public Sediment**, an international team led by New York City-based **SCAPE Landscape Architecture**.

Public Sediment brought together many great ideas to improve Alameda Creek, which drains the third largest watershed in the Bay Area (after the Sacramento and San Joaquin Rivers). At its core, Public Sediment's concept is to increase sediment flow from the creek to nourish protective wetlands at the Bay's coastline—especially at the Eden Landing salt ponds that are part of the South Bay Salt Pond Restoration Project.

The Alameda Creek channel was built by the USACE in the 1970s under different engineering standards. Over the decades, the creek's sediment load has more than doubled as more stormwater flows downhill to the Bay. Costly dredging projects were required to remove excess silt that clogged the channel.

But now the District has a better solution.

By constructing a smaller low-flow channel in the bottom of the existing creek channel and removing some of the old impediments built in the 1970s, sediment will flow more freely all the way down from the hills and into the Bay. There, it can nourish and elevate thriving wetlands to buffer the coastline against sea level rise and severe storms.

Another winning feature of the project is that more wildlife habitat, trails, recreation, and viewing locations can be created for public enjoyment. The District is currently working to finance the project.

Learn about the **Resilient by Design Public Sediment** project: www.resilientbayarea.org/public-sediment



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THIRTEEN C3

The Turner Court parking lots project includes thirteen low-impact development (LID) stormwater treatment features approved by the San Francisco Regional Water Quality Control Board to comply with **Provision C3**. This provision requires stormwater to stay within the confines of development sites, rather than to drain off into the Bay.

To retain stormwater, LID features slow down flows and redirect water into the ground or to retention areas where it can be absorbed by plants, trees, or special bioretention soil. An additional benefit is that more pollutants and debris are removed from stormwater that would otherwise drain to the Bay.

Workshops offered by the Clean Water Program team provide information to developers, engineers, maintenance crews, and other municipal workers on how to incorporate these features into their projects.

TURNING TURNER COURT



Two old asphalt parking lots at the Alameda County Public Works Agency's Turner Court facility in Hayward have been turned into a stormwater classroom showcasing the newest and most effective techniques for creating green infrastructure and low-impact development (LID).

The parking lots now include samples of pervious concrete, articulated concrete blocks, porous asphalt, pervious and permeable pavers, three types of tree wells, five bioretention areas, and a filtered rainwater harvesting tank. Dark-sky compliant LED streetlights and 33,000 feet of Bay-friendly landscaping make the site even more inviting.

The main purpose of these features is to allow more stormwater to seep into the ground rather than running off into the District's creeks and channels. The risk of flooding is thereby reduced. Through a suite of monitoring tools built into the parking lot, the District will also be able to measure just how well these innovative techniques do in capturing stormwater.



THEN

Before the development boom in Alameda County, stormwater drained directly into the soil in farmland and other large, open areas.

NOW

Western Alameda County is largely built-out, zoned for buildings, streets, and parking lots. Built-out areas generate more and faster stormwater runoff from hard surfaces, so greater amounts of stormwater enter the District's flood control system.



THEN

Decades ago, most flood control infrastructure was new, including pump stations and equipment. Just like new cars, they had a long way to go before breaking down.

NOW

Even with good maintenance, careful planning and parts replacement, the mechanical and electrical equipment in pump stations is wearing out. The District is considering newer, more powerful pump models to keep pace with climate change.

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90+ PUMPS WHO'S COUNTING?

Pump Station Condition Assessment
Will Help the District Decide

Pump stations are a vital component of the District's flood protection system. Pump stations boost water from creeks, storm drains, and underground pipes in basins so it can flow to the San Francisco Bay.

The District recently completed a two-year assessment of its 20 pump stations and 90+ pumps. Because some stations are **50 or 60 years old**, this assessment is critical for future decisions about changes the District must make.

Full assessments were made of each stations' physical condition and operating performance. These assessments will be used to define improvement projects and update the District's annual operations and maintenance plan. Methods for increasing the use of clean energy and energy efficiency were included in order to support Alameda County's sustainability initiatives.



THEN

Most of the county's flood control infrastructure was built to contain **15-YEAR FLOOD EVENTS**. Statistically speaking, large storms produced less rainwater back then.

NOW

New mandates from USACE and FEMA require building or upgrading infrastructure to meet **100-YEAR FLOOD EVENTS**. Widening channels and removing constrictions helps handle heavier rainfall and sea level rise that may cause flood control channel blockage.

CHANNEL CHANGING

Laguna Creek will Channel More Stormwater Thanks to Improvements



Several locations along Laguna Creek are narrow and constrict water flow. Starting at the downstream sections of Laguna Creek near the Bay, the District is systematically making improvements that will enable the creek to handle 100-year stormwater flows.

In 2016 and 2017, the District designed a project with two phases. In the **first phase**, two new culverts will be installed under I-880, close to the Fremont Boulevard/Cushing Parkway exit. The project will allow more stormwater to flow under the I-880 freeway in Laguna Creek, thereby reducing flood risk in the surrounding area. To help pay for construction (which should begin in summer 2019), the District applied for and received a \$3 million dollar grant from FEMA.

In the **second phase**, about half a mile of the Laguna Creek flood control channel will be widened from about 1,200 feet downstream of the Cushing Parkway to Starboard Drive upstream. An additional reinforced concrete box culvert will also be installed at the Cushing Parkway crossing. The existing maintenance access roads on both sides of the channel will be lowered and channel walls will be constructed to enable increased stormwater conveyance. Construction is estimated to begin in June 2019 and completed in 2021.

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Zone 12

NORTHERN EXPOSURE

Northern Half of Zone 12
Master Plan Completed

With limited funding available to manage Alameda County's flood control system, the District must plan its capital improvement program wisely while offering the best value to Alameda County's taxpayers. Developing a master plan—which is based on detailed hydrologic and hydraulic analysis—enables the District to prioritize projects that have the greatest beneficial impact.

In 2017, the District created a master plan for the northern portions of Oakland and Emeryville (included in the District's "Zone 12," one of the largest of the District's nine flood control management zones). **Zone 12 encompasses 12 creeks and five pump stations and contains nearly 80 miles of flood control channels and pipes.**

The southern half of the Zone 12 master plan will be completed by 2020.



THEN

Flood control engineering was based on simple analytical tools and basic hydrologic models.

NOW

Powerful computers and mobile technologies, GIS systems, and complex 3-D hydraulic modeling are the cornerstones for District planning, design, construction, and maintenance.



THEN

Fewer environmental regulations made it easier to dredge flood control creeks and channels that clogged with sediment. It also cost less to dredge.

NOW

Permitting for sediment removal in creeks and channels is difficult due to restrictive regulations. Dredging is also very expensive—prohibitively so in larger waterways.

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A SLEW FROM THE SLOUGH

“The District removed... enough silt to fill nearly a thousand dump trucks.”

Stormwater carries eroded silt and sediment—sand, mud, organic matter, and stones—from the hills down to the San Francisco Bay. Tidal waters also carry silt and sediment from the Bay into the channels.

Over the years, so much silt has collected in the channels that during heavy rains, stormwater may overflow into nearby neighborhoods. Keeping the sloughs and creeks near the Bay clear and free-flowing is a major challenge for the District.

In 2015 and 2016 the District undertook major silt removal projects on two creeks in Oakland: **San Leandro Creek** and **Arroyo Viejo/Damon Slough**. Both of these creeks flow into the Bay near the Oakland Coliseum.

The District removed roughly 6,700 cubic yards of silt from San Leandro Creek and 7,100 cubic yards of silt from Arroyo Viejo and Damon Slough. That is enough silt to fill nearly a thousand dump trucks.

Often, wetland habitat is inadvertently disturbed during desilting. One requirement of the construction permit is to replace or restore those wetlands. In a heavily urbanized area like Oakland, finding space to create new wetlands is sometimes difficult.

To provide acreage for wetland restoration for both the San Leandro and Damon Slough projects, a maintenance access road to San Leandro Creek was narrowed by half—from 20 to 10 feet wide. By narrowing the road, roughly two acres of space were created for new wetlands. Salt grasses, rosemary, pickleweed, rushes, and other native vegetation were planted to match wetland habitat that sustains wildlife in the area.



THEN

The District focused solely on reducing flood risk. Concrete channels were built and some creeks were redirected into underground pipes beneath rapidly expanding urban development.

NOW

The District practices proactive environmental stewardship by daylighting creeks and restoring channels, wetlands, and trails when possible. People and wildlife reap the benefits of a healthy environment.

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NOT SO BAAAAAd*

Goats Hired for Vegetation Management



In 2016, the small pilot program that used grazing goats for vegetation control within creek rights-of-way was so successful that the District launched an even bigger pilot program between September 2017 and 2018.

The pilot program demonstrated that goat grazing is a cost-effective solution to reduce flood and fire risk caused by overgrown grasses and plants. Using goats for vegetation management also reduces the need for herbicides that may adversely affect water quality.

From 2015 to 2016, the District hired three goat herding companies to graze goats on about 105.5 acres in total. From 2017 to 2018, **goats grazed about 275 acres**—twice—along Alameda Creek, from the San Francisco Bay to the mouth of Niles Canyon. As the goats munched along the channel and its banks, maintenance crews were freed up to do other skilled projects.

While final results are being analyzed, if the outcome is favorable the District intends to incorporate goat grazing to complement, and possibly even replace, select aspects of its existing vegetation management program.

*Technically goats bleat. Sheep baa.



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FINANCIAL OVERVIEW FY 2017 & 2018

**WWW**

VISIT THE DISTRICT'S WEBSITE:

www.acfloodcontrol.org

FIND OUT MORE ABOUT THE DISTRICT'S REVENUE AND EXPENSES:

www.acfloodcontrol.org/about-the-district/financial-overview

LEARN ABOUT THE DISTRICT'S NINE FLOOD CONTROL
ZONES AND THEIR LOCATIONS:

www.acfloodcontrol.org/floodplain-management/neighborhood-zone

SEE PREVIOUS ANNUAL REPORTS:

www.acfloodcontrol.org/resources/publications/

HOW THE DISTRICT TRACKS REVENUES AND EXPENDITURES

The District undertakes a number of large and small projects every year to reduce the potential for local flooding, maintain flood control infrastructure, preserve the environment, and prepare for future needs.

Four District departments—Construction and Development, Engineering, Maintenance and Operations, and Management Services—work to meet these goals.

The figures and graphs on the following pages provide an overview of the District's sources of revenue and how the District allocates those funds toward flood protection and clean water in western Alameda County.

Generally, revenue generated within a flood control zone can only be spent within that zone. Therefore, revenue and expenditure figures are presented for each zone separately.



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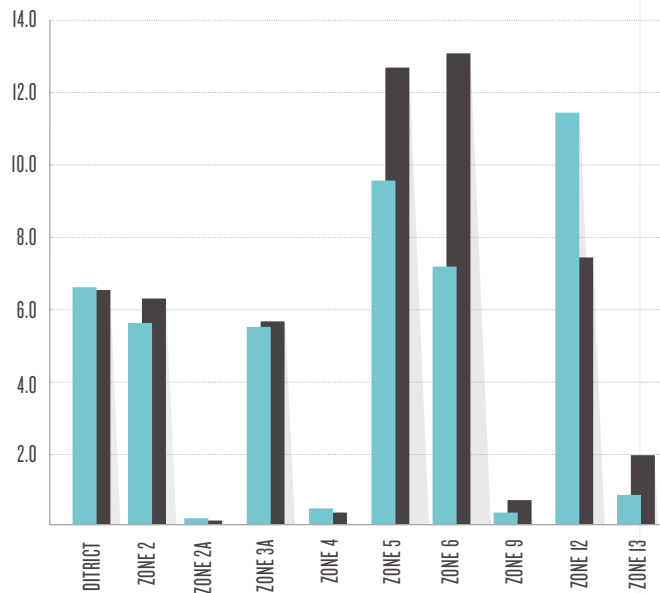
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FINANCIALS

2017 Districtwide and by Zone



Revenue and Expenditure by Districts [in millions]

Revenue 2017

Categories	District	2	2A	3A	4	5	6	9	12	13
Taxes	3,124,240	3,626,805	229,658	3,866,917	286,357	7,005,930	5,343,384	197,666	8,003,049	858,681
Aid from Gov Agencies	66,147	362,959	27,187	184,931	24,897	107,988	36,971	45,959	1,295,240	86,496
Use of Money	574,444	26,861	24,016	40,862	4,042	182,734	187,704	4,226	205,365	13,618
Assessment Revenue	48	1,650,929		1,490,810	216,732	2,133,052	1,667,682	235,059	2,049,925	-
Other Revenue	938,007	53,749		29,554	168	64,937	6501		29,462	8,570
Clean Water Program	2,080,380									
TOTALS:	6,783,266	5,721,302	280,861	5,613,074	532,196	9,494,641	7,242,242	482,910	11,583,041	967,365

Expenditures 2017

Categories	District	2	2A	3A	4	5	6	9	12	13
Info. Technology Improvements	2,222,658									
Admin & S' ervices	(4,117,592)	930,426	11,716	752,510	77,452	1,673,746	857,986	106,892	1,707,633	228,751
Constr & Dev Services	535,267	431,544	-	322,130	126,047	370,896	977,338	3,569	219,300	157,189
Engineering	3,817,279	2,917,914	160,121	2,201,529	51,715	7,679,082	9,743,309	8,619	1,507,365	1,327,467
M&O	1,604,166	1,868,890	7,746	2,366,585	108,218	2,808,612	1,391,345	632,687	3,117,081	220,382
Clean Water Program	2,587,608	183,552	2,051	152,789	18,458	240,975	182,526	19,483	215,198	90,836
Totals:	6,649,386	6,332,326	181,634	5,795,543	381,890	12,773,311	13,152,504	771,250	6,766,577	2,024,625



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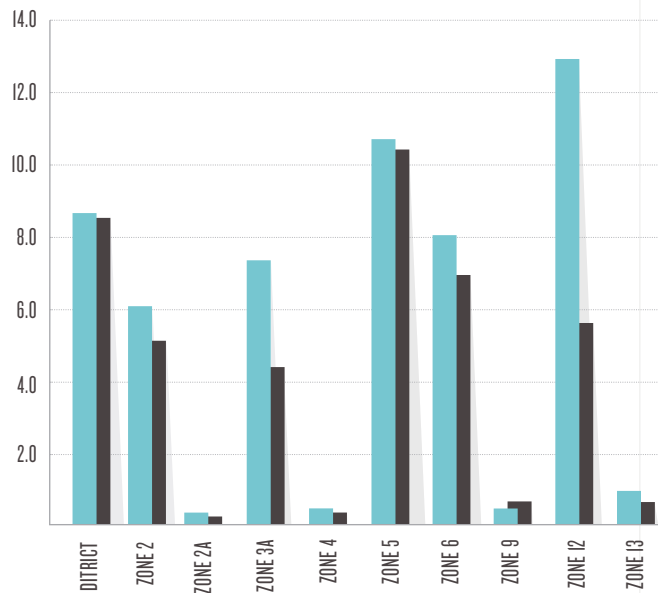
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FINANCIALS

2018 Districtwide and by Zone



Revenue and Expenditure by Districts [in millions]

Revenue 2017

Categories	District	2	2A	3A	4	5	6	9	12	13
Taxes	3,378,432	4,363,528	280,182	4,287,958	48,792	7,858,726	6,057,491	264,136	10,491,782	1,110,326
Aid from Gov Agencies	786,087			1,475,773	269,820	356,003	2,009			
Use of Money	737,167	60,953	40,457	95,637	8,563	328,599	287,469	5,315	407,486	20,187
Assessment Revenue	-	1,668,044		1,484,893	218,617	2,151,974	1,691,786	233,554	2,050,009	-
Other Revenue	1,090,470	49,902		4,770	69	21,283	26,140		5,607	
Clean Water Program	2,738,120									
TOTALS:	8,730,276	6,142,427	320,639	7,349,031	545,861	10,716,585	8,064,895	503,005	12,954,884	1,130,513

Expenditures 2018

Categories	District	2	2A	3A	4	5	6	9	12	13
Info.Technology Improvements	1,722,139									
Admin & Services	(3,427,811)	23,076	14,278	836,134	64,369	5,741,770	768,704	90,031	981,762	153,763
Constr & Dev Svcs	677,079	402,449	3,480	99,233	115,079	379,119	530,967	9,932	66,983	46,686
Engineering	6,052,681	2,206,421	223,730	1,096,588	-	1,598,040	3,998,431	282,223	1,454,648	206,356
M&O	1,028,845	2,429,712	8,105	2,426,251	113,538	2,558,765	1,643,093	353,793	3,188,521	225,381
Clean Water Program	2,571,584	163,850	2,716	133,071	15,389	165,660	165,660	18,105	187,111	70,196
Totals:	8,624,517	5,225,508	252,309	4,591,277	308,375	10,443,354	7,106,855	754,084	5,879,025	702,382



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CONTACT US

Alameda County Flood Control & Water Conservation District
399 Elmhurst Street
Hayward, CA 94544-1395
(510) 670-5480
www.acfloodcontrol.org

EMERGENCY

In case of emergency, dial 9-1-1

FOR ASSISTANCE

Main Phone (510) 670-5480
Email us at info@acpwa.org

FOR SANDBAGS

Unincorporated Alameda County (510) 670-5500
Hayward (510) 670-5500
Dublin (925) 803-7007

SERVICES

To schedule building inspections (510) 670-5440
To report illegal dumping of trash in creeks (510) 670-5500

Para Asistencia en Espanol
Por favor llame a Lupe Serrano (510) 670-5993
envíenos un correo electrónico info@acpwa.org

如有須要中文通話

須要廣東話或國語翻譯, 請撥電話找程小麗小姐
(510) 670-5716
或 judy@acpwa.org

**Fiscal Years
2017/2018**

