

FLOOD CONTROL

The staff of the Flood Control Division of the Department of Public Works provides administration for the Marin County Flood Control and Water Conservation District. The District is a political subdivision of the State of California and is a separate and distinct agency from the County. It was established in 1953 by an act of the State legislature. The Board of Supervisors of the County sits as the Board of the District. Within the District, eight separate flood control zones have been formed. The purpose of the zones is to collect taxes to fund specific flood control projects within that particular zone. The taxes collected are restricted and must be spent within each respective zone. There is no impact on the County's General Fund.

Summary of Proposed Flood Control Projects and Expenditures

Project Description	Status	2008/09	2009/10	2010/11	2011/12	2012/13
		\$	\$	\$	\$	\$
Dredging, Novato Creek Zone 1	Design & Construction			180,000	1,500,000	
Vineyard Creek Improvements Zone 1- Phase II	Design & Construction	950,000				
Bothin Marsh Restoration & Flood Control Improvement Project - Zone 3	Design & Construction	100,000	1,915,000	1,825,000		
Seminary Drive Pump Station* Zone 3	Design & Construction		637,625			
SCADA System Installation Zones 3, 4 & 7	Design & Construction		480,000			
West Creek Flood Wall Zone 4	Design & Construction	15,000	250,000			
Replace Slough Culvert Zone 9	Design & Construction	150,000				
Corte Madera Creek Unit 4 Zone 9**	Design & Construction	715,000		4,285,000		
TOTALS		\$1,930,000	\$3,282,625	\$6,290,000	\$1,500,000	\$0

* Joint funding - Flood Control/932 Mitigation Fees.

** Joint funding - ACOE

**Dredging, Novato Creek
Zone 1**

1. Project Description and Background

To dredge Novato Creek between Grant and Diablo Avenues as part of the maintenance of the Novato Flood Control Project.

2. Project Objective

Remove sediment from creek to maintain creek capacity and provide 50-Year storm frequency protection.

3. Cost Estimate

\$1,680,000

4. Basis of Estimate

Flood Control staff.

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F. C. Zone 1 Funds				\$180,000	\$1,500,000	
Grant Funds						
Special Funds						
Other Funds						

**Vineyard Creek Improvements Zone 1
Phase II**

1. Project Description and Background

Project will modify or replace the Center Road Culvert to maximize conveyance and to maintain bed stability and provide channel improvements such as, increased cross-sectional area, elevation of creek bank with flood barriers, and improve flow velocities to control flooding from the western end of Arbor Circle to McClay Road in Novato. This project will be constructed in two phases. Phase I was constructed in FY 2007-08. Phase II project limits are from 400 feet above Center Road to 1,000 feet above Center Rd. Bridge.

2. Project Objective

Increase creek capacity to provide 50-Year storm frequency protection and enhance riparian habitat.

3. Cost Estimate

\$950,000

4. Basis of Estimate

Flood Control staff.

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F. C. Zone 1 Funds		\$950,000				
Grant Funds						
Special Funds						
Other Funds						

**Bothin Marsh Restoration & Flood Control
Improvement Project
Zone 3**

1. Project Description and Background

The project will increase tidal prism by opening the levee between Coyote Creek and the Marsh and restore marsh habitat within the Bothin Marsh Open Space Preserve. It is also desired to increase the size of the Marsh area for storm water absorption and increased tidal prism.

The project will be designed to improve the value and quality of the habitats within Bothin Marsh. Fill will be excavated to restore marsh plain habitat; this will provide additional marsh habitat suitable for both the salt marsh harvest mouse and Point Reyes bird's beak. Also upland cover will be enhanced to provide upland refuge for clapper rails. The entire program would entail a joint planning, acquisition, construction and restoration project administered by the Marin County Flood Control & Water Conservation District in participation with County Parks & Open Space Department.

2. Project Objective

The objective of the project is to maintain the channel conveyance capacity and minimize the need for future dredging and enhance the marsh habit.

3. Cost Estimate

\$3,840,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F.C. Zone 3 Fund		\$100,000	\$957,500	\$912,500		
Grant Funds			\$957,500	\$912,500		
Special Funds						
Other Funds						

**Seminary Drive Pump Station
Zone 3**

1. Project Description and Background

Construct Pump Station with back-up power to improve roadway drainage, where the Redwood Highway frontage road intersects Highway 101 Seminary Drive northbound off and on ramps to eliminate roadway closure from high tide events.

2. Project Objective

Reduce tidal flooding at the Seminary Drive/101 FWY Interchange.

3. Cost Estimate

\$637,625

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F.C. Zone 3 Fund			\$416,739			
Grant Funds						
Special Funds						
Other Funds ¹			\$220,886			

¹ 932 Mitigation Fees

<p>SCADA System Installation Zones 3, 4 and 7</p>
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1. Project Description and Background

Three of the eight Flood Control Zones rely on pump stations for flood protection. Zone Three has four stations, Zone Four has two stations and Zone Seven has five stations. Each of these stations is equipped with an alarm system that sends a signal when the water exceeds a set level or power is lost to the station. This project will install SCADA (Supervisory Control and Data Acquisition) systems in the six stations in Zones Three and Four. A SCADA system will allow monitoring in real time from the Civic Center of any data that can be measured, such as the rate of pumping, the heat of a motor or how long a pump has been operating. This will allow on-duty staff to anticipate problems and hopefully respond before they actually occur. Zone Seven’s stations will be done as funds come available.

2. Project Objective

To increase the County’s ability to respond to major storm events in a timely manner.

3. Cost Estimate

\$480,000

4. Basis of Estimate

Engineer’s Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F.C. Zone 3 Funds			\$300,000			
F.C. Zone 4 Funds			\$180,000			
Special Funds						
Other Funds						

**West Creek Flood Wall
Zone 4**

1. Project Description and Background

During a severe rain event in December, 2001, West Creek in Bel Aire overflowed along a portion of its upper reach flooding some yards and homes along Blackfield Drive. This project is to construct a flood barrier adjacent to West Creek.

2. Project Objective

To eliminate flooding from West Creek along its upper reach.

3. Cost Estimate

\$265,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F.C. Zone 4 Funds		\$15,000	\$250,000			
Grant Funds						
Special Funds						
Other Funds						

**Replace Slough Culvert
Zone 9**

1. Project Description and Background

As a result of the construction of Unit Three of the U.S. Army Corps of Engineers Corte Madera Creek Flood Control Project, a small meander was cut off from the main channel by the new levee and thus became a slough. This slough is still there and receives water from and discharges water to the main creek via two 36" culverts through the levee. These culverts are badly deteriorated and need to be replaced.

2. Project Objective

To replace deteriorated culverts and maintain a healthy flow exchange in the slough.

3. Cost Estimate

\$150,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F.C. Zone 9 Funds		\$50,000				
Grant Funds		\$100,000				
Special Funds						
Other Funds						

<p>Corte Madera Creek Unit 4 Zone 9</p>

1. Project Description and Background

Replace the fish ladder and rivet the banks of Unit 4 in Ross. US Army Corps flood control project.. US Army Corps of Engineers (ACOE) pays 98.5% of total cost. Project is dependent on Congressional funding for federal share

2. Project Objective

Complete flood control project.

3. Cost Estimate

\$5,000,000

4. Basis of Estimate

Flood Control District Staff Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
F.C. Zone 9 Funds		\$15,000		\$64,275		
Federal Funds		\$700,000		\$4,220,725		
Special Funds						
Other Funds						

COUNTY SERVICE AREAS

In addition to Flood Control projects, staff is also involved in completing projects for County Service Areas 6 and 29. These projects are funded from residential taxes to remove silt from waterways and creeks for homeowner boating use.

Summary of Proposed County Service Area Projects and Expenditures

Project Description	Status	2008/09	2009/10	2010/11	2011/12	2012/13
CSA 6 Las Gallinas Creek Maintenance Dredge	Design & Construction	\$100,000	\$100,000	2,200,000		
CSA 29 Paradise Cay Maintenance Dredge	Design & Construction	\$80,000	\$320,000			
TOTALS		\$180,000	\$420,000	\$2,200,000	\$0	\$0

**CSA 29 Paradise Cay
Maintenance Dredge**

1. Project Description and Background

To dredge Paradise Cay for recreational/boating use to minus 7 feet with the waterways and to minus 8 feet in the entry channels.

2. Project Objective

Removal of silt to maintain navigable waterways for homeowner boating use.

3. Cost Estimate

\$400,000

4. Basis of Estimate

Flood Control staff.

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
CSA Funds		\$80,000	\$320,000			

<p>CSA 6 Las Gallinas Creek Maintenance Dredge</p>

1. Project Description and Background

To dredge Las Gallinas Creek for recreational/boating use to minus 7 feet from Bucks Landing to Mark Twain Avenue.

2. Project Objective

Removal of silt to maintain navigable waterways for homeowner boating use.

3. Cost Estimate

\$2,400,000

4. Basis of Estimate

Flood Control staff.

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
CSA Funds		\$100,000	\$100,000	\$2,200,000		

FISH PASSAGE PROJECTS

In Spring 2005, Marin County Board of Supervisors voted to establish a County Fisheries Restoration Program aimed at restoring fish passage through county culverts on salmon streams in West Marin. Marin's watersheds are very important to the recovery of coho salmon populations, as it is estimated that approximately 10% of all California wild coho salmon spawn in streams flowing into Tomales Bay. Grant funding supports a large part of this program. Inclusion of unfunded projects does not guarantee funding in future years, as unfunded projects will be subject to available funding and updated priorities with new emerging needs.

Summary of Proposed Fish Passage Projects and Expenditures

Project Description	Status	2008/09	2009/10	2010/11	2011/12	2012/13
		\$	\$	\$	\$	\$
East Fork Woodacre Creek #2 @ Garden Way	Design & Construction				250,000	
San Geronimo Creek #2 @ Railroad Avenue	Design & Construction			250,000		
Woodacre Creek #3 @ Carson Road	Design & Construction	400,000				
Arroyo Creek #1 @ Castro Street	Design & Construction		400,000			
Larsen Creek Fish Ladder	Design & Construction			125,000		
Montezuma Creek	Design & Construction					400,000
Cheda Creek	Design & Construction					400,000
TOTALS		\$400,000	\$400,000	\$375,000	\$250,000	\$800,000

East Fork Woodacre Creek #2 @ Garden Way

1. Project Description and Background

Replace existing concrete culvert with natural bottom arched culvert.

2. Project Objective

Restore fish passage for coho salmon and steelhead.

3. Cost Estimate

\$250,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
Other Funds*					\$250,000	

*Project Funding is being pursued

San Geronimo Creek #2 @ Railroad Avenue

1. Project Description and Background

Retrofit existing concrete box culvert with concrete baffles and roughened riffle ramp.

2. Project Objective

Improve fish passage for coho salmon and steelhead.

3. Cost Estimate

\$250,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
Other Funds*				\$250,000		

*Project Funding is being pursued

Woodacre Creek #3 @ Carson Road

1. Project Description and Background

Replace existing concrete culverts with natural bottom arched culvert.

2. Project Objective

Restore fish passage for coho salmon and steelhead.

3. Cost Estimate

\$400,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund		\$155,000				
Grant Funds		\$245,000				
Special Funds						
Other Funds						

Arroyo Creek #1 @ Castro Street

1. Project Description and Background

Retrofit of existing culvert with a rocky ramp to improve fish passage.

2. Project Objective

Restore fish passage for coho salmon and steelhead.

3. Cost Estimate

\$400,000

4. Basis of Estimate

Engineer’s Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
Other Funds*			\$400,000			

*Project Funding is being pursued

Larsen Creek Fish Ladder

1. Project Description and Background

Retrofit existing concrete box culvert with concrete baffles and roughened riffle ramp.

2. Project Objective

Improve fish passage for coho salmon and steelhead.

3. Cost Estimate

\$125,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
Other Funds*				\$125,000		

*Project Funding is being pursued

Montezuma Creek

1. Project Description and Background

Replace existing concrete culverts with natural bottom arched culvert.

2. Project Objective

Restore fish passage for coho salmon and steelhead.

3. Cost Estimate

\$400,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
Other Funds*						\$400,000

*Project Funding is being pursued

Cheda Creek

1. Project Description and Background

Replace existing concrete culverts with natural bottom arched culvert.

2. Project Objective

Restore fish passage for coho salmon and steelhead.

3. Cost Estimate

\$400,000

4. Basis of Estimate

Engineer's Estimate

<u>Funding Source</u>	<u>Available Prior Year Funds</u>	<u>08/09</u>	<u>09/10</u>	<u>10/11</u>	<u>11/12</u>	<u>12/13</u>
General Fund						
Grant Funds						
Special Funds						
Other Funds*						\$400,000

*Project Funding is being pursued