Report to the Community

# Stormwater Guardians and Environmental Stewards

Fiscal Years 2008 and 2009

Vital Flood Control and Environmental Restoration Projects

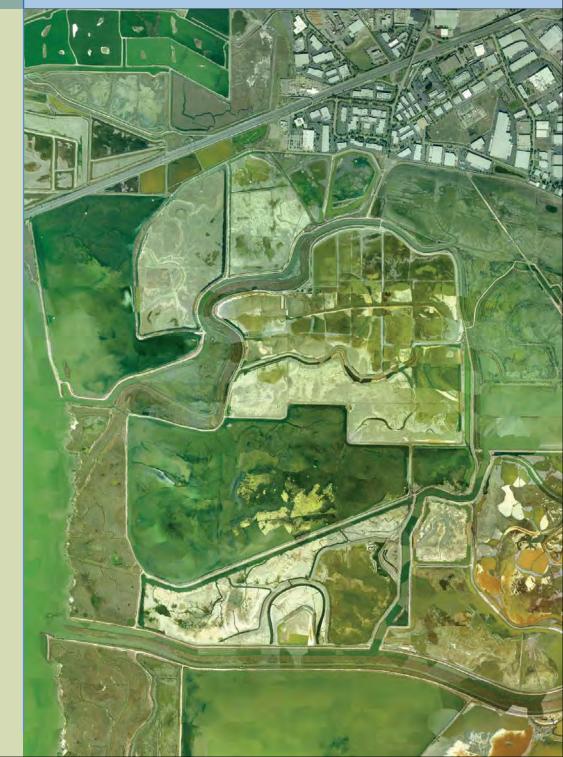




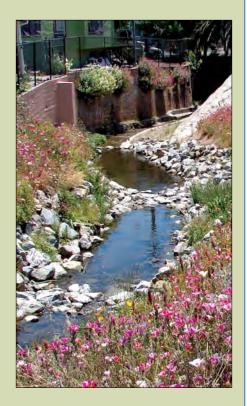
Photo to right: Line C Channel wildlife, Fremont.

Cover photo: Eden Landing Salt Ponds, Hayward, Union City, Fremont.



# Stormwater Guardians and Environmental Stewards

### Vital Flood Control and Environmental Restoration Projects





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Photos (top to bottom):
Peralta Creek Restoration, Oakland;
Line F-1 Sycamore Street Crossing
under construction, Newark;
Don Castro Reservoir, Hayward.



# Message from the General Manager



Daniel Woldesenbet, Ph.D., P.E. General Manager of the Alameda County Flood Control and Water Conservation District and Director of the Alameda County Public Works Agency

"The District is in a unique position to make a significant investment in our community's future by improving the county's levels of flood protection."

Our fiscal years 2008 and 2009 report, which covers July 1, 2007 to June 30, 2009, focuses on the proactive steps that the Alameda County Flood Control and Water Conservation District (the "District") has taken to continue to protect Alameda County residents and businesses from flooding.

After Hurricane Katrina caused devastation in New Orleans in 2005, the Federal Emergency Management Agency (FEMA) began a nationwide plan to ensure the safety of levees across the U.S. The extensive flooding that occurred in New Orleans is very unlikely to happen in the Bay Area; however, the District is taking precautions with safety top-most in importance.

In 2007, the District began an extensive review and evaluation of its levees to support and comply with FEMA's requirements. Levees throughout the District have been or are being studied and analyzed for design criteria and stability, as well as for ongoing operation and maintenance activities.

FEMA is using information from the District levee evaluations to update its Flood Insurance Rate Maps. The District is fast-tracking work on some levees, which must be strengthened to withstand a 100-year flood level event, so that residents living within the District's jurisdiction do not have to carry flood insurance. For more information about this program, be sure to read *The Outlook on Levees*, which appears in this report on page 21.

The District is in a unique position to make a significant investment in our community's future by improving the county's levels of flood protection. Over the past several years, we have been planning and designing improvements to our flood control infrastructure—our levees, channels, pump stations, and dams. We have also been setting aside and saving a portion of our assessment revenue to fund these improvements.

While the many tasks at hand are challenging, the District's upcoming flood control projects will infuse capital into the local economy through contracting for new services and creating new jobs. To stay up to date on developments in the coming months, please visit our website (www.acgov.org/pwa).

Sincerely,

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

# Who We Are and What We Do



San Lorenzo Creek wetlands, San Lorenzo (Zone 2).



Line A channel restoration to repair eroded bank, Hayward (Zone 4).



The District collaborated with the City of Fremont to enable public access and recreational use of Lake Elizabeth, Fremont (Zone 6).

The Alameda County Flood Control and Water Conservation District is tasked with flood control management to protect western Alameda County citizens from damaging floods. Specifically, the District plans, designs, constructs, and maintains flood control projects such as pumps, levees, channels, sloughs, and natural creeks. The District also assists in planning flood management controls in new subdivisions and other land developments.

As a steward of the environment, the District actively pursues the preservation of natural waterways and wetlands throughout its jurisdiction. The District works to enable greater public access to—and education

about—the beautiful and fragile environment in which we live. The District also enforces pollution control regulations to decrease contamination in Alameda County waterways, all of which eventually discharge to the San Francisco Bay.

#### Safequarding the Community for 60 Years

Although vast areas of Alameda County are situated in a floodplain, significant flooding within the District's jurisdiction is relatively rare. However, that wasn't always the case.

Until the 1950s and 1960s, repeated flooding was severe enough to close businesses and schools, disrupt utility and transportation services, and even take lives.

The District was created by the State Legislature in 1949 at the request of county

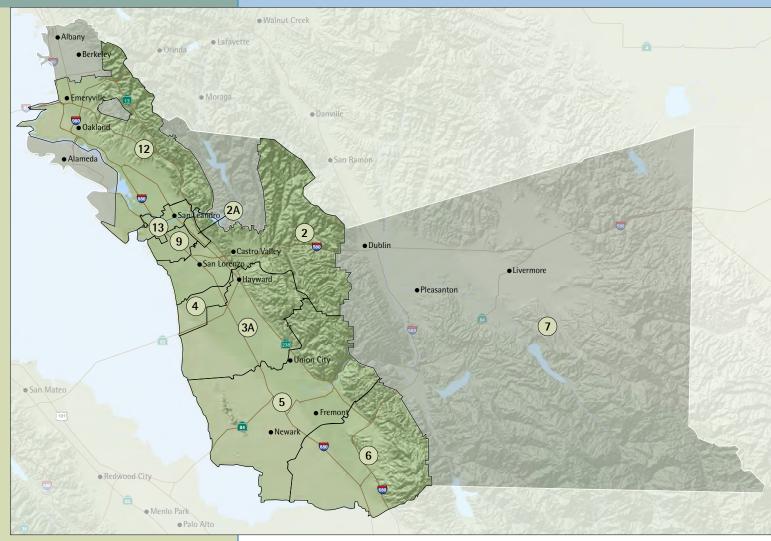


San Lorenzo Creek at Center Street in December 1955, Hayward (Zone 2).

residents. Since then, the District has designed and constructed flood control infrastructure across nine "zones" that roughly correspond to area watersheds and community boundaries.

Thanks to the District's continued work and planning, devastating floods have become a thing of the past. Areas that were once floodplains have become secure and desirable real estate for housing and commercial use. For more information about the District, please visit our website (www.acgov.org/pwa).

#### Flood Control Zones of Alameda County



Each year, the District undertakes a number of large and small projects to 1) reduce the potential for local flooding, 2) maintain the District's flood control infrastructure, 3) preserve the environment, and 4) prepare for each community's needs in the future. Four District departments—Development and Construction, Engineering and Environmental Services, 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 Alameda County. Generally, revenue generated within a flood control zone, including tax and benefit assessment monies received from properties within each zone, can only be spent within that zone. Therefore, revenue and expenditure figures are presented for each zone separately. Note that Zone 7, while part of the District, is managed by the Zone 7 Water Agency.

Cull Canyon Reservoir, Castro Valley (Zone 2).

#### **Revenues and Expenditures**

#### Revenue to pay for projects is received from several sources:

#### **Taxes**

The District receives a very small portion of the one percent countywide property tax annually. However, a large portion (nearly 40 percent) of those funds is reallocated by law to the state's Educational Revenue Augmentation Fund (ERAF), not to flood control projects.

#### **Aid from Government Agencies**

The District applies for and receives federal and state grants for flood control and water quality projects.

#### **Use of Money**

The District receives interest on cash and emergency reserves, and rental revenue from District-owned property.

#### **Assessment Revenue**

The District receives property assessments moneys based on land use category and anticipated stormwater runoff from the property. These assessments have not increased since the early 1990s and cannot be increased without a vote of the community, in accordance with Proposition 218.

#### Other Revenue

Developers and builders pay permitting fees to the District. This category also includes other small sources of revenue.

#### Clean Water Program

Fourteen cities within the County of Alameda, along with the Zone 7 Water Agency, provide funding to the Alameda Countywide Clean Water Program.

#### Expenditures fall into the following categories:

#### **Information Technology Improvements**

Hardware and software purchases and support for District operations.

#### Administration

Human resources, accounting, and other office services.

#### **Development Services**

Permitting and technical assistance for new developments in unincorporated areas.

#### **Engineering and Construction**

Design and construction of new flood control structures or upgrades to existing facilities.

#### **Maintenance and Operations**

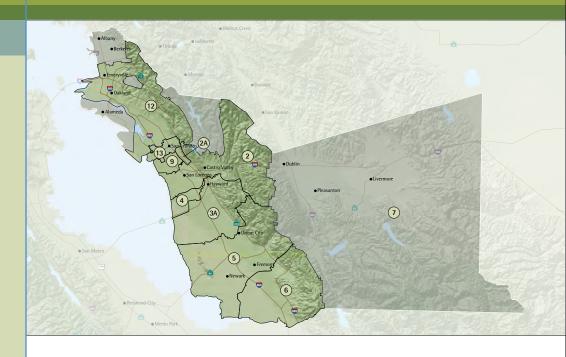
Maintenance of the District's vast inventory of infrastructure, and operation of pump stations and other flood control systems.

#### Clean Water Program

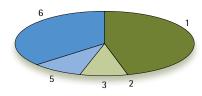
Implementation of federal and state stormwater discharge permit requirements.

### Districtwide

From an accounting perspective, "Districtwide" covers general revenues and expenditures that apply to all zones.

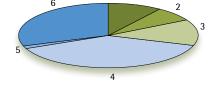


#### FY2008



#### Revenues

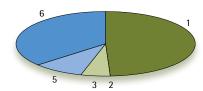
1	Taxes	2,369,430
2	Aid from Government Agencies	412
3	Use of Money	435,203
4	Assessment Revenue	0
5	Other Revenue	472,052
6	Clean Water Program	1,866,383
	TOTAL	\$ 5,143,480



#### Expenditures

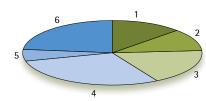
1	Information Tech Improvements	572,502
2	Administration	419,665
3	Development Services	768,219
4	<b>Engineering and Construction</b>	2,227,888
5	Maintenance and Operations	73,164
6	Clean Water Program	1,754,844
	TOTAL	\$ 5,816,282

#### FY2009



#### Revenues

- 11	CVCITUCS	
1	Taxes	2,436,389
2	Aid from Government Agencies	319
3	Use of Money	261,272
4	Assessment Revenue	0
5	Other Revenue	440,829
6	Clean Water Program	1,794,707
	TOTAL	\$ 4,933,516



1	Information Tech Improvements	871,453
2	Administration	733,979
3	Development Services	1,186,481
4	Engineering and Construction	1,951,254
5	Maintenance and Operations	395,976
6	Clean Water Program	1,546,316
	TOTAL	\$ 6,685,459

#### **ZONE 2 AT A GLANCE**

Area: 40,390 Acres Natural Creeks: 81 Miles Earth Channels: 5 Miles Concrete Channels: 12 Miles Underground Pipes: 44 Miles Improved Creeks: 2 Miles

#### **COMMUNITIES SERVED**

Castro Valley, San Lorenzo, portions of the Cities of Hayward and San Leandro, and the communities of Ashland and Cherryland

#### **CREEKS**

Bolinas, Castro Valley, Chabot, Coyote, Crow, Cull, Eden, Hollis, Norris, Palomares, San Lorenzo, and Sulphur Creeks

#### **DRAINAGE CANALS**

Bockman and Estudillo

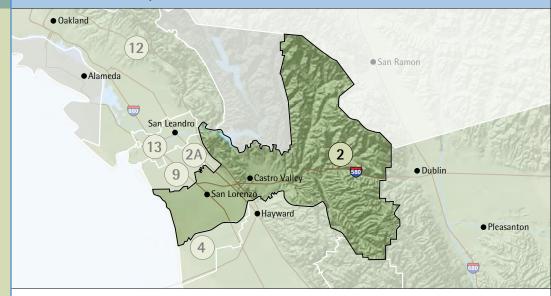
#### **PUMP STATIONS**

Roberts Landing and Sulphur Creek

#### **RESERVOIRS**

Cull Canyon and Don Castro

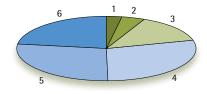
#### Alameda County Flood Control Zone 2



# FY2008 5 1

#### Revenues

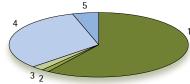
1 Taxes	2,988,399
2 Aid from Government Agencies	3,763
3 Use of Money	167,222
4 Assessment Revenue	1,606,593
5 Other Revenue	260,332
6 Clean Water Program	0
TOTAL	\$ 5,026,309



#### **Expenditures**

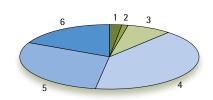
1	Information Tech Improvements	108,695
2	Administration	157,037
3	Development Services	523,328
4	<b>Engineering and Construction</b>	1,088,032
5	Maintenance and Operations	1,035,330
6	Clean Water Program	848,948
	TOTAL	\$ 3,761,370





#### Revenues

1	Taxes	3,026,381
2	Aid from Government Agencies	62,616
3	Use of Money	113,306
4	Assessment Revenue	1,630,933
5	Other Revenue	238,501
6	Clean Water Program	0
	TOTAL	\$ 5,071,737



1	Information Tech Improvements	101,251
2	Administration	50,459
3	Development Services	367,275
4	Engineering and Construction	1,856,496
5	Maintenance and Operations	1,347,541
6	Clean Water Program	801,093
	TOTAL	\$ 4,524,115

### Alameda County Flood Control Zone 2A

#### **ZONE 2A AT A GLANCE**

Area: 329 Acres

Natural Creeks: 3 Miles

Earth Channels: Less than 1 Mile Concrete Channels: 3 Miles Underground Pipes: 33 Miles

#### **COMMUNITIES SERVED**

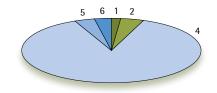
Portions of the City of San Leandro



# FY2008 5

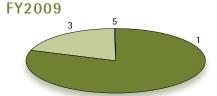
#### Revenues

1	Taxes	210,780
2	Aid from Government Agencies	0
3	Use of Money	89,672
4	Assessment Revenue	0
5	Other Revenue	100
6	Clean Water Program	0
	TOTAL	\$ 300,552



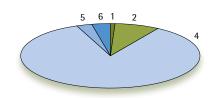
#### **Expenditures**

1	Information Tech Improvements	679
2	Administration	1,752
3	Development Services	0
4	Engineering and Construction	35,103
5	Maintenance and Operations	1,452
6	Clean Water Program	1,203
	TOTAL	\$ 40,189



#### Revenues

1	Taxes	217,703
2	Aid from Government Agencies	0
3	Use of Money	53,019
4	Assessment Revenue	0
5	Other Revenue	350
6	Clean Water Program	0
	TOTAL	\$ 271,072



1	Information Tech Improvements	566
2	Administration	4,852
3	Development Services	0
4	Engineering and Construction	51,530
5	Maintenance and Operations	1,667
6	Clean Water Program	1,907
	TOTAL	\$ 60.522

#### **ZONE 3A AT A GLANCE**

Area: 19,700 Acres
Natural Creeks: 21 Miles
Earth Channels: 20 Miles
Concrete Channels: 5 Miles
Underground Pipes: 43 Miles

#### **COMMUNITIES SERVED**

Portions of the Cities of Hayward and Union City, and the communities of Alvarado, Baumberg, Fairview, Highland, Hillview, Mt. Eden, Tennyson, and Valle Vista

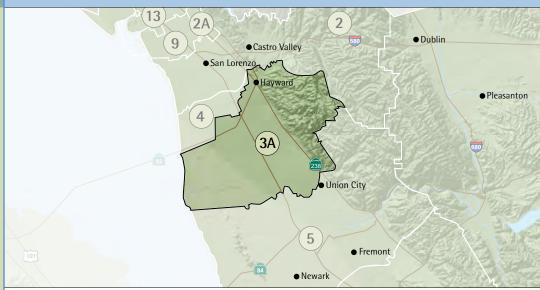
#### **CREEKS**

Mt. Eden, Old Alameda, Ward, and Zeile Creeks

#### **PUMP STATIONS**

Alvarado, Ameron, Besco, Eden Landing, Eden Shores, Industrial, Ruus Road, Stratford, and Westview

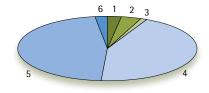
### Alameda County Flood Control Zone 3A



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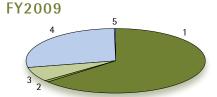
#### Revenues

1 Taxes	3,254,898
2 Aid from Government Agencies	29,738
3 Use of Money	636,899
4 Assessment Revenue	1,449,695
5 Other Revenue	13,837
6 Clean Water Program	0
TOTAL	\$ 5,385,067



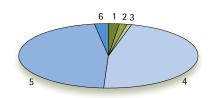
#### **Expenditures**

1	Information Tech Improvements	s 93,070
2	Administration	134,964
3	Development Services	31,458
4	<b>Engineering and Construction</b>	1,571,703
5	Maintenance and Operations	1,668,626
6	Clean Water Program	74,513
	TOTAL	\$ 3 574 334



#### Revenues

1 Taxes	3,323,144
2 Aid from Government Agencies	44,688
3 Use of Money	381,536
4 Assessment Revenue	1,457,429
5 Other Revenue	6,916
6 Clean Water Program	0
TOTAL	\$ 5,213,713



1	Information Tech Improvements	82,585
2	Administration	52,277
3	Development Services	24,784
4	Engineering and Construction	1,784,774
5	Maintenance and Operations	1,792,522
6	Clean Water Program	86,706
	TOTAL	\$ 3,823,648

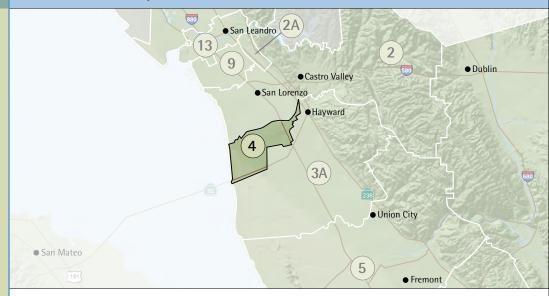
#### **ZONE 4 AT A GLANCE**

Area: 2,960 Acres Natural Creeks: 21 Miles Earth Channels: 20 Miles Concrete Channels: 5 Miles Underground Pipes: 43 Miles

#### **COMMUNITIES SERVED**

Portions of the City of Hayward, and the communities of Mohrland and Russell City

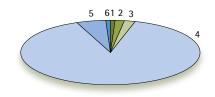
### Alameda County Flood Control Zone 4



# FY2008

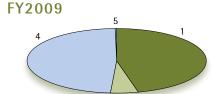
#### Revenues

1	Taxes	198,801
2	Aid from Government Agencies	3,600
3	Use of Money	79,597
4	Assessment Revenue	204,290
5	Other Revenue	4,594
6	Clean Water Program	C
	TOTAL	\$ 490,882



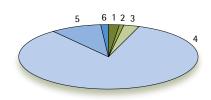
#### **Expenditures**

1	Information Tech Improvements	18,342
2	Administration	28,768
3	Development Services	30,491
4	Engineering and Construction	1,525,897
5	Maintenance and Operations	91,451
6	Clean Water Program	10,363
	TOTAL	\$ 1,705,312



#### Revenues

1	Taxes	193,200
2	Aid from Government Agencies	0
3	Use of Money	21,452
4	Assessment Revenue	202,549
5	Other Revenue	568
6	Clean Water Program	0
	TOTAL	\$ 417,769



	(penareares	
1	Information Tech Improvement	s 20,363
2	Administration	10,368
3	Development Services	27,364
4	Engineering and Construction	850,560
5	Maintenance and Operations	92,536
6	Clean Water Program	13,549
	TOTAL	\$ 1,014,740

#### **ZONE 5 AT A GLANCE**

Area: 45,440 Acres Natural Creeks: 37 Miles Earth Channels: 35 Miles Concrete Channels: 7 Miles Underground Pipes: 49 Miles Improved Creeks: 9 Miles

#### **COMMUNITIES SERVED**

Portions of the Cities of Fremont, Newark, and Union City, and the communities of Centerville, Decoto, and Niles

#### **CREEKS**

Alameda, Beard, Canyon Heights, Crandall, Dry, Old Alameda, Patterson, and Plummer Creeks, and Newark and Mowry Sloughs

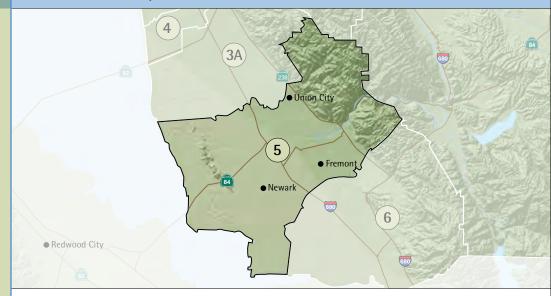
#### **PUMP STATIONS**

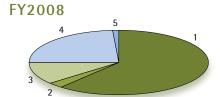
J2, J3, and Quail Run

#### **EDUCATIONAL CENTER**

Tule Ponds at Tyson Lagoon

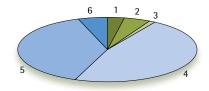
#### Alameda County Flood Control Zone 5





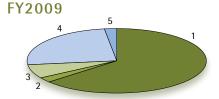


1	Taxes	5,358,279
2	Aid from Government Agencies	227,968
3	Use of Money	969,929
4	Assessment Revenue	2,083,365
5	Other Revenue	90,706
6	Clean Water Program	0
	TOTAL	\$ 8.730.247



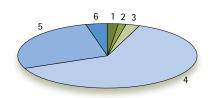
#### **Expenditures**

1	Information Tech Improvements	151,494
2	Administration	228,607
3	Development Services	58,348
4	<b>Engineering and Construction</b>	2,275,272
5	Maintenance and Operations	1,881,276
6	Clean Water Program	251,377
	TOTAL	\$ 4,846,374



#### Revenues

1 Taxes		5,425,045
2 Aid from Gov	ernment Agencies	213,673
3 Use of Money	,	588,149
4 Assessment R	evenue	2,102,820
5 Other Revenu	e	166,377
6 Clean Water I	Program	0
TOTAL		\$ 8,496,064



1	Information Tech Improvements	130,099
2	Administration	89,563
3	Development Services	152,776
4	Engineering and Construction	3,923,410
5	Maintenance and Operations	1,718,550
6	Clean Water Program	240,023
	TOTAL	\$ 6,254,421

#### **ZONE 6 AT A GLANCE**

Area: 27,400 Acres
Natural Creeks: 43 Miles
Earth Channels: 20 Miles
Concrete Channels: 6 Miles
Underground Pipes: 14 Miles

#### **COMMUNITIES SERVED**

Portions of the City of Fremont, including the communities of Irvington, Mission San Jose, and Warm Springs

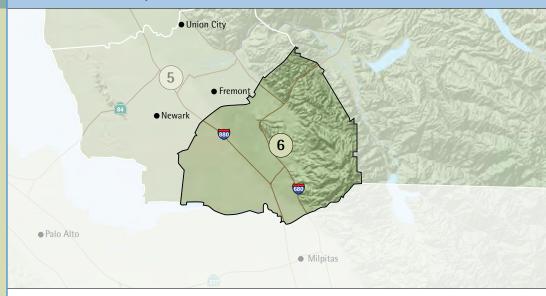
#### **CREEKS**

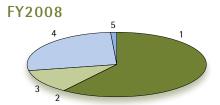
Agua Caliente, Agua Fria, Canada Del Aliso, Coyote, Cress, Laguna, Mission, Morrison, Scott, and Toroges Creeks

#### **RESERVOIRS**

Lake Elizabeth

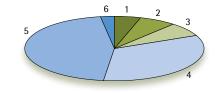
#### Alameda County Flood Control Zone 6





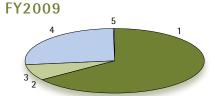
#### Revenues

1	Taxes	3,768,144
2	Aid from Government Agencies	1,189
3	Use of Money	751,073
4	Assessment Revenue	1,690,560
5	Other Revenue	53,096
6	Clean Water Program	0
	TOTAL	\$ 6,264,062



#### **Expenditures**

1	Information Tech Improvements	116,168
2	Administration	165,151
3	Development Services	170,880
4	Engineering and Construction	820,455
5	Maintenance and Operations	1,119,470
6	Clean Water Program	56,903
	TOTAL	\$ 2,449,027

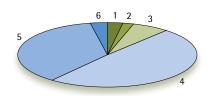


#### Revenues

TOTAL

	laxes	3,992,158
2	2 Aid from Government Agencies	922
3	3 Use of Money	478,253
4	Assessment Revenue	1,647,066
į	Other Revenue	1,899
(	Clean Water Program	0

\$ 6,120,298



1	Information Tech Improvements	83,716
2	Administration	57,630
3	Development Services	188,200
4	Engineering and Construction	1,412,648
5	Maintenance and Operations	1,046,654
6	Clean Water Program	84,822
	TOTAL	\$ 2.873.670

# Alameda County Flood Control Zone 9

#### **ZONE 9 AT A GLANCE**

Area: 2,482 Acres Natural Creeks: 3 Miles

Earth Channels: Less Than 1 Mile Concrete Channels: 3 Miles Underground Pipes: 33 Miles

#### **COMMUNITIES SERVED**

Portions of the City of San Leandro

#### **PUMP STATIONS**

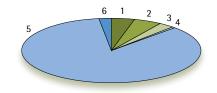
Belvedere, D1, F, and H



# FY2008

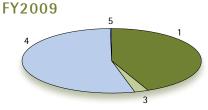
#### Revenues

1	Taxes	190,159
2	Aid from Government Agencies	0
3	Use of Money	13,984
4	Assessment Revenue	241,276
5	Other Revenue	575
6	Clean Water Program	0
	TOTAL	\$ 445,995



#### **Expenditures**

1	Information Tech Improvements	11,549
2	Administration	13,519
3	Development Services	6,779
4	Engineering and Construction	1,615
5	Maintenance and Operations	226,886
6	Clean Water Program	5,176
	TOTAL	\$ 265,524

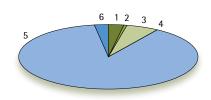


#### Revenues

TOTAL

1	Taxes	191,782
2	Aid from Government Agencies	0
3	Use of Money	10,644
4	Assessment Revenue	238,809
5	Other Revenue	199
6	Clean Water Program	0

\$ 441,434



1	Information Tech Improvements	9,050
2	Administration	1,992
3	Development Services	17,227
4	Engineering and Construction	431
5	Maintenance and Operations	271,163
6	Clean Water Program	7,046
	TOTAL	\$ 306.909

#### **ZONE 12 AT A GLANCE**

Area: 51,200 Acres
Natural Creeks: 17 Miles
Earth Channel: 4 Miles
Concrete Channels: 7 Miles
Underground Pipes: 49 Miles
Improved Creeks: 1 Mile

#### **COMMUNITIES SERVED**

The Cities of Emeryville and Oakland, and portions of the City of San Leandro

#### **CREEKS**

Arroyo Viejo, Courtland, Elmhurst, Glen Echo, Lion, Peralta, Pleasant Valley, San Leandro, Sausal, Stonehurst, Temescal, and Trestle Glen Creeks

#### **PUMP STATIONS**

Ettie, Hardy, Lake Merritt, McKillop, and Temescal

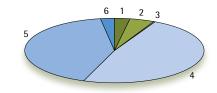
#### Alameda County Flood Control Zone 12



# FY2008 5 1

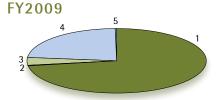
#### Revenues

1	Taxes	6,098,394
2	Aid from Government Agencies	14,115
3	Use of Money	544,539
4	Assessment Revenue	2,042,862
5	Other Revenue	60,840
6	Clean Water Program	0
	TOTAL	\$ 8,760,750



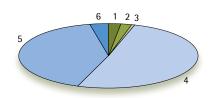
#### **Expenditures**

1	Information Tech Improvements	173,912
2	Administration	248,256
3	Development Services	18,033
4	<b>Engineering and Construction</b>	2,803,251
5	Maintenance and Operations	2,429,457
6	Clean Water Program	145,089
	TOTAL	\$ 5,817,998



#### Revenues

1	Taxes	6,406,548
2	Aid from Government Agencies	1,254
3	Use of Money	349,829
4	Assessment Revenue	2,040,138
5	Other Revenue	6,275
6	Clean Water Program	C
	TOTAL	\$ 8,804,044



1	Information Tech Improvement	134,059
2	Administration	113,639
3	Development Services	36,374
4	Engineering and Construction	2,943,254
5	Maintenance and Operations	2,395,589
6	Clean Water Program	182,939
	TOTAL	\$ 5.805.854

#### **ZONE 13 AT A GLANCE**

Area: 3,200 Acres
Natural Creeks: 3 Miles

Earth Channels: Less than 1 Mile Concrete Channels: 3 Miles Underground Pipes: 33 Miles

#### **COMMUNITIES SERVED**

Portions of the City of San Leandro

#### **CREEKS**

San Leandro Creek

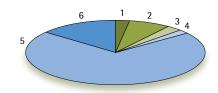
### Alameda County Flood Control Zone 13





#### Revenues

1	Taxes	704,028
2	Aid from Government Agencies	0
3	Use of Money	347,249
4	Assessment Revenue	0
5	Other Revenue	1,198
6	Clean Water Program	0
	TOTAL	\$ 1,052,475



#### **Expenditures**

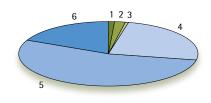
1	Information Tech Improvements	5,435
2	Administration	14,653
3	Development Services	5,423
4	Engineering and Construction	3,983
5	Maintenance and Operations	141,207
6	Clean Water Program	28,091
	TOTAL	\$ 198,792

#### FY2009



#### Revenues

1 Taxes	711,174
2 Aid from Government Agencies	0
3 Use of Money	200,604
4 Assessment Revenue	0
5 Other Revenue	0
6 Clean Water Program	0
TOTAL	\$ 911,778



	•	
1	Information Tech Improvements	3,960
2	Administration	7,856
3	Development Services	1,556
4	Engineering and Construction	87,135
5	Maintenance and Operations	191,421
6	Clean Water Program	63,923
	TOTAL	\$ 355,851

#### Zone 2



The San Lorenzo Creek watershed traverses almost all of Zone 2. See map (opposite) for more detail.



Don Castro Reservoir, Hayward (Zone 2).

#### 21st Century Floodplain Mapping

The San Lorenzo Creek watershed in Zone 2 is one of the largest in the District. The watershed is a big basin with large and small creeks and flood control channels that carry stormwater runoff from the Castro Valley Hills to San Lorenzo Creek, which drains to the San Francisco Bay. Several areas within the watershed have the potential to flood from a large storm.

In 2003, the District received new data from a U.S. Geological Survey (USGS) hydrology study indicating an increase in stormwater flowing through flood control channels within the San Lorenzo Creek watershed. With public safety in mind, the District began its own hydrologic study to verify the USGS results.

Concurrent with the District's study, the Federal Emergency Management Agency (FEMA) announced that it was updating and digitizing its Flood Insurance Rate Maps (FIRMs) for the area. FEMA's new flood maps indicated that many thousands of homes and businesses were in a floodplain, which would require property owners to carry flood insurance.



Map of San Lorenzo Creek watershed, including the 14 catchment areas within its boundaries. San Lorenzo and Castro Valley (Zone 2).

Knowing the limitations of the FEMA study, the District applied more sophisticated hydraulic modeling and analysis to study stormwater flow and flood channel capacity. The results were close to the numbers provided by the USGS—in fact, even more exact.

In FY2008 and 2009, with these results, the District was able to convince FEMA to replace the data in its flood maps with the District's findings. This greatly reduced the number of properties that may have required flood insurance. However, certain properties are still vulnerable.



Don Castro Reservoir, Hayward (Zone 2).





San Lorenzo Creek in April 1958, San Lorenzo (Zone 2).

#### PROACTIVE STORM WATCHERS

The Alameda County Flood Control District has proactive and advanced flood control management systems. During a storm event, the District monitors 60 rain gage stations, 50 stream gage stations, and 22 pump stations that are all transmitting live data over the Internet. These data allow the District to better manage the stormwater as it flows through flood control channels.

What is clear from both the USGS and District studies is that the flood control infrastructure in both the San Lorenzo Creek and Castro Valley Creek watersheds is inadequate to carry large stormwater flows.

The District is now studying the best and most cost-effective solutions to provide greater flood protection to properties within the



San Lorenzo Creek upstream and downstream of Interstate 880 is vulnerable to flooding, San Lorenzo (Zone 2).

watershed. One possible solution is to make modifications to Don Castro Reservoir so that it can manage more stormwater—modifications that could allow water to move more efficiently and naturally through the reservoir. In addition, the District will likely need to construct floodwalls in several locations along San Lorenzo Creek.

There is no simple or inexpensive fix. Tens of millions of dollars will likely be required to make the improvements.

In the meantime, FEMA requires property owners with federally secured mortgages within the new flood boundaries to carry flood insurance (effective August 1, 2009). For more information about flood insurance, visit www.floodsmart.org or contact the National Flood Insurance Program (NFIP) at (800) 638-6620.



Many properties within San Lorenzo are in a FEMA-designated floodplain (Zone 2).

#### Zone 2



#### Cull Canyon Dam and Reservoir Update

Cull Canyon Dam and Reservoir were built in the Castro Valley Hills in the 1960s as part of a state water project. Forty years has taken its toll. The 55-foot earthen dam is now in need of repair and restoration.

Originally, Cull Canyon Reservoir was 30 feet deep. Despite regular dredging, the reservoir is now only about 6 feet deep at the lowest point. There is so much silt now that it may be too expensive to dredge. The reservoir no longer holds as much stormwater as it was initially designed to hold.

In FY2005, California's Division of Safety of Dams (DSOD) began a seismic safety study along the Hayward Fault. As part of its study, the DSOD asked the District to evaluate the seismic stability of its dams at both Cull Canyon and Don Castro Reservoirs.





The Cull Canyon Reservoir spillway releases excess stormwater, Castro Valley (Zone 2).

District engineers concluded that the Cull Canyon Dam would be unstable during a major earthquake. Until a permanent solution is found, the water level behind the dam has been lowered for public safety.

The District is exploring long- and short-term alternatives. There is no easy fix. Ultimately, the solution will depend on public input, available funding, and effective flood protection for public safety.

The good news is that the swim area at Cull Canyon Regional Recreation Area, which is operated by the East Bay Regional Park District, will remain unaffected.



Cull Canyon Dam at the intersection of Heyer Avenue and Cull Canyon Road, Castro Valley (Zone 2).

#### Zone 2





A segment of Castro Valley Creek, once underground, was restored to natural habitat, Castro Valley (Zone 2).

#### Creekside Trail Leads to New Castro Valley Library

In FY2007 and 2008, the District completed the restoration of a 300-foot-long section of Castro Valley Creek just upstream of Norbridge Avenue. The restored creek provides improved flood protection to the area, minimizes creek bank erosion, improves water quality, and provides wildlife habitat.

In FY2009, the District finished the design of and completed most of the construction for the second phase of the project. An additional 600 feet of the creek have been further restored by replacing non-native vegetation with native plants. A creekside trail now connects East Castro Valley Boulevard and Norbridge Avenue, and a footbridge connects the path with the new library.

Two local artists designed a creative rustic fence to separate the path and the creek. New viewing benches along the beautifully landscaped area have been added. Interpretive signs and an information kiosk provide more details about the creek's natural community.

A playground (tot lot) near the library is being built by the Hayward Area Recreation and Park District. Once it is finished, visitors can enjoy an inviting and attractive area for a quiet walk or a creekside classroom field trip.



A footbridge (made from a recycled railroad car) now connects the creekside trail from the new playground (tot lot) with the new Castro Valley Library, Castro Valley (Zone 2).

#### Zone 2



#### New Sparkle in Downtown Hayward

San Lorenzo Creek is one of western Alameda County's primary waterways, carrying water from the East Bay hills above Castro Valley through downtown Hayward, to the San Francisco Bay. The stretch between Foothill Boulevard and 6th Street in Hayward is a natural channel. In 2005, the Flood Control District undertook protective measures to stabilize creek banks and retaining walls along the creek.

In 2008, a coalition of agencies—including the City of Hayward, the Hayward Area Recreation and Park District, the National Park Service, the Alameda County Resource Conservation District, and the District—came together to restore the creekside trail along San Lorenzo Creek and beautify the area near City Center Drive.

Construction followed in summer 2009. Two staircases and overlooks now enable visitors to access peaceful views. A series of interpretive signs explain the area's history and the importance of San Lorenzo Creek as a flood control channel. Existing non-native vegetation was replaced with native plants to restore the creek's natural wildlife habitat.

People from nearby Hayward Senior Center and Hayward High School—and other residents and visitors—delight in the park-like natural setting. Eventually, this creekside trail may be part of a 12-mile-long pedestrian and bicycle pathway linking San Francisco Bay to the Hayward hills ridge trails.





The refurbished trail with interpretive signage along a segment of San Lorenzo Creek near Hayward's City Center, Hayward (Zone 2).

#### Zones 2, 5, and 6







#### The Outlook on Levees

In the aftermath of levee failures in New Orleans from Hurricane Katrina, FEMA instituted a nationwide plan for greater levee safety. Since August 2007, the District has been re-evaluating and analyzing its many miles of levees according to FEMA requirements.



A section of the Sulphur Creek levee, Hayward (Zone 2).

During FY2007 and 2008, the District conducted sub-surface field exploration; performed soil analysis and stability testing; pursued other technical analyses, including hydrolysis; and developed operation and maintenance plans for three levees in particular:

**Zone 2:** The Sulphur Creek levee next to the Sulphur Creek pump station in Hayward.

**Zone 5:** An 18-mile levee along Alameda Creek in Fremont, between Mission Boulevard and the San Francisco Bay.

**Zone 6:** The King and Lyons creeks levees in Fremont.

The information obtained from these studies has been included in FEMA's new flood insurance rate maps that became effective in August 2009.

Properties behind levees that have not been evaluated (or levees that do not meet 100-year storm protection levels) appear in special flood hazard zones on the FEMA maps. Owners of properties located within the FEMA designated 100-year floodplain maps are required to carry flood insurance.

The District must still evaluate the remaining levees in all zones. The levee evaluations will not be fully complete until FY2013.

FEMA has also undertaken a study of the impact that coastal tides and rising sea levels may have on Bay Area shorelines, creeks, and levees. The study, which will be completed within the next several years, may have further implications that are not known at this time.



A section of an 18-mile levee along Alameda Creek, Fremont (Zone 5).



The King and Lyons levee is the light tan vertical line on the left, Fremont (Zone 6).

#### Zone 5



#### **Better Stormwater Flow**



A new box culvert was added parallel to the existing box culvert along Line F-1 at the Cherry Street crossing, Newark (Zone 5).

In FY2008 and 2009, along Line F-1 in Newark, the District focused on a number of preventative measures to improve flood control at Cherry Street, Sycamore Street, and Filbert Street. Construction for all three projects began in August 2008 and was completed in November 2008.

At Cherry Street near the Union Pacific Railroad (UPRR), a new 7-foot by 5-foot concrete box culvert was added parallel to the existing box culvert. With the additional box culvert, the channel will convey a greater volume of stormwater runoff. The project cost \$550,000.



A box culvert was added on to the existing box culvert along Line F-1 at the Sycamore Street crossing, Newark (Zone 5).

A similar project (costing \$415,000) was built at Sycamore Street near the UPRR. Here a 7-foot by 6-foot concrete box culvert was added on to the existing box culvert to increase flood control conveyance capacity.

An unused box culvert along an abandoned portion of Filbert Street near Central Avenue had required District maintenance for many years. To reduce expenses while improving flood control, the District removed the box culvert—roughly 150 feet long—thus converting Line F-1 to an earthen channel. The District also coordinated with the Alameda County Water District and Pacific Gas and Electric to relocate a water line and gas line in the area. The project cost \$200,000.

The improvements to Line F-1 at these three locations comply with the newly updated FEMA floodplain criteria.



To reduce maintenance, a box culvert was removed on an abandoned section of Filbert Street along Line F-1, Newark (Zone 5).

#### Zones 3A, 5, and 6







#### **Eden Landing Salt Ponds Restoration**

At 15,100 acres, the South Bay Salt Pond Restoration Project is the largest wetlands restoration ever undertaken on the West Coast. Commercial salt ponds will be reverted to natural marsh, mudflat, and other managed wetland habitats. Improved flood protection and recreational use are some of the many benefits of this project.

As part of the salt pond project coalition, the District is helping to restore approximately 5,500 acres of Eden Landing Ponds in Hayward, and has provided the design for restoration. Existing salt pond levees and dikes will be removed to allow water to flow naturally in and out of the low-lying wetlands. The District has also conducted studies to learn more about Bay tidal effects on the ponds, and how Old Alameda Creek and the Alameda Creek federal project will be integrated with the creation of new wetlands.



Former commercial salt ponds at Eden Landing will be altered to create marshes and wetlands, Hayward (Zone 3A), Union City (Zones 3A and 5), and Fremont (Zones 5 and 6).

In December 2007, the long-awaited Environmental Impact Report (EIR) for the project was approved. Required by state and federal law, the EIR outlines the long-term plan for rebuilding and restoring a functioning salt marsh wetland habitat. The EIR also addressed the need for a new "inboard levee" between the newly restored wetlands and Hayward shoreline communities. The new levee is needed because existing levees closer to the Bay will be removed or modified to allow tidal circulation and accommodate sea level rise.

In spring 2010, the District will begin work on Phase One of the project to restore 630 acres of tidal marsh habitat along the Bay by re-establishing tidal flow to former salt ponds within the California Department of Fish and Game's Eden Landing Ecological Reserve at the eastern end of the San Mateo Bridge. The Coastal Conservancy and the Flood Control District worked together to secure \$7.1 million to fund construction.



Restoration of the salt ponds at Eden Landing will provide close to 1,000 acres of natural habitat, Hayward (Zone 3A), Union City (Zones 3A and 5), and Fremont (Zones 5 and 6).

#### Zone 6



#### Levee Gets a Lift

One of the District's drainage facilities in Fremont is an earthen channel that serves as a conduit for stormwater and has a levee to prevent flooding. It runs parallel to (and west of) Interstate 880 just north of the Alameda-Santa Clara county line.

As part of a levee evaluation process mandated by the Federal Emergency Management Agency (FEMA), the District developed a design to improve the existing levee. Roughly 3,000 feet of the levee's base will be stabilized. The levee's height will



The new reinforced floodwall will protect residences and businesses in the area from flooding, Fremont (Zone 6).

be raised by 1 to 3 feet, and an additional 2,000 feet of new floodwall will be built, extending the total length of the levee to 5,000 feet.

When construction is complete, businesses protected by the levee in this commercial and industrial area will maintain the current level of 100-year flood protection. The District is in the process of evaluating—and improving, if necessary—all of the flood control levees throughout western Alameda County.



In summer, only a small amount of water flows through the Line C channel, making it an ideal time to construct a new floodwall, and stabilize and heighten the levee along the channel banks, Fremont (Zone 6).

NOAH BERG

#### Zone 6





Sabercat Creek flows through the Mission San Jose neighborhood of Fremont (Zone 6).

#### Relics, Restoration, and Trails

Sabercat Creek is one of the last natural riparian areas in Fremont, and is the site of fossils dating back about 1.8 million years. In June 2008, the City of Fremont, with the District and other partners, won a grant to restore several portions of the creek and adjacent trail in the Mission San Jose neighborhood.

In multiple places along the creek, bank erosion is so severe that parts of the creek-side trail have crumbled. Due to this erosion, greater amounts of sediment are flowing downstream, filling up the waterways and reducing flood protection.

The Sabercat Creek Restoration project will include stabilizing the creek banks, restoring the trail, providing a picnic area, installing a fence to keep out cattle, and replacing non-native plants with native vegetation. Public access will be improved by providing several pedestrian paths (including an extension underneath Paseo Padre Parkway).



Severe bank erosion along Sabercat Creek, Fremont (Zone 6).

The District will install several rock structures in the creek bottom to slow the velocity of stormwater. Natural materials—such as rocks, willows, and plant fiber logs—will be used to reinforce creek banks. A bio-swale, or gently sloped drainage course planted with vegetation, will be constructed along the west end of the creek to improve water quality.

Construction will begin in summer 2011. The restored site will entice families, school children, and Bay Area residents to explore the beautiful and culturally rich locale—an ideal spot for birding and learning about fossils. The Sabercat Creek Trail will also be connected with the Bay Area Ridge Trail, which will encircle hilltops around the entire San Francisco Bay.



A portion of Sabercat Creek's eroded banks and adjacent trail will soon be restored for the public to enjoy. Fremont (Zone 6).

#### Zone 12





Before: A section of Peralta Creek was in need of serious flood control improvement, Oakland (Zone 12).

#### Peralta Creek: A Neighborhood Asset

In FY2008, the District rehabilitated and restored a section of Peralta Creek as it traverses 13 backyards between Bridge and 36th Streets off Foothill Boulevard. Over the years, retaining walls along the channel had begun to fail, creek banks had eroded, and trash and silt had accumulated, reducing the channel's capacity to carry stormwater.

The District worked with the City of Oakland and the Unity Council, a community group that communicated with property owners and renters affected by the project. Owners, renters, and neighbors were so enthusiastic about the project that the District was able to acquire rights to all additional needed easements within about three months, a task that normally takes many months.

In June 2008, the District began construction to stabilize eroded creek banks. The creek channel was widened and cleaned out.



After: The District's rehabilitation of Peralta Creek has won numerous awards for the transformation, Oakland (Zone 12).

Non-native vegetation was removed, and native shrubs and trees were planted to create a lush riparian habitat for birds and wildlife. By returning the creek to its natural condition, water quality will be improved. The final touch was attractive wrought iron fencing installed between the creek and properties' backyards.

The newly restored segment of Peralta Creek, which was completed in November 2008, improves property values and flood control, and provides picturesque views for residents. It has also spurred new pride in the neighborhood.

#### The Peralta Creek Restoration Project received the following awards:

- 2009 "Environmental Project of the Year" (less than \$5 million) from the Northern California Chapter of the American Public Works Association.
- 2009 "Growing Smarter Together Award—Preserving and Protecting the Environment Category" from the Association of Bay Area Governments.
- 2009 "Outstanding Small Water Project of the Year" from the San Francisco Chapter of the American Society of Civil Engineers.
- 2009 "Outstanding Small Water Project of the Year" from Region IX (California statewide) of the American Society of Civil Engineers.

#### Zone 12

# • Albany • Berkeley • Orinda • Lafa • Orinda • Moraga • Alameda • Alameda • San Leandro 2/

#### A Prettier Pocket Park



A new, natural bypass creek, which runs parallel to the Line J concrete-lined flood channel, has been created near the Lion Creek Crossing Residential Development, Oakland (Zone 12).

The District, jointly with the City of Oakland, has been working on a special landscape to complement the award-winning, mixed-income housing project called the Lion Creek Crossing Residential Development (formerly the Coliseum Gardens), off of San Leandro Street between 66th and 69th Avenues. As part of the project, a pocket park facing 66th Avenue is being moved to the middle of the housing development where it will be enhanced to create an alluring and inviting space for residents and locals to visit.

The District is constructing a natural bypass creek that will run parallel to the existing concrete-lined flood channel (Line J). Hydraulic studies have shown it is necessary to retain the Line J channel for effective flood control management. With the creative project design, though, residents will barely see the Line J channel. Both sides of the new bypass creek will be landscaped with native plants and trees to camouflage the concrete Line J channel. A bridge and benches will provide resting places to view the creek and its leafy surroundings.



Looking downstream from Lion Way, the natural bypass creek (left) follows the curve of the Line J flood channel (right), Oakland (Zone 12).

The Line J channel downstream of Lion Creek Crossing will be widened at the same time to increase stormwater conveyance. Construction on the \$1.4-million-dollar project began in summer 2009 and was completed in spring 2010.

#### Zone 12



#### **Concrete Channel Wall Strengthened**

Salt water from the San Francisco Bay wears down and corrodes steel reinforcements in concrete structures. In 2007, a 30-foot-long section of a concrete channel floodwall along San Leandro Creek (Line P) collapsed when its reinforcements gave way. Salt water had slowly seeped into the concrete channel wall through construction joints and had corroded the steel reinforcing bars within the concrete.

To devise a longer-term solution, the District prepared a new design that included the use of epoxy-coated reinforcing bars to resist corrosion. Construction of the new floodwall began in summer 2009 and was completed three months later. It is part of a larger project along approximately 1,600 feet of the San Leandro Creek concrete channel between 98th Street and Interstate 880 at the Oakland and San Leandro border that will maintain the flow-carrying capacity of the channel.



Water from the San Leandro Creek (Line P) flood channel was re-routed to another channel upstream during floodwall construction, Oakland (Zone 12).



Supplies were delivered for construction of a new 30-foot floodwall, Oakland (Zone 12).

#### Zone 12



#### Line B-1 Inlet Structure at Quarry Pond in Oakland

A quarry pond located at the edge of Oakland's Claremont Country Club was once a source of rock and gravel. The pond now holds stormwater runoff that serves as a water supply for the club's golf course. In FY2008 and 2009, the District began making improvements to the quarry pond inlet structure that catches stormwater overflow and directs it downstream. The height of the concrete inlet structure was raised and a sluice gate was added so the District can better control the quantity of stormwater released, while ensuring the club has enough water for its greens. By discharging excess water at a rate set by the District, the potential for flooding downstream is reduced. A debris trap was also installed at the quarry pond to allow a continuous flow of water through the inlet structure. The project was completed in late September 2008.





Before: District staff had to climb down a makeshift ladder and walk across a plank to get to the quarry pond inlet structure, Oakland (Zone 12).



After: The new stairway and housing for control mechanism that opens and closes the outlet pipe opening; a debris trap was installed to minimize clogging of the pipe inlet, Oakland (Zone 12).

#### Zone 2

#### Line C Restoration in San Leandro

The District has improved a roughly 1,000-foot section of the Line C earthen channel near the Bayfair Mall in San Leandro, between East 14th Street and the confluence of Line A near 159th Avenue. Eroded channel banks were restored to their original design for effective flood control. Native trees and vegetation have been planted to create a more attractive neighborhood setting. The project, which began in fall 2007, was completed in October 2009.



Before: Eroded channel banks along Line C near East 14th and 159th Avenue, San Leandro (Zone 2).



After: Line C channel banks were repaired to increase stormwater capacity, San Leandro (Zone 2).

#### Zone 4

#### Line A Capacity Improvements in Hayward

In FY2008 and 2009, the District began construction of the first phase of a project in the Russell City neighborhood of Hayward to restore and stabilize channel banks and bottom along Line A between Cabot Boulevard and the Union Pacific Railroad. The District also began the design of the second project phase to stabilize and restore the lower reach of Line A between the confluence of Line E and the Cabot Boulevard crossing. Both project phases will increase channel capacity to contain a 100-year flood event. Following construction, the channel will be landscaped with native vegetation to restore natural habitat.



Before: Line A eroded channel banks between Cabot Boulevard and the Union Pacific Railroad, Hayward (Zone 4).



After: Repaired Line A channel banks, Hayward (Zone 4).

# Capital Improvement Program, Fiscal Year 2010

#### Zone 2

- \$ 360,000 Line G-8 Bypass along Almond Road and Christensen Lane, Castro Valley
- \$ 850,000 Line K Levee repairs between Union Pacific Railroad (UPRR) and Sulfur Creek Pump Station, Hayward

#### Zone 3A

- \$1,600,000 Line A Desilting between 20-Tidegate and UPRR, Hayward
- \$1,300,000 Line A-5 Capacity Improvement between Catalpa Way and Industrial Parkway, Hayward
- \$1,100,000 Line B Desilting from Line D to Folsom Avenue, Hayward
- \$4,300,000 Line D Channel Improvement between Auction Way and Huntwood Avenue, Hayward
- \$4,800,000 Line G-1 Alvarado Pilot Inboard Levee, Hayward

#### Zone 5

- \$ 600,000 Line A Repair to north levee upstream of Ardenwood Boulevard, Fremont
- \$ 250,000 Line A Repair along toe of north bank downstream of the UPRR, Fremont
- \$ 600,000 Line A Repair along toe of north bank upstream of UPRR, Fremont
- \$ 230,000 Line B Glenview Drive crossing, Fremont
- \$ 600,000 Line B Farwell Drive crossing, Fremont
- \$1,230,000 Line B Interstate 880 crossing, Fremont
- \$ 600,000 Line D Cherry Street crossing improvements, Newark
- \$3,000,000 Line M Channel Improvements between Line A and UPRR, Union City

#### Zone 6

- \$ 550,000 Lines B and C Improvements added protection to toe of channel
  - banks/bottoms at various locations, Fremont
- \$1,300,000 Line C Levee certification remedial work, Fremont
- \$ 150,000 Line E Embankment Erosion Repair, Fremont
- \$ 600,000 Line F Creek restoration between Paseo Padre and Tumbleweed, Fremont
- \$ 900,000 Line N/N-1 Desilting between Mowry Slough and Auto Mall Parkway, Fremont
- \$ 250,000 Lake Elizabeth inlet/outlet structure modification, Fremont

#### Zone 12

- \$1,500,000 Line K Desilting from San Francisco Bay to Line J, Oakland
- \$ 75,000 Line P Concrete Channel wall repair, Oakland
- \$7,400,000 Line S Storm drain bypass between 65th Street and San Pablo Avenue, along LaCoste Avenue,

64th Street, Overland Avenue, and 62nd Street, Emeryville



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

# To Serve and Preserve Our Community

#### **Contact Information**

For Assistance  Main Phone  E-mail us at info@acpwa.org  Or visit us at www.acpwa.org	(510) 670-5480
Emergency	
In case of emergency dial	9-1-1
To Report Flooding of Major Creeks	
In Alameda County	
For sandbags in Hayward	
For sandbags in 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
Escribanos a la direccion de correo electronica info@acpwa.org	
O vistenos al www.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 電聯請用 www.acpwa.org	
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