

Monterey County Floodplain Management Plan



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TABLE OF CONTENTS

1. INTRODUCTION TO THE PLAN.....	5
1.1. PURPOSE.....	5
1.2. BACKGROUND.....	5
1.2.1. National Flood Insurance Program (NFIP).....	5
1.2.2. Community Rating System (CRS).....	7
1.2.3. CRS Rewards.....	8
1.2.4. Existing Monterey County Floodplain Regulations.....	9
1.3. PLAN APPROACH.....	9
1.4. REPETITIVE LOSS PROPERTIES.....	10
2. GOALS, OBJECTIVES, AND POLICIES.....	11
3. COORDINATION WITH OTHER AGENCIES AND PUBLIC INVOLVEMENT ...	12
4. COMMUNITY DESCRIPTION.....	13
4.1. AREA.....	13
4.2. POPULATION.....	13
4.3. CLIMATE AND RAINFALL.....	13
4.4. SOILS.....	14
4.5. DRAINAGE.....	14
4.6. HISTORICAL FLOODING IN MONTEREY COUNTY.....	15
4.6.1. January 1995.....	15
4.6.2. March 1995.....	16
4.6.3. February 1998.....	18
5. FLOOD CONTROL SYSTEM DESCRIPTION.....	20
5.1. NACIMIENTO DAM.....	20
5.3. LOS PADRES AND SAN CLEMENTE DAMS.....	22
5.4. CARMEL RIVER LEVEES.....	23
5.5. PAJARO RIVER LEVEES.....	24
5.6. RECLAMATION DITCH.....	24
6. HAZARD ASSESSMENT.....	27
6.1. BASIC HAZARD DEFINITIONS.....	27
6.1.1. Atmospheric Hazards.....	27
6.1.2. Geologic Hazards.....	27
6.1.3. Hydrologic Hazards.....	32
6.1.4. Seismic Hazard.....	32
6.1.5. Fire Hazard.....	32
6.1.6. System Failure Related Hazards.....	33
6.2. MONTEREY COUNTY FLOOD HAZARDS.....	34
6.2.1. FEMA Flood Zone Designations in Monterey County.....	35
6.2.3. Coastal Flooding, Erosion and Storm Surge Areas.....	38
6.2.4. Tsunami Hazard Areas.....	39
6.3. MONTEREY COUNTY RLP FLOOD HAZARD DESCRIPTION.....	40
6.3.1. Big Sur River.....	40
6.3.2. Calera Creek.....	40
6.3.3. Carmel River.....	41
6.3.4. Carneros Creek.....	42
6.3.5. Castroville Boulevard Wash.....	42
6.3.6. El Toro Creek.....	42

TABLE OF CONTENTS

6.3.7.	<i>Pebble Beach Localized Flooding</i>	44
6.3.8.	<i>Paloma Creek</i>	44
6.3.8.	<i>Piney Creek</i>	44
6.3.9.	<i>Ralph Lane</i>	44
6.3.10.	<i>San Miguel Canyon Creek</i>	45
6.3.11.	<i>Santa Rita Creek</i>	45
7.	PROBLEM ASSESSMENT	50
7.1.	REVIEW OF REPETITIVE LOSS PROPERTIES	51
7.1.1.	<i>Big Sur River</i>	51
7.1.2.	<i>Calera Creek</i>	51
7.1.3.	<i>Carmel River (CSA-50)</i>	51
7.1.4.	<i>Carmel River (Outside CSA-50)</i>	51
7.1.5.	<i>Carneros Creek</i>	51
7.1.6.	<i>Castroville Boulevard Wash</i>	52
7.1.7.	<i>El Toro Creek</i>	52
7.1.8.	<i>Pebble Beach Localized Flooding</i>	52
7.1.9.	<i>Paloma Creek</i>	52
7.1.10.	<i>Piney Creek</i>	52
7.1.11.	<i>Ralph Lane Channel</i>	53
7.1.12.	<i>San Miguel Canyon Creek</i>	53
7.1.13.	<i>Santa Rita Creek</i>	53
7.2.	DEVELOPMENT AND REDEVELOPMENT TRENDS IN THE FLOODPLAIN	53
8.	IMPLEMENTATION PLAN	58
8.1.	ONGOING COUNTY-WIDE FLOOD MITIGATION ACTIVITIES	58
8.1.1.	<i>Emergency Services</i>	58
8.1.1.1.	<i>ALERT System</i>	58
8.1.1.2.	<i>Sandbag Inventory and Sand Stockpiles</i>	59
8.1.2.	<i>Preventative</i>	60
8.1.2.1.	<i>Floodplain and Erosion Control Regulations</i>	60
8.1.2.2.	<i>NPDES Storm Water Program</i>	60
8.1.2.3.	<i>Drainage System Maintenance</i>	61
8.1.3.	<i>Property Protection</i>	63
8.1.3.1.	<i>Flood Mitigation Assistance</i>	63
8.1.3.2.	<i>Flood Insurance</i>	64
8.1.4.	<i>Public Outreach</i>	64
8.1.5.	<i>Structural Projects</i>	64
8.2.	RLP MITIGATION ACTIVITIES	65
8.2.1.	<i>Carmel River (CSA-50) Lower Carmel River Flood Control Project</i>	66
9.	ADOPTION, REPORTING, EVALUATING, AND REVISING	74
9.1.	PLAN ADOPTION PROCESS.....	74
9.2.	REPORTING PROCESS.....	74
9.3.	EVALUATION PROCESS AND REVISION PROCESS	74
	ACRONYMS AND GLOSSARY	75
	WORKS CONSULTED	81

TABLE OF CONTENTS

FIGURE 1	NFIP PARTICIPATION.....	6
FIGURE 2	CRS COMMUNITIES BY CLASS.....	8
FIGURE 3	CARMEL RIVER, FEBRUARY 1998.....	19
FIGURE 4	NACIMIENTO DAM	21
FIGURE 5	SAN ANTONIO DAM	22
FIGURE 6	LOS PADRES DAM	23
FIGURE 7	SAN CLEMENTE DAM.....	23
FIGURE 8	RECLAMATION DITCH 1917	25
FIGURE 9	RECLAMATION DITCH PRESENT.....	26
FIGURE 10	MONTEREY COUNTY LANDSLIDE HAZARDS.....	29
FIGURE 11	MONTEREY COUNTY LIQUEFACTION POTENTIAL.....	30
FIGURE 12	MONTEREY COUNTY EROSION HAZARDS.....	31
FIGURE 13	MONTEREY COUNTY KNOWN SPECIAL FLOOD HAZARD AREAS.....	36
FIGURE 14	FLOODWAY PROFILE	37
FIGURE 15	STORM SURGE DIAGRAM	38
FIGURE 16	CARNEROS CREEK, JULY 1998.....	42
FIGURE 17	EL TORO CREEK, JANUARY 1998.....	43
FIGURE 18	EL TORO CREEK, AUGUST 2002	44
FIGURE 19	RALPH LANE CHANNEL, JANUARY 1998	45
FIGURE 20	RALPH LANE CHANNEL, JANUARY 1998	45
FIGURE 21	FLOODPLAIN DEVELOPMENT TRENDS 1996-2001	54
FIGURE 22	MONTEREY COUNTY ALERT STATIONS	59
TABLE 1	NFIP COMMUNITY RATING SYSTEM - CLASS SUMMARY.....	7
TABLE 2	CRS – 10 STEP PLANNING PROCESS.....	9
TABLE 3	AVERAGE RAINFALL RECORDS (INCHES PER MONTH)	14
TABLE 4	RLP FLOOD HAZARD SUMMARY	47
TABLE 5	MONTEREY COUNTY RLP BUILDING TYPES	50
TABLE 6	RLP FLOODING HISTORY SUMMARY	55
TABLE 7	MONTEREY COUNTY OPERATIONAL AREA SANDBAG INVENTORY	60
TABLE 9	RLP RECOMMENDED SOLUTION SUMMARY	71

APPENDIX A MAPS

A-1	Big Sur River RLP
A-2	Calera Creek RLP
A-3	Carmel River – Carmel River (Near the Lagoon) RLP
A-4	Carmel River – Carmel River (CSA-50) RLPs
A-5	Carmel River – Hacienda Carmel to Brookdale Drive RLPs
A-6	Carmel River – Boronda Road Area RLPs
A-7	Carmel River – Carmel Valley Village Area RLPs
A-8	Carmel River – Cachagua Road RLP
A-9	Carneros Creek RLPs
A-10	Castroville Boulevard Wash RLP
A-11	El Toro Creek RLPs
A-12	Pebble Beach RLPs
A-13	Piney Creek and Paloma Creek RLPs
A-14	Ralph Lane RLP
A-15	San Miguel Canyon Creek RLP

TABLE OF CONTENTS

A-16 Santa Rita Creek RLP

APPENDIX B HYDROLOGIC AND HYDRAULIC INFORMATION

- B-1 Peak Discharge Summary for Select Streams
- B-2 Peak Flow Arrival Times at Pajaro near Chittenden
- B-3 Arroyo Seco River Travel Times
- B-4 Carmel River Travel Times
- B-5 Salinas River Travel Times
- B-6 Salinas River Travel Times for Small Consecutive Flows with Wet Channel
- B-7 ALERT Gage Location Map

APPENDIX C FMP CREDIT CALCULATION

APPENDIX D FLOODPLAIN DEVELOPMENT ACTIVITY REPORT

1. INTRODUCTION TO THE PLAN

1.1. Purpose

The Floodplain Management Plan (FMP) has been developed to (1) identify the flooding sources affecting Monterey County Repetitive Loss Properties (RLPs), (2) establish an implementation plan to reduce flooding and flood related hazards, and (3) ensure the natural and beneficial functions of our floodplains are protected. Achievement of these purposes are accomplished through the maximum utilization of existing programs and resources, involving those public Agencies responsible for regulating development in special flood hazard areas in the planning process, and ensuring that the policies and programs identified in the implementation plan are carried out. Supervision of the FMP planning process was provided by the Monterey County Water Resources Agency (MCWRA) Acting Chief Engineer, Operations and Maintenance Division, and direction provided by the County's Community Rating System (CRS) Coordinator.

1.2. Background

In 1968, the U.S. Congress passed the National Flood Insurance Act which established the National Flood Insurance Program (NFIP). The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 which required structures built in a 100-year floodplain to carry flood insurance coverage as a condition for receiving federal aid or federally insured loans. The Flood Insurance Reform Act of 1994 fine-tuned many aspects of the NFIP through the creation of the Community Rating System (CRS).

1.2.1. National Flood Insurance Program (NFIP)

The NFIP is a federal program administered by the Federal Emergency Management Agency (FEMA), and makes Federally-backed flood insurance available in communities that adopt and enforce floodplain management ordinances to help reduce future flood losses. The NFIP transfers costs of private property flood losses from tax payers to floodplain property owners through flood insurance premiums; provides financial aid to flood victims; encourages development away from flood-prone areas; and requires new and substantially improved structures to be constructed in a way that minimizes or prevents flood damage.

FEMA's Federal Insurance Administration and Mitigation Directorate manages the NFIP. The Federal Insurance Administration manages the insurance component of the NFIP, and works closely with FEMA's Mitigation Directorate, which oversees the floodplain management aspect of the program.

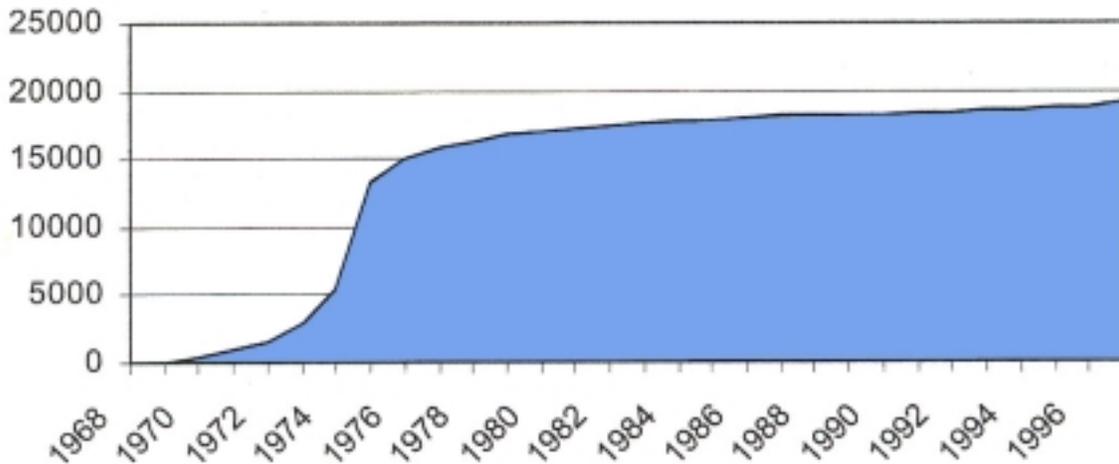
Participation in the NFIP grew slowly. In 1972, Hurricane Agnes devastated a wide area of the eastern United States. Disaster assistance costs were the highest ever, leading Congress to examine why the NFIP was so little used. Investigators found that few

communities had joined the NFIP — there were fewer than 100,000 flood insurance policies in force nationwide.

To remedy this, the Flood Disaster Protection Act was passed in 1973, requiring that buildings located in identified flood hazard areas have flood insurance coverage as a condition of federal aid or loans from federally-insured banks and savings and loans, and as a condition for receiving federal disaster assistance. These “sanctions” for non-participation, which are detailed later in this unit, make it hard for any community that wants federal assistance for properties in floodplains to avoid joining the NFIP. The 1973 Act spurred participation in the program dramatically. By the end of the decade, more than 15,000 communities had signed on and about two million flood insurance policies were in effect.

By the end of 1997, the number of participating communities exceeded 19,000 out of 22,000 with identified floodplains. As shown in Figure 1 below, the greatest growth occurred in the late 1970’s, after the provisions of the 1973 amendments took effect.

Figure 1 NFIP Participation



The NFIP, through partnerships with communities, the insurance industry, and the lending industry, helps reduce flood damage by nearly \$800 million a year. Further, buildings constructed in compliance with NFIP building standards suffer 77 percent less damage annually than those not built in compliance. In addition, every \$3 paid in flood insurance claims saves \$1 in disaster assistance payments.

Monterey County joined the regular phase of the NFIP on January 30, 1984. Compliance and ongoing participation in the NFIP ensures that all County residents can purchase flood insurance.

1.2.2. Community Rating System (CRS)

The NFIP/CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

The CRS recognizes 18 creditable activities, organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness. Accumulation of credit points results in the assignment of a CRS classification. There are a total of ten CRS classes. Class 1 requires the most credit points and gives the largest insurance premium reduction, while a community rated Class 10 receives no reduction in insurance premiums. Table 1 below shows the CRS class levels, corresponding credit points, and premium reductions.

Table 1 NFIP Community Rating System - Class Summary

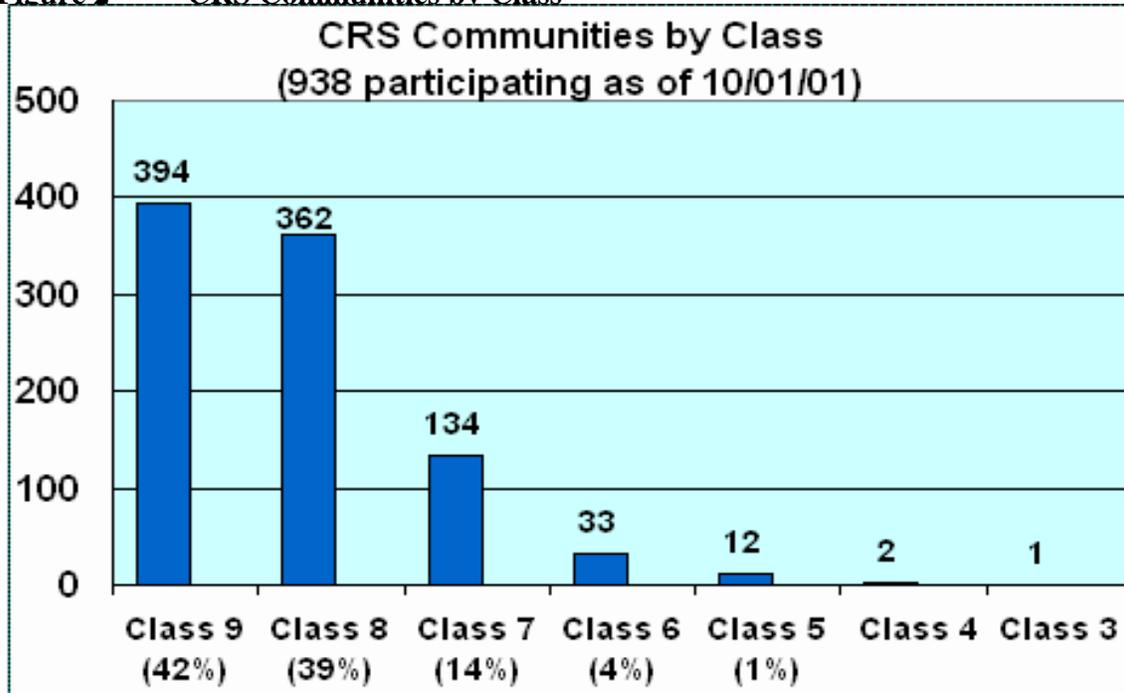
Credit Points	Class	Insurance Premium Reduction	
		SFHA *	Non-SFHA**
4,500+	1	45%	5%
4,000 – 4,499	2	40%	5%
3,500 – 3,999	3	35%	5%
3,000 – 3,499	4	30%	5%
2,500 – 2,999	5	25%	5%
2,000 – 2,499	6	20%	5%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

*Special Flood Hazard Area

**Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies.

As of October 1, 2001, there were 938 communities participating in the CRS program. Figure 2 below shows the distribution of CRS-participating communities by Class at that time.

Figure 2 CRS Communities by Class



By continuing to implement more than the minimum NFIP requirements for flood hazard planning, Monterey County has been a voluntary participant in the CRS since October 1, 1991. Monterey County is currently a Class 7 community, which results in a 15% flood insurance premium reduction for residents in the unincorporated areas of Monterey County. The County has actually accumulated enough credit points to qualify for a Class 6 rating, however the upgrade can not occur until FEMA has approved the adopted FMP. The CRS upgrade will provide a 20% reduction in flood insurance premiums, and will place Monterey County in the top 5% of all CRS communities.

1.2.3. CRS Rewards

It is important to note that reduced flood insurance rates are only one of the rewards a community receives from participating in the CRS. There are several other benefits.

First, the CRS floodplain management activities provide enhanced public safety, a reduction in damage to property and public infrastructure, avoidance of economic disruption and losses, reduction of human suffering, and protection of the environment.

Second, a community can evaluate the effectiveness of its flood program against a nationally recognized benchmark.

Third, technical assistance in designing and implementing some activities is available at no charge.

CH. 1 - INTRODUCTION TO THE PLAN

Fourth, a CRS community's flood program benefits from having an added incentive to maintain its flood programs over the years. The fact that the community's CRS status could be affected by the elimination of a flood-related activity or a weakening of the regulatory requirements for new development, should be taken into account by the governing board when considering such actions. A similar system used in fire insurance rating has had a strong impact on the level of support local governments give to their fire protection programs.

Fifth, implementing some CRS activities, such as floodplain management planning, can help projects covered under this plan qualify for certain other federal assistance programs such as the Flood Mitigation Assistance Program (FMA), the Hazard Mitigation Grant Program (HMGP), and the U.S. Army Corps of Engineers.

1.2.4. Existing Monterey County Floodplain Regulations

There are two ordinances that regulate floodplain development in Monterey County. Countywide floodplain ordinance, No. 3272, includes the minimum FEMA requirements for participation in the regular phase of the NFIP and has been codified in Chapter 16.16 of the County Code. Chapter 21.64 of the County Code provides additional floodplain regulations for land use in the Carmel Valley floodplain.

1.3. Plan Approach

Development of the FMP follows the 10-step planning process identified in Section 511 of the CRS Coordinator's Manual, dated January 1999. The County has covered each of the 10 steps, identified in Table 2 below, during the development of the plan.

Table 2 CRS – 10 Step Planning Process

STEP	DESCRIPTION	FMP LOCATION
A	Organize to prepare the plan	1.1
B	Involve the Public	3, 9
C	Coordinate with other agencies	3, 9
D	Assess the hazard	4.6, 6.1, 6.2, 6.3
E	Assess the problem	7.1, 7.2
F	Set goals	2
G	Review possible activities	8.1
H	Draft an action plan	8.2
I	Adopt the plan	9
J	Implement, evaluate, and revise	9

1.4. Repetitive Loss Properties

A Repetitive Loss Property (RLP) is one for which two or more claims of \$1,000 or more have been paid by the NFIP within any given 10-year period, since 1978. The objective of the FMP is to provide specific guidance for potential mitigation measures and activities to best address the problems and needs associated with RLPs.

Monterey County has 109 RLPs have been identified and sorted alphabetically by flooding source and numerically by Assessor Parcel Number. An assessment of the hazards affecting each RLP is provided in Chapter 6.3. The RLP problem assessment, including a flood history summary, is included in Chapter 7.1. The action plan, in Chapter 8.2., addresses mitigation measures appropriate for each RLP including primary and alternate solutions.

The County has developed the FMP with the intent that the goals, objectives, policies and implementation programs apply to all properties within the County. However, RLPs have specific recommendations and/or programs to address the problems unique to these individual parcels or areas.

2. GOALS, OBJECTIVES, AND POLICIES

Based on the flood hazards facing Monterey County RLPs and the initial hazard assessment prepared by County Staff, the goal of the FMP is to develop an action plan that minimizes the loss of life and property in areas that have received repetitive losses, and to support the existing floodplain policies and objectives in the County Code.

The purpose of County Ordinance No. 3272, Chapter 16.16 of County Code, *Regulations for Floodplains in Monterey County*, is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: (1) protect human life and health; (2) minimize expenditure of public money for costly flood control projects; (3) minimize the need for rescue and relief efforts associated with flooding; (4) help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future blight areas; (5) insure that potential buyers are notified that property is in an area of special flood hazard; and, (6) insure that those who occupy the areas of special flood hazard assume responsibility for their action.

The purpose of County Code, Chapter 21.64.130 *Regulations for Land Use in the Carmel Valley Floodplain*, is to protect the Carmel River and its corridor including visual aspects, value as wildlife habitat and stabilize the river channel; preserve the rural character of Carmel Valley; and promote the public health and safety by lessening local flood potential and flood related hazards.

CH. 3 - COORDINATION WITH OTHER AGENCIES AND PUBLIC INVOLVEMENT

3. COORDINATION WITH OTHER AGENCIES AND PUBLIC INVOLVEMENT

Step C of the 10 Step Planning Process required the draft action plan to be sent to other agencies for review and comment. Other agencies must be contacted to see if they are doing anything that may affect the community's program and to see if they could support the community's efforts. "Other agencies" include neighboring communities and local, regional, state and federal agencies that implement floodplain management activities. In accordance with this requirement, MCWRA submitted the draft action plan to the County Planning and Building Inspection Department, Public Works Department, Environmental Health Department, County Office of Emergency Services, Monterey Peninsula Water Management District, Pajaro Valley Water Management Agency, State NFIP Coordinator, State Office of Emergency Services, and FEMA Region IX Office on October 10, 2002 for review and comment.

Step B requires a public meeting to be held at the end of the planning process at least two weeks before submittal of the recommended plan to the community's governing body. An advertisement was placed in the *Herald* and *Californian* newspapers, notifying the public of the October 10, 2002 MCWRA Planning Committee meeting at which time public comment is allowed. The FMP will go before the MCWRA Board of Directors on December 2, 2002 when additional public comments can be made.

4. COMMUNITY DESCRIPTION

4.1. Area

Monterey County is located in west-central California, between Los Angeles and San Francisco, on the Pacific Coast. The county is oriented on a northwest-southeast axis, parallel to the Pacific Ocean. The county boundary on the west is formed by the Pacific Ocean, including Monterey Bay and the Big Sur Coast. The county encompasses an area of 3,324 square miles, including 1,900 acres of inland water and approximately 100 miles of coastline. Monterey County is essentially the same size as Connecticut, and its area is greater than the combined area of Rhode Island and Delaware. In addition to its coastal resources, the county possesses nearly 1 million acres of rich agricultural land that are almost unparalleled for productiveness. The Salinas Valley has long earned the description “the salad bowl of the nation.” Monterey County is bordered by Santa Cruz County to the north, San Luis Obispo County to the south, and San Benito, Kings, and Fresno Counties to the east.

Monterey County is served by two major highways, both running north-south. State Highway 1, the Cabrillo Highway, connects Monterey County with Santa Cruz County, all points north to San Francisco, San Luis Obispo County, and ultimately Los Angeles to the south. Running parallel to the Cabrillo Highway, through the Salinas Valley, is U.S. Highway 101, which connects the Monterey County communities of Salinas, Chualar, Gonzales, Soledad, Greenfield, and King City. East-west linkages between the two include State Highways 156 and 183 connecting US 101 and Highway 1 through Castroville and State Highway 68 connecting Monterey with Salinas.

4.2. Population

The population in the county has continued its slow, but regular, progress. According to the U.S. Bureau of the Census, in 1971 Monterey County had a population of 252,800. The 2001 population estimate for Monterey County was slightly over 400,000. As of January 1, 1999, Monterey County’s population for the unincorporated area was 103,700.

4.3 Climate and Rainfall

The climate of Monterey County is characterized by warm, dry summers and cool, moist winters. The average temperature is approximately 56 degrees F. Average rainfall in the County varies, but is approximately 15 inches per year, although in some years rainfall in excess of 30 inches has been recorded. Approximately 90 percent of this rainfall occurs between November and April. Measurable precipitation averages 51 days per year, and the average length of the growing season is 235 days. This beneficial environment continues to promote agriculture and tourism in the county. See Table 3 below for historical rainfall records in King City and Salinas.

Table 3 Average Rainfall Records (inches per month)

	JLY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
King City (1910 – 2001)	0.01	0.02	0.18	0.34	1.06	1.81	2.27	2.32	1.93	0.81	0.23	0.06	10.95
Salinas (1873 – 2001)	0.02	0.03	0.23	0.54	1.37	2.38	2.87	2.36	2.18	1.08	0.39	0.11	13.56

Average annual precipitation for the Big Sur Watershed is estimated at 43 inches. The greatest annual rainfall recorded at the rain gauge in Pfeiffer-Big Sur State Park was 77.53 inches in 1940-1941; the least was 18.87 inches in 1923-24. The average annual rainfall over a period of sixty years (1914-15 through 1973-74) for this location is 39.83 inches. Precipitation increases with altitude in the Big Sur area with average annual precipitation over 50 inches at higher elevations.

4.4. Soils

The soils in Monterey County vary considerably. There are silicon/quartz deposits along the beaches. To the east, toward Salinas, there are alluvial deposits that form some of the finest farmlands in the nation. Within the County itself, there are rolling hills that are heavily wooded. The soils in these areas are of sedimentary origin, but not particularly suited for agriculture.

The soils in the Salinas Valley area are rich, alluvial deposits prime for growing numerous crops. Erosion of the Gabilan Mountains to the east and the Santa Lucia Mountains to the west has been the source of the soils that form the alluvial plain upon which Salinas rests.

4.5. Drainage

Topography within Monterey County is extremely varied. Elevations range from sea level to 5,844 feet at Junipero Serra Peak, which is located 12 miles inland, in the Santa Lucia range. The County includes the famous Salinas Valley, which is bounded by the Gabilan Mountains to the east and the Santa Lucia Mountains to the west. The valley is 10 to 20 miles wide, 130 miles long and has approximately 640,000 acres of broad bottom land.

The Gabilan and Santa Lucia Mountains are the sources of the principal watercourses in the area. The largest of these, the Salinas River, is 155 miles long. This river roughly bisects the county, running from the Monterey-San Luis Obispo County border to its termination point in Monterey Bay. The principal tributaries to the Salinas River are the Arroyo Seco, the Nacimiento River, and the San Antonio River, which catch the high rainfall in the Santa Lucia Mountains, and San Lorenzo Creek, which flows from the Gabilan Mountains.

Meandering creeks that have their headwaters in the surrounding mountains, cross the flat, alluvial portions of Salinas. The soils that have been deposited in the area are from the most recent epoch of geological history, the Pleistocene.

Drainage patterns in Monterey County have been altered by urbanization, resulting in increased runoff that poses a greater flood threat than in previous years. To accommodate the increasing runoff, many cities in the county have developed extensive systems of channels and storm drains. The overall drainage pattern in the county is from south to north, the direction of flow of the Salinas River.

4.6. Historical Flooding in Monterey County

Investigation of flooding from 1911 through 2002 indicates that flood conditions and flood damage were experienced in portions of Monterey County in March 1911, January 1914, February 1922, November 1926, December 1931, February 1937, February 1938, March 1941, January 1943, February 1945, January 1952, December 1955, January 1956, April 1958, February 1962, December 1966, January and February 1969, February 1973, February 1978, March 1983, January and March 1995, and February 1998.

The two largest floods on the Pajaro River occurred in 1955 and 1958. The associated discharges on the Pajaro River for these events were 24,000 cubic feet per second (cfs) and 23,500 cfs, respectively, at the Chittenden gage. The estimated return periods for these floods are 27 years and 26 years, respectively.

Monterey County experienced severe damages in 1969 as the result of two distinct floods – one at the end of January and one at the end of February. Each of these resulted in Monterey County being declared a disaster area. In each flood, both the Salinas and Carmel Rivers went on a rampage. “County officials said they were certain that the \$6.5 million flood damage caused along the Salinas River in 1966, of which \$4 million was in Monterey County alone, would be exceeded” (*Monterey Peninsula Herald*, January 27, 1969).

In January 1978, a series of storms emanated from a more southerly direction than normally occurs. Consequently, some of the more protected beaches were damaged. Jetties and breakwater barriers were overtopped and in some cases undermined. Direct wave damage occurred to many beachfront homes, especially in the more populated beachfront areas all along Monterey Bay. Seawalls and temporary barriers failed to protect beachfront properties from the ravages of the 1978 storms.

The winter of 1983 “El Nino” storms brought an extremely unusual series of high tides, storm surges, and storm waves.

4.6.1. January 1995

Monterey County experienced prolonged and sustained precipitation in January 1995 resulting in extensive flooding throughout the region. Most river valleys were affected, with major damage experienced in the Pajaro Valley and Carmel Valley. On January 9 and 10, 1995, Monterey County was subjected to an intense winter storm during which

CH. 4 - COMMUNITY DESCRIPTION

up to 6 inches of rainfall was received in some areas. The Monterey County Water Resources Agency rated the storm as a 10- to 20-year event.

Five localized areas within the Carmel Valley area were significantly affected by downstream flooding of the Carmel River: Camp Stephani, the Robles Del Rio area of Carmel Valley village, the area adjacent to the Schulte Road Bridge, the Rio Road area adjacent to Highway 1, and Mission Fields.

The January 1995 flood damaged 125 residences resulting in an estimated damage cost of approximately \$2.5 million. In addition, an estimated \$927,000 in damage to public facilities and utilities also occurred. Various agencies and organizations were involved in the response to the flood. The Monterey County Emergency Operations Center (EOC) was activated by the Office of Emergency Services (OES), three “Incident Command Posts” were established in the flooded areas, and the Emergency Broadcast System was utilized.

The County Board of Supervisors declared a local emergency, the Governor declared a state of emergency in Monterey County and other affected counties, and President Clinton declared the State of California a “Major Disaster Area,” designated as “FEMA 1044-DR-CA.”

Shortly after the January 1995 flood, the Monterey County Water Resources Agency made a number of recommendations for corrective actions to the County Board of Supervisors. These recommendations included the installation of better communications equipment and procedures, and encouraging floodplain resident responsibility through the establishment of “Neighborhood Emergency Preparedness Plans.” The Board Report also outlined recommendations for improving the condition of the “Carmel Valley Coordinated Emergency Response Plan,” which had been in draft form since 1990 and designating Mission Fields and the Rio Road area as “Communities at Risk” in the Carmel River Flood Plan in the County’s Multi-Hazard Emergency Plan.

4.6.2. March 1995

From March 10–13, 1995, Monterey County experienced a second significant winter storm which resulted in sustained precipitation falling on already-saturated watersheds. Devastating flooding occurred throughout the County, particularly along the Carmel, Arroyo Seco, Salinas, and Pajaro Rivers. Damage was extensive throughout the County with virtually every community affected. Pajaro, Castroville, Mission Fields, Carmel Valley, Cachagua, Carmel Highlands, Spreckels, and Big Sur sustained devastating damage. Over 1,500 residences were damaged, including 60 homes which were declared uninhabitable. In addition, an estimated 100 businesses were affected, and the tourism industry sustained substantial losses for a period of several months.

In all, over 11,000 people were directly affected, and major portions of the County’s agricultural lands subjected to widespread destruction. California was again declared a Federal Disaster Area designated as FEMA 1046-DR-CA.

CH. 4 - COMMUNITY DESCRIPTION

In particular, flooding of the Salinas, Carmel, and Pajaro Rivers forced mass evacuations in San Ardo, King City, Greenfield, Soledad, Gonzales, Chualar, Spreckels, the River Road area, parts of Salinas, Castroville, Moss Landing, Pajaro, and the Carmel Valley.

Damage to Private Property:

The March floods resulted in County-wide devastation to private property resulting in over 11,000 evacuations and damage to 1,500 homes and 110 businesses. Following is a summary of the damage which occurred in each community:

Carmel Valley	400 residences damaged 68 businesses damaged 2,500 evacuations
Mission Fields	220 residences damaged Total evacuation of all residences
Robles Del Rio	80 residences damaged
Cachagua	100-150 residences damaged
Pajaro	All residences (600+) and businesses damaged 2,500 (out of a total population of 5,000) evacuations
Castroville	312 residences damaged 38 businesses damaged 1,320 evacuations
Spreckels	13 residences damaged

Damage to Public Facilities:

At the height of the flood on March 13, 63 roads and 15 bridges were closed, including the Highway 1 bridge over the Carmel River. The closure of the Highway 1 bridge over the Carmel River resulted in the complete elimination of access to portions of Carmel Valley, Carmel Highlands, and Big Sur for a period of several days, requiring evacuations to take place with helicopters. Other significant effects to public facilities and services included the following:

- Of the 63 roads and 15 bridges which were closed, 62 roads and three bridges sustained damage.
- Public and private water systems were damaged, affecting approximately 3,500 homes and businesses. Eight large water systems and over fifty small systems were affected with the largest being Castroville (1,350 connections). Many

residents were without domestic water service for extended periods. A number of areas were required to boil domestic water prior to use until the water quality was confirmed as safe.

- Sewage treatment facilities and private septic systems along all three major rivers (Carmel, Salinas, and Pajaro) were flooded and untreated sewage was released into the rivers. The amount of untreated sewage released could not be confirmed, but it may have been many thousands of gallons. Major treatment plants affected included Carmel Ranch, Watsonville, King City, Soledad, and Gonzales.
- Gas and electric service provided by Pacific Gas and Electric were affected by the storm, resulting in serious disruptions in service to widespread areas.
- Many public facilities and services were closed or interrupted, including public schools in affected communities.
- Zmudowski State Beach was closed as a result of the discovery of 27 barrels of potentially hazardous materials on the beach.

4.6.3. February 1998

In February 1998, a series of "El Niño" winter storms hit various parts of California, and particularly Monterey County. Close timing of the rainfall events contributed to intense flooding, in that heavy rain would continually hit ground that was still saturated from the previous rain. An estimated 50 roads and highways were closed or restricted, in most cases due to washouts, landslides, and mudslides. Several communities were evacuated, particularly the entire town of Pajaro near Watsonville, all residents of the Sherwood Lake Mobile Home Park near Carr Lake in Salinas, and portions of Bolsa Knolls and Toro Estates. Drinking water quality warnings remained in effect for certain areas for some time afterward. By the end of the first week of February, at least 6,600 homes and businesses had been without power for varying periods of time. The State Governor declared Monterey County, amongst others, a disaster area.

The most significant type of damage involved land and mudslides. In particular, the Las Lomas area experienced severe damage of eight residential parcels which Monterey County acquired, through the Federal Hazard Mitigation Grant Program, removing all property improvements. Each parcel was subsequently rezoned to "open space" in perpetuity.

County-wide, losses resulting from the February 1998 events are estimated at over \$38 million, with specifically agriculture-related losses totaling over \$7 million and involving approximately 29,000 damaged acres.

Figure 3 Carmel River, February 1998



CH. 5 - FLOOD CONTROL SYSTEM DESCRIPTION

5. FLOOD CONTROL SYSTEM DESCRIPTION

5.1. Nacimiento Dam

Nacimiento Dam is a large earthfill dam, constructed in 1957, owned and operated by the Monterey County Water Resources Agency. Located approximately 15 miles northwest of Paso Robles in San Luis Obispo County, it impounds 377,900 acre-feet of water in Lake Nacimiento. When full, the lake is 18 miles long and has 165 miles of shoreline.

The drainage basin for Nacimiento Reservoir covers 324 square miles with the highest elevations in the Santa Lucia Mountains of the Los Padres National Forest. Basin elevations range from 3,744 feet at Alder Peak to 800 feet at the dam's spillway. The Nacimiento Basin is relatively long and narrow, with a southeastern orientation that places about half the basin in Monterey County and half in San Luis Obispo County. Moving toward the southeast from the uppermost reaches, about two-thirds of the basin's length follow the Nacimiento River until the river forms the upper-most reaches of Nacimiento Reservoir. Shorter streams enter the reservoir laterally along the remaining third of the basin. The Pacific Ocean lies over the western drainage divide. Major storms in the area form over the ocean and tend to reduce in intensity as they move inland. The watershed is largely undeveloped, except for locations on or near the south shore of Nacimiento Reservoir.

Currently, the storage capacity in Nacimiento Reservoir is constrained due to rule curve restrictions mandated by the State of California Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC). The purpose of the rule curves is to insure that sufficient flood storage is available in the reservoir to safely pass the inflow design flood.

The reservoir has a minimum pool volume of 22,300 acre-feet and a conservation pool of 237,700 acre-feet. Water from the conservation pool is released during the summer, in conjunction with releases from San Antonio Reservoir, to enhance groundwater recharge in the Salinas Valley.

During the winter, flood protection is provided by keeping an empty space, called the Flood Pool, in the reservoir to temporarily store flood water. The flood pool is between elevation 777.3 feet and the top of the spillway, elevation 800 feet. Lake Nacimiento's flood pool storage is 117,900 acre-feet. Lake Nacimiento has spilled three times since construction: April 1958, February 1969, and April 1983. The larger spill (3,000 cfs) occurred on February 25, 1969, at the same time that 3,770 cfs were being discharged through the outlet works, for a total discharge of 6,770 cfs. On April 29, 1983, 1,100 cfs spilled over the dam due to high inflow.

Nacimiento Reservoir is an important component of the region's existing water supply. Local runoff and groundwater are the only sources of water in the Salinas River Basin, to which Nacimiento Reservoir contributes. Water demands in the Salinas River have exceeded the available safe water yield, resulting in over-drafting of the Salinas Groundwater Basin. Consequently, MCWRA would like to maximize the yields from local surface water sources under its control.

Figure 4 Nacimiento Dam



5.2. San Antonio Dam

San Antonio Dam and its reservoir, Lake San Antonio, are located approximately 7 miles southwest of Bradley on the San Antonio River in Monterey County. The earthfill dam, constructed in 1965, is owned and operated by Monterey County Water Resources Agency. It has a 330 square mile watershed. When full, it is 16 miles long and has approximately 100 miles of shoreline.

The reservoir has minimum pool storage of 23,000 acre-feet. During the 1980's, the storage required by the Flood Rule Curve of the reservoir was increased to allow safe passage of the Probable Maximum Flood (PMF), according to analyses performed at that time. This resulted in less water conservation storage. More recent analysis of the PMF and its effects on San Antonio Dam was performed using the extensive data obtained during the March 1995 event. The more recent analysis has shown that the San Antonio Dam spillway can safely pass the PMF. The California DSOD reviewed the analysis and removed all restrictions on San Antonio Reservoir storage. On July 24, 2000, the MCWRA Board of Directors adopted a new Flood Rule Curve, reducing the maximum Flood Pool Storage to 30,000 acre-feet and increasing the Water Conservation Pool to 282,000 acre-feet. When the lake is full (spillway elevation 780 feet), it has a maximum storage capacity of 335,000 acre-feet.

The maximum elevation during flood stage is 802 feet, with a maximum temporary capacity of about 477,000 acre-feet and a temporary surface area of about 7,500 acres. Almost 2,050 cfs were discharged through the outlet works on March 4, 1971, and two spills have since occurred. One occurred in April 1982 (negligible discharge) and one in March 1983 (1,300 cfs).

Like the Nacimiento Reservoir, the San Antonio Reservoir is a multi-use facility, meaning the dam is operated for flood control, water conservation and recreation uses. It is also an important component of the region's existing water supply. The most

CH. 5 - FLOOD CONTROL SYSTEM DESCRIPTION

important priority of the water conservation operation is to maximize the amount of percolation into the Salinas Valley aquifer. This is accomplished by storing water that flows into San Antonio Reservoir so that water is available for release. It is intended that water releases be made, in conjunction with releases from Nacimiento Reservoir, in a manner that reduces impacts to both recreation and fish, while still meeting the primary goal of percolation.

Figure 5 San Antonio Dam



5.3 Los Padres and San Clemente Dams

There are two significant dams on the Carmel River: Los Padres Dam and San Clemente Dam, shown in Figures 6 and 7. These structures were constructed and are operated by the California-American Water Company of Monterey, California, to supply water for the growing needs of the Monterey Peninsula.

The San Clemente Dam, constructed in 1921, is a concrete arch dam with a 300-foot crest, 106 above the bedrock and 65 feet above the stream bed. The storage capacity has decreased dramatically to 150 acre feet from the original 2260 acre feet. Water supply releases are made by a 30-inch transmission pipe that carries the water to the Carmel Valley Filter Plant a mile downstream.

The Los Padres Dam was built in 1949, six miles upstream from the San Clemente Dam, to augment the water supply. This dam is a rock and earth-filled dam which is as high as a thirteen-story building, its base is as thick as a football field and has an overall crest measurement of 680 feet. There is a concrete spillway to allow excess water to exit the reservoir. The normal outflow is controlled by a system of pipes and valves during the rainy season. The lake extends two miles into wooded back-country with an original storage capacity of 3000 acre feet that has dwindled to 1500 acre feet.

CH. 5 - FLOOD CONTROL SYSTEM DESCRIPTION

No flood control storage is allocated in either reservoir, although some flood control benefits may be attributable to the dams early in the flood season when storage space is available as a result of summer drawdown for water supply. The dams have little effect on reducing peak discharges downstream late in the flood season once they have become full. Los Padres Dam, located in the upper reaches of the basin, is operated in a manner to maintain as much water as possible in San Clemente Dam. After the flood season has passed, flashboards are installed at San Clemente Dam to raise the spillway crest elevation by 12 feet. The flashboards are removed on approximately October 1 of each year, prior to the flood season.

Figure 6 Los Padres Dam

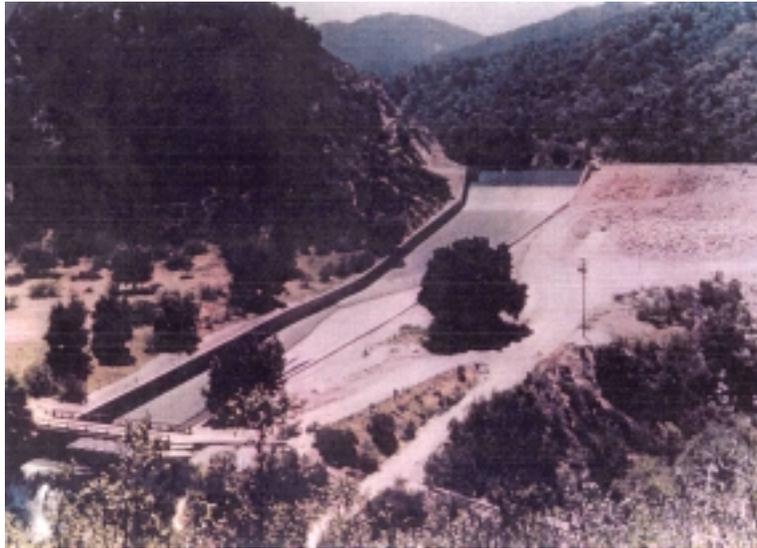
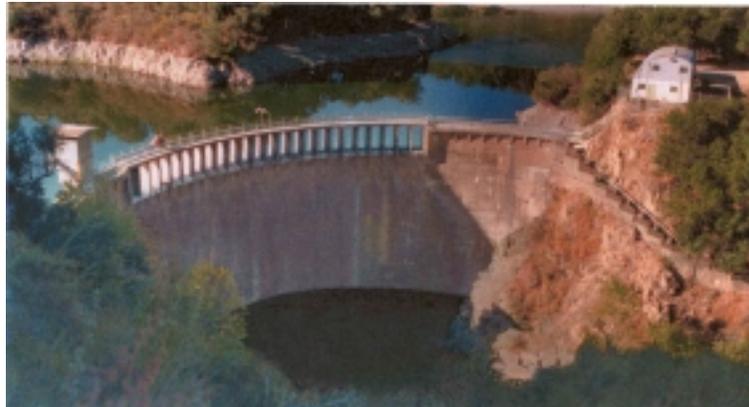


Figure 7 San Clemente Dam



5.4. Carmel River Levees

Levees have been constructed by private interests on the Carmel River from State Highway 1 upstream approximately 4,000 feet on the north bank, and from 3,000 feet

CH. 5 - FLOOD CONTROL SYSTEM DESCRIPTION

upstream of the mouth to 10,000 feet upstream of the mouth on the south bank. These levees are not adequate to hold the 100-year flood.

5.5. Pajaro River Levees

Levees were completed along the Pajaro River by the Corps of Engineers (COE) in 1949. Levees along the north bank begin just upstream of the mouth at the Pacific Ocean and continue to approximately River Mile 11.8 (Murphy Road). Levees along the south bank begin just upstream of the mouth and continue to River Mile 10.6. The levees increased the capacity of the Pajaro River to 22,000 cfs downstream of Salsipuedes Creek, equivalent to a 25-year flood.

In 1963, the COE performed additional studies and recommended that the levees along the Pajaro River be modified to provide additional protection. Construction was authorized in the Flood Control Act of 1966, and the project proceeded to the advanced stages of design. However, support in Watsonville was withdrawn and the project was placed in a deferred status.

5.6. Reclamation Ditch

The Rec Ditch, as it is known today, was formerly Reclamation Ditch District No. 1665. The Rec Ditch was described in the *Report on Reclamation District 1665* by H.F. Cozzens, County Surveyor, in 1944: “The district extends from a point in Tembladero Slough near Castroville to a point one-half mile southerly from Spence Underpass on U.S. Highway No. 101, about five miles south of Salinas and consists of land formerly comprising a chain of lakes leading from Smith Lake to Tembladero Slough near Castroville.... Reclamation Ditch No. 1665 was formed in 1917 and by 1920 a system of ditches had been constructed for the purpose of draining the water from the area into Tembladero Slough and thence to Moss Landing Lagoon.” Many physical changes have occurred within the watershed area of the Rec Ditch drainage system since it’s original construction in 1917. Also, changes in the expected level of flood protection have increased in more recent times. These changes have caused a drainage system that was adequate in 1917 to become inadequate in 2000. The Rec Ditch circa 1917 is shown in Figure 8, and the watershed and present location of Rec Ditch is shown in Figure 9.

Today, the Rec Ditch watershed area covers approximately 157 square-miles of rural, agricultural, and urban lands located in Northern Monterey County and a small mountainous region in San Benito County. The Zone 9 drainage area includes much of the City of Salinas, flow from Prunedale, Gabilan, Natividad, and Alisal Creeks, and drains through a series of old natural lakes between Hartnell Road, south of Salinas, and Castroville. The Ditch eventually joins Tembladero Slough near Castroville and discharges into Moss Landing Harbor through tide gates at Potrero Road. (source: Reclamation Ditch Improvement Plan Recommendations, May 2002)

Figure 8

Reclamation Ditch 1917

RECLAMATION DISTRICT NO 1665
CANAL LOCATION SURVEY
SHEET NO. 1
TOTAL NO SHEETS 29

Lou A. Here
Chief Eng'r

ADDITION OF PLANS.
THIS IS TO CERTIFY that the Board of Trustees of Reclamation District 1917 has adopted the plans shown upon this sheet, and hereby adopts the plans shown on sheets numbered 1 to 29 inclusive, hereto attached, as showing and illustrating the kind, character, and outline of the work to be installed.

Trustees of Reclamation District
1917 of the State of California

APPROVAL OF PLANS.
The Board of Trustees of Reclamation District 1917 has adopted the plans shown upon this sheet numbered 1 to 29 inclusive, and hereto attached, this is to certify that said plans have been, by said Trustees, reported to the Board of Supervisors of Monterey County, California, and said Board of Supervisors have approved and do hereby approve the same.

Chairman of Board of Super.
Attest:
County Clerk

RECLAMATION DISTRICT NO 1665

MONTEREY COUNTY, CALIFORNIA.
Being a Part of the Plans and Specifications for Construction.

TRUSTEES
HENRY BABBIN
J. J. HEBBRON
Y. G. HUDSON

Lou A. Here, Chief Engineer, Salinas, California.

INDEX MAP

Showing Position and Number of Sheets, and
GENERAL LOCATION OF CANALS

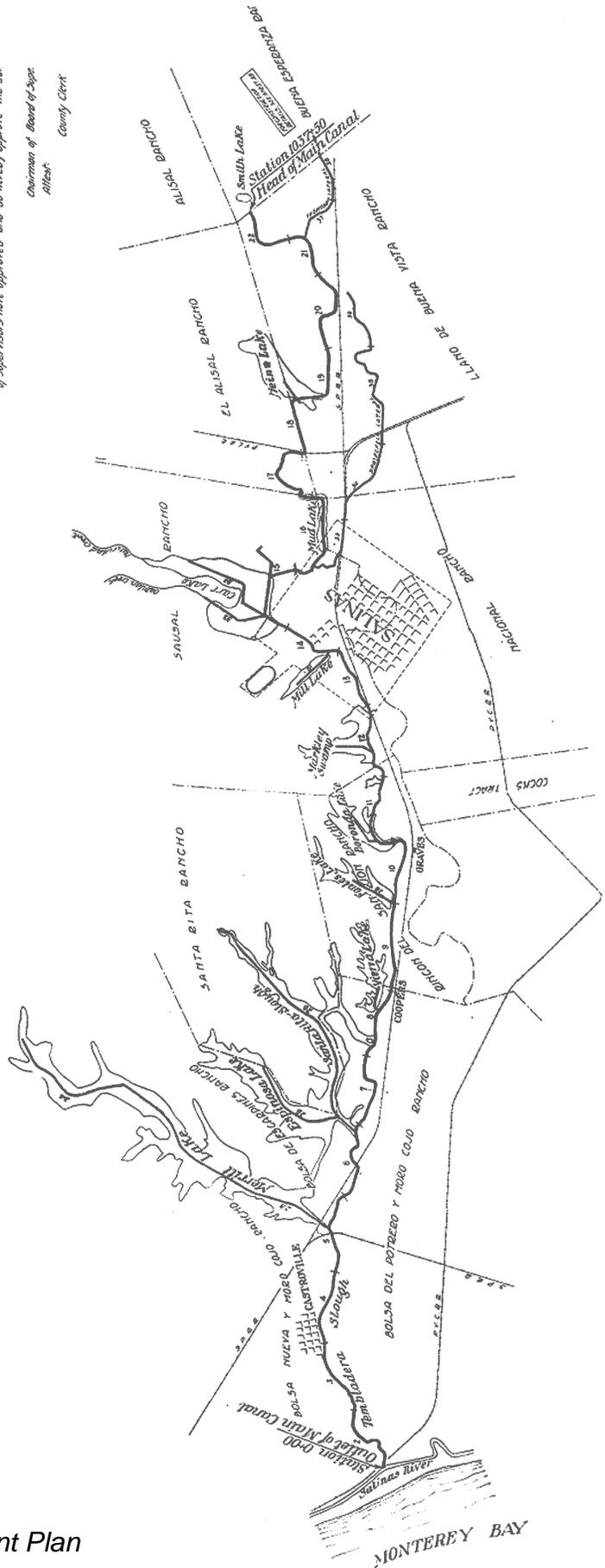
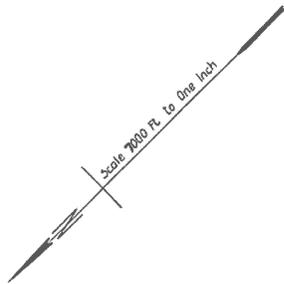
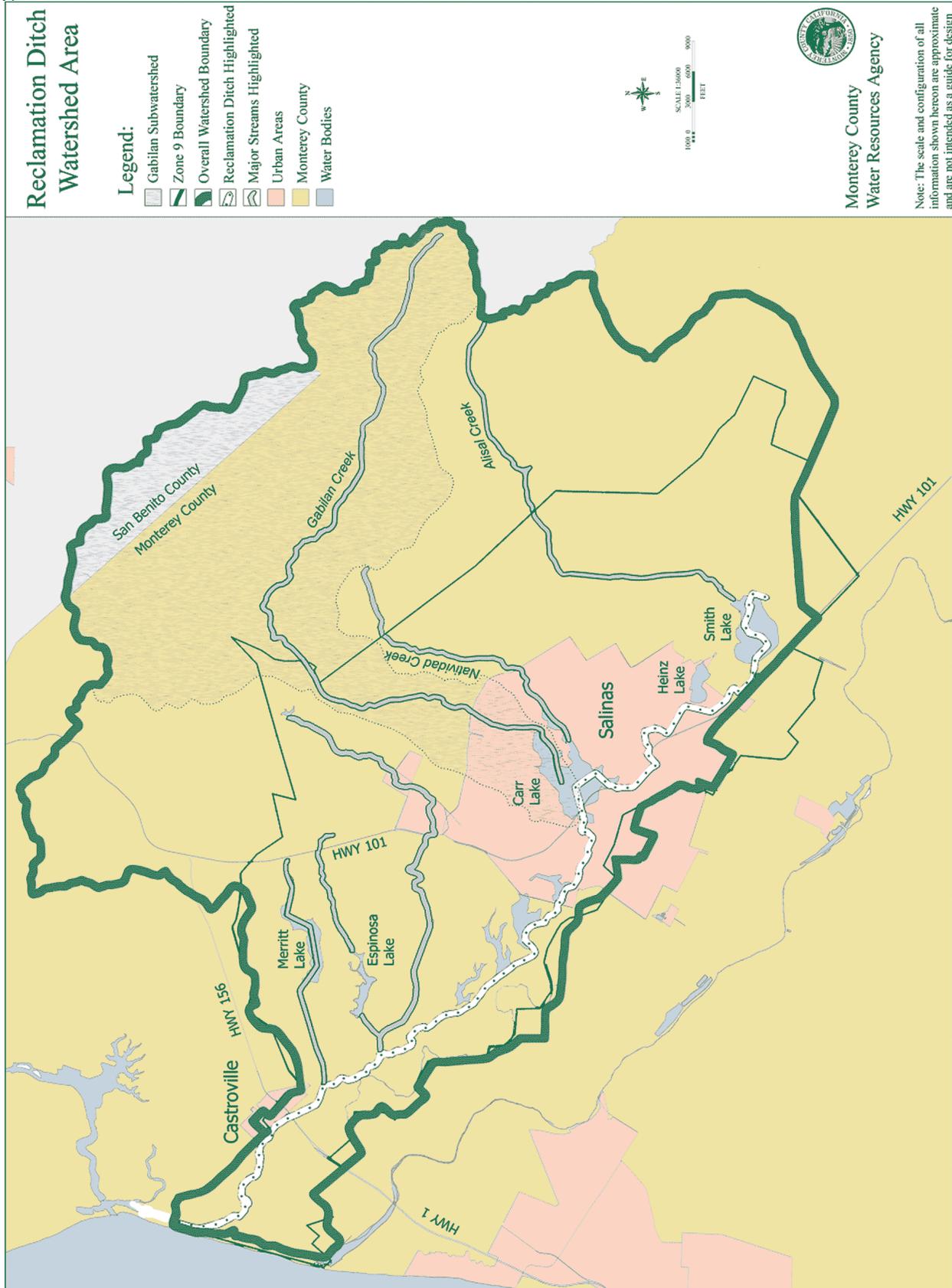


Figure 9 Reclamation Ditch Present



6. HAZARD ASSESSMENT

In keeping with its congressional directives, FEMA established a National Mitigation Strategy that focused on incorporating mitigation as the foundation of emergency management. FEMA also established a National Mitigation Goal to be accomplished by the year 2010. The two components of the goal are (1) to substantially increase public awareness of natural hazards risk so that the public demands safer communities in which to live and work, and (2) to significantly reduce the risk of loss of life, injuries, economic costs, and destruction of natural and cultural resources that result from natural hazards.

This chapter provides a description of basic hazards, flood hazards in Monterey County, and specific flooding sources affecting RLPs.

6.1 Basic Hazard Definitions

The first of five objectives set by FEMA to meet the National Mitigation Goal is *Hazard Identification and Risk Management*. FEMA definitions for multi-hazards are provided below.

6.1.1. Atmospheric Hazards

Thunderstorms and Lightning: These events are generated by atmospheric imbalance and turbulence due to the combination of (1) unstable warm air rising rapidly into the atmosphere; (2) sufficient moisture to form clouds and rain; and (3) upward lift of air currents caused by colliding weather fronts (cold and warm), sea breezes, or mountains. The number one cause of deaths associated with thunderstorms is flashfloods. Lightning-induced fires can also result from thunderstorm activity.

Tornadoes: A tornado is a rapidly rotating vortex or funnel of air extending toward the ground from a cumulonimbus cloud. Most of the time, vortices remain suspended in the atmosphere. When the lower tip of the vortex touches earth, the tornado becomes a force of destruction. Other hazards that accompany weather systems that produce tornadoes include rainstorms, windstorms, large hail, and lightning.

Severe Winter Storms: This phenomenon consists of the large winter storms that bring widespread rainfall to the region. These storms are different than typical thunderstorms in that they produce significant rainfall over a large portion of the region and can last for several days. Severe winter storms are associated with other natural hazards, such as coastal flooding and erosion, thunderstorms, tornadoes, and extreme winds. The 100-year event that defines the Special Flood Hazard Areas would most likely result from an extended duration severe winter storm.

6.1.2. Geologic Hazards

Subsidence: The primary causes of most subsidence are human activities: underground mining of coal, groundwater or petroleum withdrawal, and drainage of organic soils.

Regional lowering of land elevation occurs gradually over time. It may aggravate flooding potential, particularly in coastal areas. Collapses, such as the sudden formation of sinkholes or the collapse of an abandoned mine, may destroy buildings, roads, and utilities.

Generally, subsidence poses a greater risk to property than to life. Damage usually consists of direct structural damage and property loss and depreciation of land values, but also includes business and personal losses that accrue during periods of repair.

Landslides: Landslides are often triggered by other natural events such as floods, earthquakes, and volcanic eruptions. Other human factors contributing to landslides are cut-and-fill, construction of highways, construction of buildings and railroads, and mining operations. During the past 20 years, landslides have resulted in 38 disaster declarations, 15 of them in California. Landslides and mudflows are common events in California because of active mountain-building processes, rock characteristics, earthquakes, and intense storms. There are also human factors that may contribute to or influence landslides. The principal human factors are mining and construction of highways, buildings, and railroads. The principal natural factors are topography, geology, and precipitation.

Landslides are classified by type of movement and type of material. The types of movement are slides, flows, lateral spreads, and falls and topples. The types of material are bedrock and soils, where soils are described as predominantly coarse or predominantly fine. A combination of two or more of the principle types of flows is referred to as a “complex movement.” Monterey County Landslide hazards are shown in Figure 10, liquefaction potential is shown in Figure 11, and erosion hazards are shown in Figure 12.

Slides involve downward displacement along one or more failure surfaces. The material from the slide may be broken into a number of pieces or remain a single, intact mass. Sliding can be rotational, where movement involves turning about a specific point; or translational, where movement is downslope on a path roughly parallel to the failure surface. The most common example of a rotational slide is a slump, which has a strong, backward rotational component and a curved, upwardly concave failure surface.

Flows are characterized by shear strains distributed throughout the mass of material. Flows are distinguished from slides by high water content and the distribution of velocities resembles that of viscous fluids. These flows are a form of rapid mass movement in which loose soils, rocky, and organic matter, combined with air and water, form a slurry that flows downslope.

Mudflows are flows of fine-grained materials, such as sand, silt, or clay, with a high water content. A subcategory of debris flow, mudflows contain less than 50% gravel.

Figure 10 Monterey County Landslide Hazards

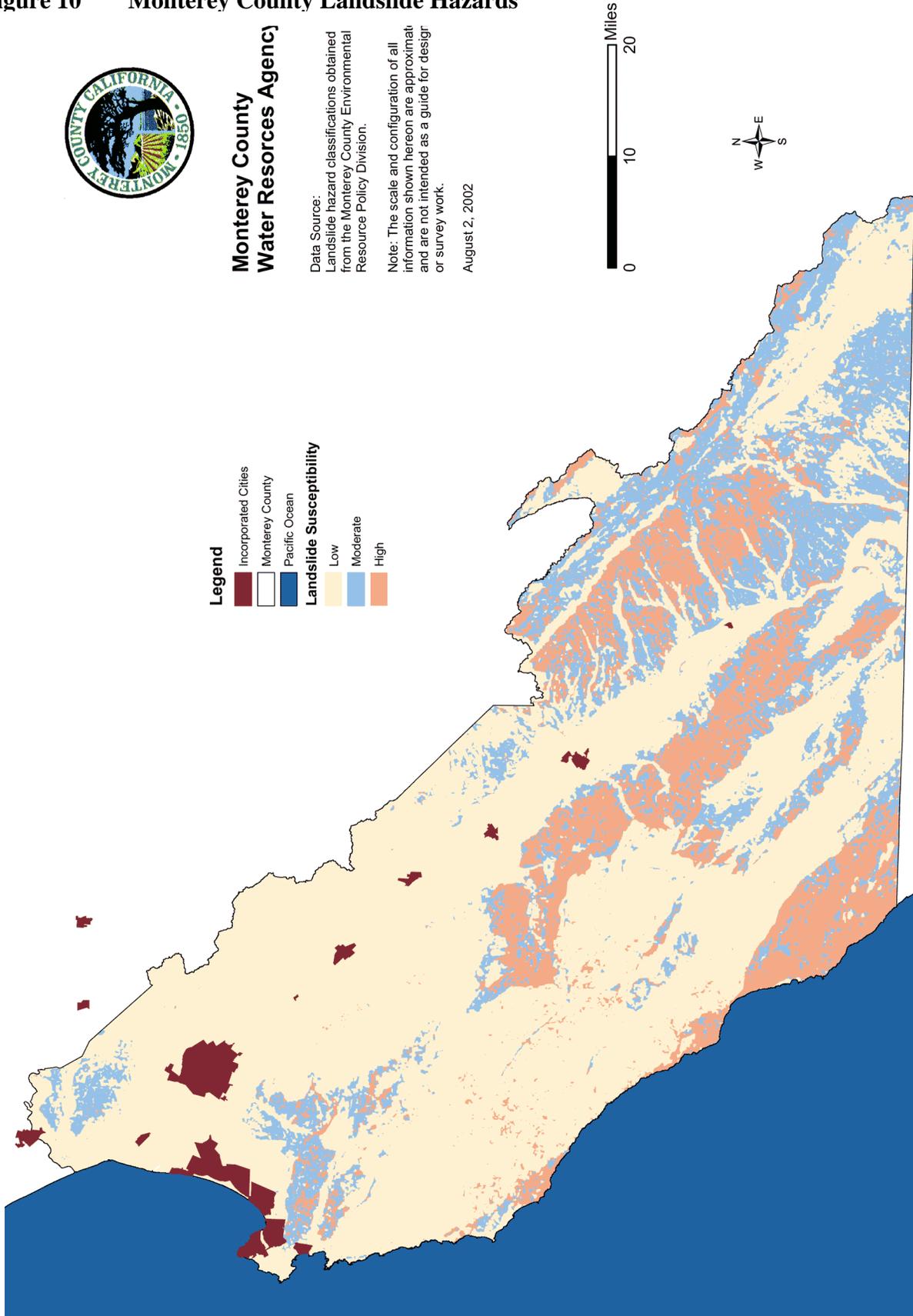


Figure 11 Monterey County Liquefaction Potential

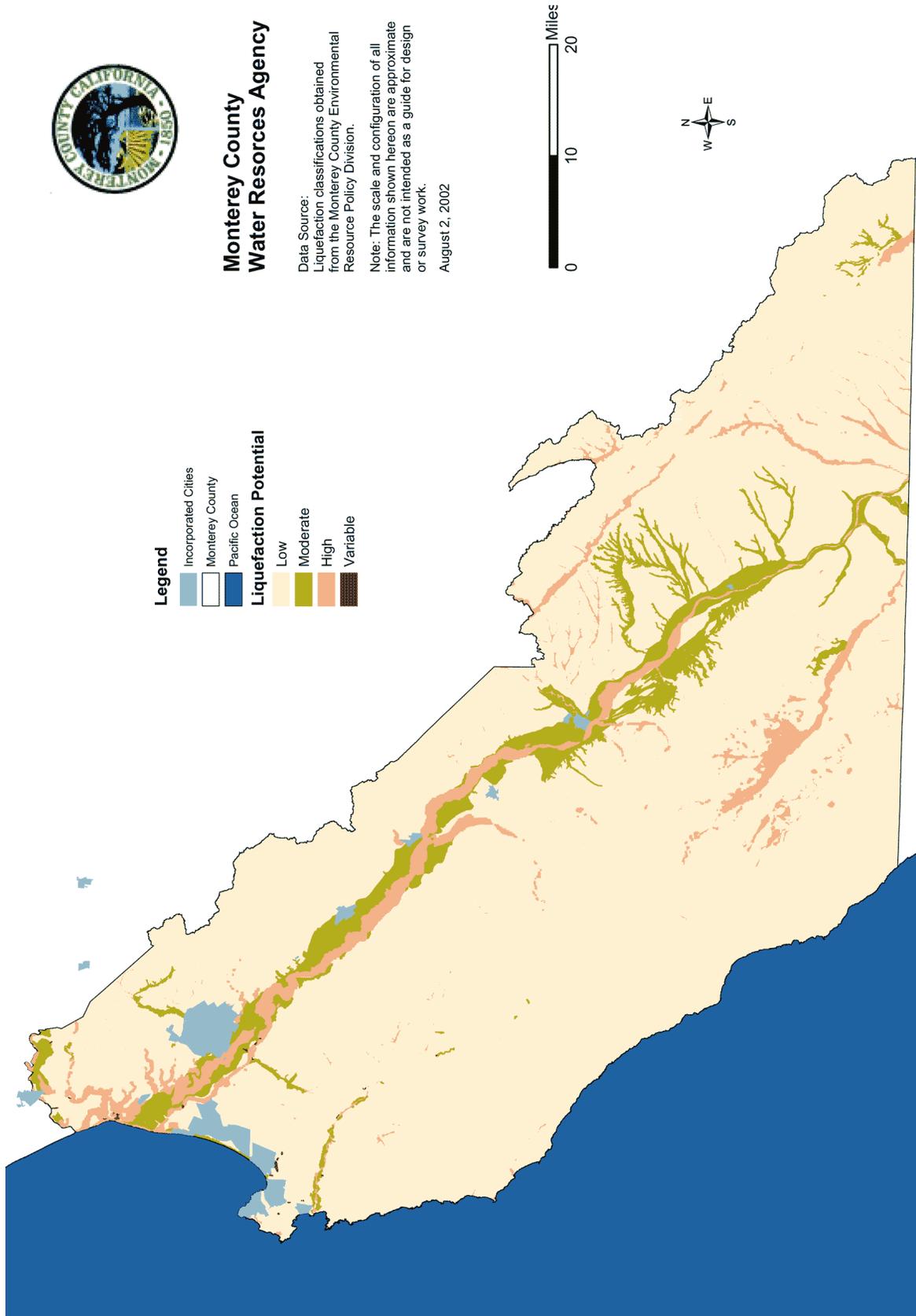
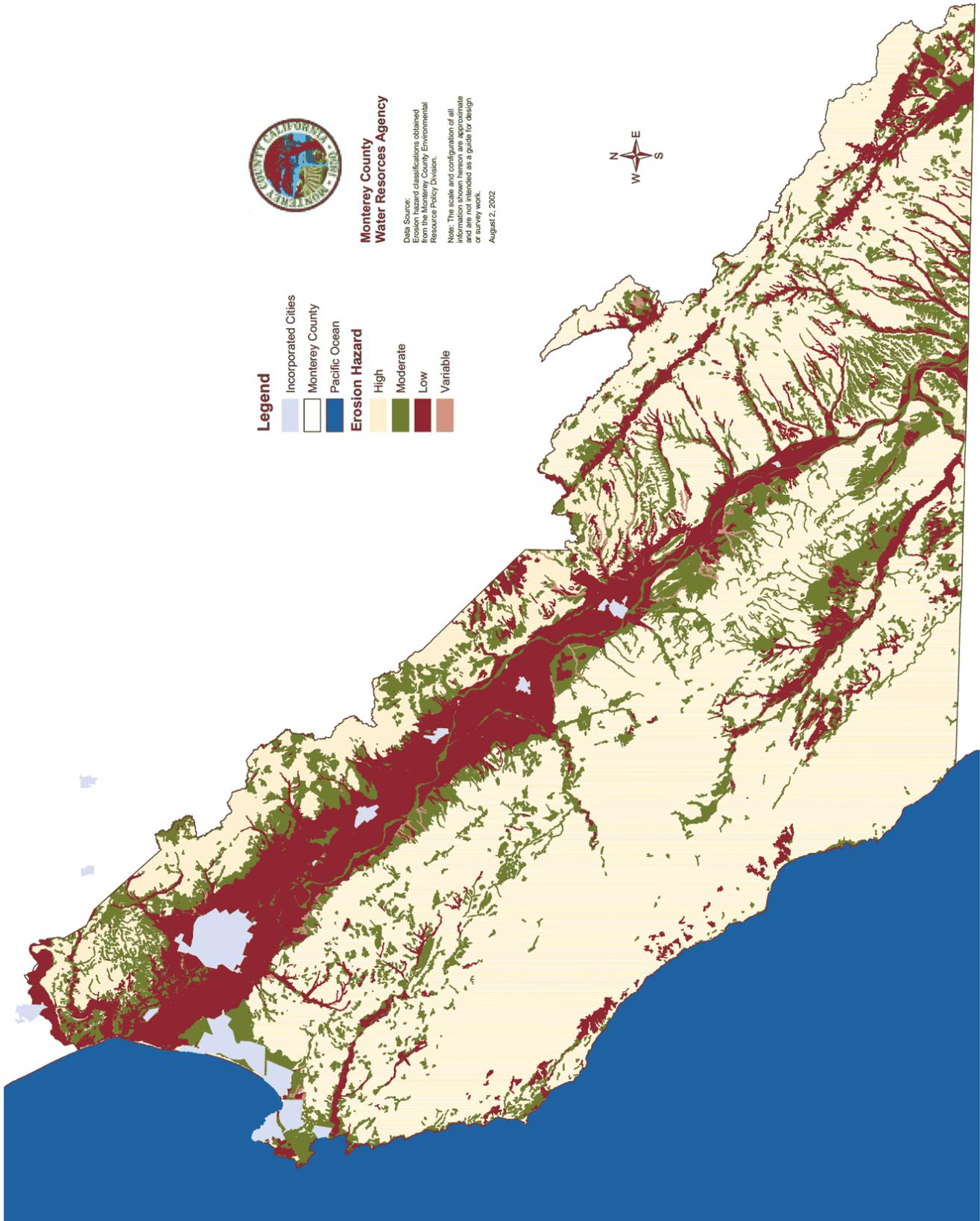


Figure 12 Monterey County Erosion Hazards



Lateral Spreads can occur in fine-grained, sensitive soils such as quick clays, particularly if remolded or disturbed by construction and grading. Loose, granular soils commonly produce lateral spreads through liquefaction.

Falls and Topples. Falls occur when masses of rock or other material detach from a steep slope or cliff and descend by free fall, rolling, or bouncing. Movements are rapid to extremely rapid. Earthquakes commonly trigger rock falls. Topples consist of the forward rotation of rocks or other materials about a pivot point on a hillslope. Toppling may culminate in abrupt falling, sliding, or bouncing, but the movement is tilting without collapse.

6.1.3. Hydrologic Hazards

Flooding: Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. Based on information provided by the Federal Interagency Floodplain Management Task Force, flooding in the South West United States can be separated into several types:

- (1) Riverine (overflow from a river, channel, flash floods, alluvial fan floods, and dam-break floods)
- (2) Local drainage or high groundwater levels
- (3) Fluctuating lake levels
- (4) Coastal flooding (including storm surges and tsunamis)
- (5) Debris flows
- (6) Subsidence

6.1.4. Seismic Hazard

Earthquakes: Monterey County is located in a seismically active area. However, the maximum anticipated earthquake for this area has not been experienced. The principal threat from earthquakes is the damage or collapse of buildings or infrastructure (dams, bridges, overpasses, roads, railways, and water, power, and communication lines).

Tsunamis: A tsunami is a wave or series of waves generated at sea or near shore by an earthquake, volcano, or landslide. Tsunamis often damage or destroy docking and waterfront storage facilities, boats and ships, residential and non-residential buildings, and other infrastructure.

6.1.5. Fire Hazard

Wildfires: There are four categories of wildfires that are experienced throughout the United States:

- (1) Wildland fires are fueled by natural vegetation. Typically occurring in national forests and parks.

- (2) Interface or Intermis fires are urban/wildland fires in which vegetation and the built-environment provide fuel.
- (3) Firestorms are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted.
- (4) Prescribed fires and prescribed natural fires are fires that are intentionally set or selected natural fires that are allowed to burn for beneficial purposes.

The U.S. Forest Service reported in 1990 that 25.7% of wildfires were caused by arson. Other ignition sources include debris burns and lightning. Lightning can present particularly difficult problems when dry thunderstorms move across an area that is suffering from seasonal drought. Watershed areas burned by wildfires create a potential threat to downstream areas, in the event that above-normal rainfall falls over burned watersheds, extensive damage to property from water, mud and water-carried debris could occur in the burned and downstream areas.

6.1.6. System Failure Related Hazards

Dam Failure: Dam failures could result from a significant seismic event or landslide that may or may not be seismically induced. An engineering failure is not likely, but has occurred in the past and is a possibility.

The MCWRA has an Emergency Action Plan (EAP) for both the San Antonio and Nacimiento Dams, which is put into effect in the case of dam failure. This plan compliments the Monterey County Operational Area Emergency Operations Plan (EOP) and the information is reviewed yearly. Included in this review is an evaluation of any changes in the notification flowcharts, watershed, downstream floodplain or cultural features, which might affect the hazards or risk, involved. In odd numbered years, a pre-planned test is conducted to evaluate the effectiveness of the EAP. Either the Reservoir Operator or another will trigger the test at the site in order to test key elements of the chain of notification.

Also this EAP is to be used during major flooding events along the Nacimiento and Salinas Rivers as a guide for emergency personnel in determining maximum flood water elevations, especially in the area south of Soledad, and for notifying emergency personnel during any significant flood event or potential emergency situation regarding Nacimiento Dam. Included in the plan is an inundation map outlining areas of potential inundation if a dam failed completely and suddenly with a full reservoir.

The Reservoir Operator makes daily visual examinations following established procedures. These procedures provide a frequent check on the general appearance and functioning of the dam and appurtenances. The purpose of these examinations is to identify, at the earliest possible time, any readily observable changes. In addition to daily and special examinations by the Reservoir Operator, semi-annual inspections are made by dam safety professionals of the Division of Safety of Dams (DSOD), California

Department of Water Resources, usually accompanied by the Agency's engineers. These inspections are carried out in considerably more depth than the daily examinations and are part of the DSOD's continuing program of evaluation of safety of dams within its jurisdiction.

Settlement Devices placed in the Dam embankment are surveyed annually. The settlement survey is examined by Agency engineers and submitted to the Division of Dam Safety. Any obvious change in the markers is investigated and can be cause for early corrective action.

Power Failure-Induced Flooding Areas: At this time, the only power failure-induced flooding would be from a loss of power at the County's 8 stormwater pumping stations. There is no backup system or generators for these pumps. They are supplied by PG& E and have only lost power once, flooding local agricultural fields.

6.2. Monterey County Flood Hazards

In support of the NFIP, FEMA has undertaken a massive effort of flood hazard identification and mapping to produce Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FHBMs). Several areas of flood hazards are commonly identified on these maps. One of these areas is the Special Flood Hazard Area (SFHA), which is defined as an area of land that would be inundated by a flood having a 1-percent chance of occurring in any given year (also referred to as the base or 100-year flood).

The 1-percent annual chance standard was chosen after considering various alternatives. The standard constitutes a reasonable compromise between the need for building restrictions to minimize potential loss of life and property and the economic benefits derived from floodplain development. Development may take place within the SFHA, provided that development complies with local floodplain management ordinances (see Chapter 1.2.4.), which must meet the minimum Federal requirements. Flood insurance is required for insurable structures within the SFHA to protect Federal financial investments and assistance used for acquisition and/or construction purposes within communities participating in the NFIP.

Flood Hazards within Monterey County have been identified and shown on the FEMA Flood Insurance Rate Maps (FIRMs) and Floodway Maps. The areas studied in detail were chosen with consideration to all proposed construction and forecasted development through 1989. Streams studied by approximate methods were those considered to have low development potential or minimal flood hazards. The hydrologic and hydraulic analyses for most of the original Flood Insurance Study (FIS) dated January 30, 1984, were performed for FEMA by George S. Nolte and Associates. Additional analyses for the Pajaro River and Thomasello Creek were performed by Brown and Caldwell. Coastal analyses conducted by Ott Water Engineers, Inc. in August 1984 resulted in the revised FIS dated September 27, 1991.

In 1996, FEMA released a digital product called Q3 Flood Data that was developed by electronically scanning the effective paper FIRM map panels. The Q3 Flood Data

product is a valuable tool used to assist in screening property addresses within GIS to determine flood risks. However, as the geographic processing performed to develop the Q3 Flood Data may introduce differences with the source hardcopy FIRMs, users must apply considerable care and judgment in the application of this product. The Q3 Flood Data does not replace the existing hard copy paper FIRM. Users should be aware that the product does not include the following items: base map data (streets, etc); base flood elevation lines and elevations; cross sections and letter identifiers; elevation reference marks and their elevations; floodways. All known Special Flood Hazard Areas within Monterey County are shown in Figure 13, which was generated using the Q3 Flood Data.

6.2.1. FEMA Flood Zone Designations in Monterey County

The following flood zones are identified on Monterey County FEMA FIRMs. Each designation indicates the magnitude of the flood hazard within a specific area. Zones A, AO, AH, A1-A30, V and V1-V30 are Special Flood Hazard Areas. Zones B and C identify areas of lesser hazard.

Zone A: Areas subject to inundation by the 100-year flood. Because detailed hydraulic analyses have not been performed, no base flood elevations or depths are shown on the FIRM, and the Floodway has not been delineated. Mandatory flood insurance purchase requirements apply.

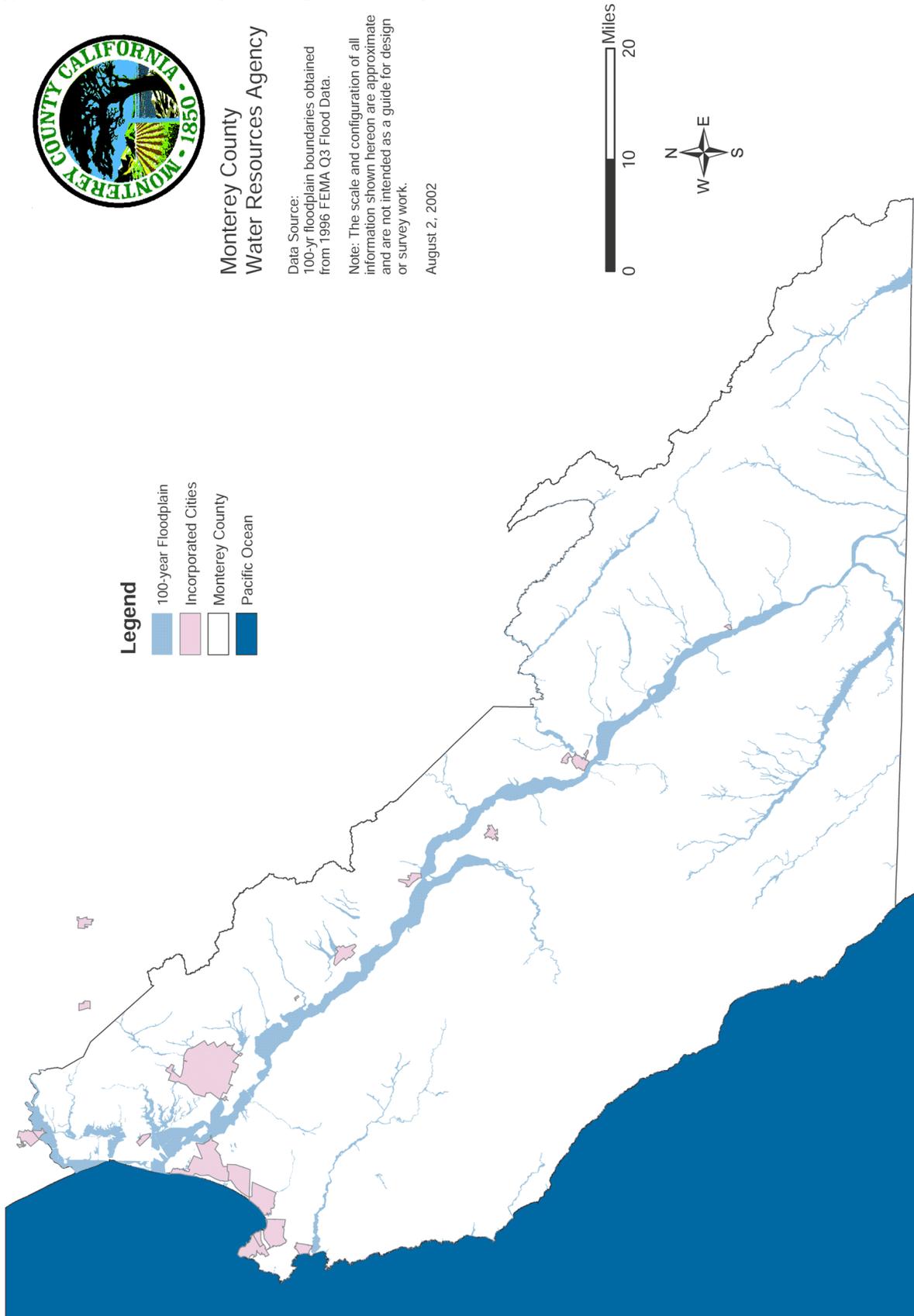
Zone AO: Areas subject to inundation by 100-year shallow flooding, usually sheet flow on sloping terrain, where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone AH: Areas subject to inundation by 100-year shallow flooding, usually areas of ponding) where average depths are between one and three feet. Base flood elevations derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements apply.

Zones A1-A30: Areas subject to inundation by the 100-year flood event determined by detailed methods. Base flood elevations are shown within these zones, and the mandatory flood insurance purchase requirements apply. Flood hazard factors are shown on the FIRM, the floodway has been defined on the Floodway Map, and additional hydraulic information is provided in the Flood Insurance Study.

Zone B: Areas between the limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.

Figure 13 Monterey County Known Special Flood Hazard Areas



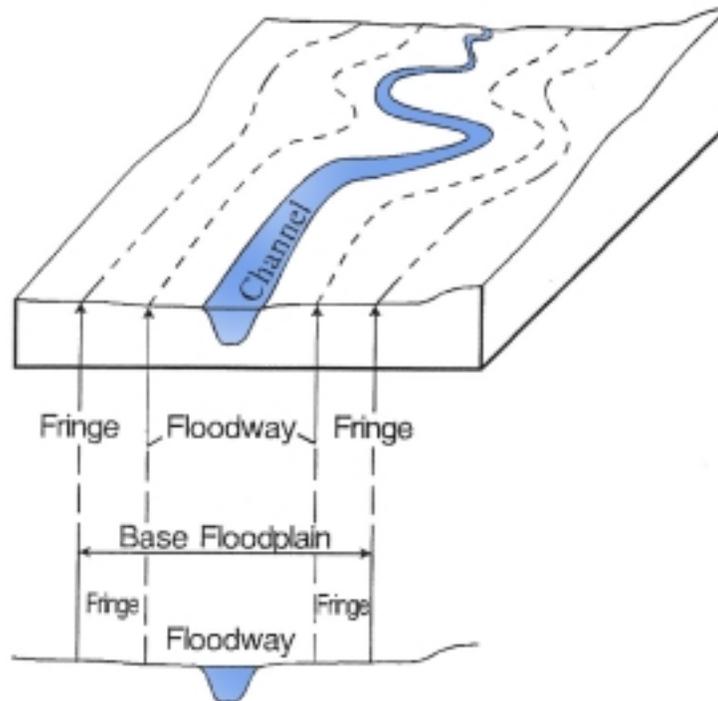
Zone C: Areas of minimal flooding. However, buildings in these areas could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Local stormwater drainage systems are not normally considered in the community's Flood Insurance Study. Flood insurance is available, but not required by regulation, in zones B and C.

Zone V: Areas along coasts subject to inundation by the 100-year event with additional hazard due to storm-induced waves. Because detailed hydraulic analyses have not been performed, no base flood elevations or depths are shown. Mandatory flood insurance purchase requirements apply.

Zone VI-V30: Areas along coasts subject to inundation by the 100-year event with additional hazards due to storm-induced velocity wave action. Base flood elevations derived from detailed hydraulic analyses are shown within these zones. Mandatory flood insurance purchase requirements apply.

Floodway: The floodway, shown in Figure 14 below, is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood may be carried without increasing flood heights.

Figure 14 Floodway Profile



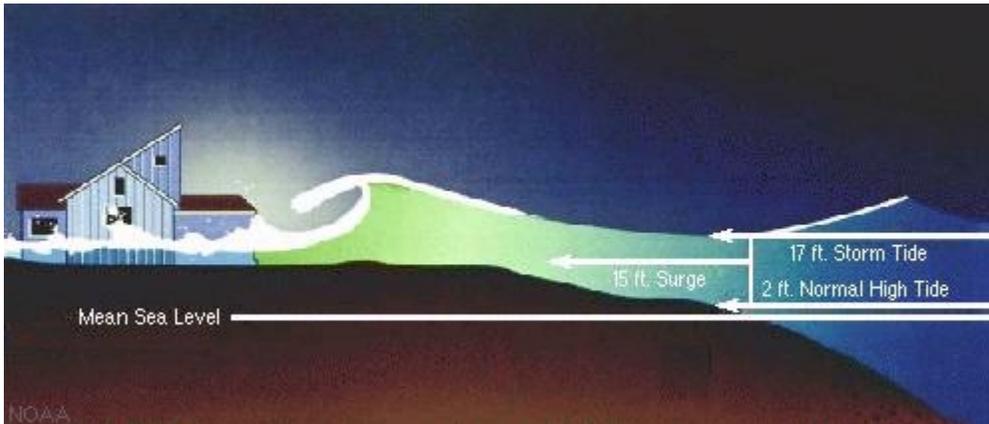
6.2.2. Regulated Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The County is responsible for prohibiting encroachments, including fill, new construction, and substantial improvements, within the regulated floodway unless it has been demonstrated through hydrologic and hydraulic analyses that the proposed encroachment will not increase flood levels.

6.2.3. Coastal Flooding, Erosion and Storm Surge Areas

Zones V and V1-V30 are coastal SFHAs subject to inundation by the 100-year flood with the additional hazards associated with storm waves, shown in Figure 15 below.

Figure 15 Storm Surge Diagram



Storm surges, responsible for coastal flooding and erosion, are associated with severe winter low-pressure systems in the North Pacific Ocean and the Gulf of Alaska. In 1982-83, a severe winter storm caused more than \$100 million in damage along the California coast.

A storm surge occurs when the water level of a tidally influenced body of water increases above the normal astronomical high tide. Factors controlling storm surges include:

1. Wind speed: In areas with mild slopes and shallow depths, the resulting flooding can reach greater heights.
2. Low Barometric Pressures: Usually experienced during coastal storms, which cause water surface to rise.
3. Timing of Storm: Storms can reach the coast during peak astronomical tide.

4. Coastal Shoreline Configuration: Concave features or narrowing bays create a resonance within the area.

Coastal erosion is generally associated with storm surges, hurricanes, windstorms, and flooding hazards, and may be exacerbated by human activities such as construction of seawalls, groins, jetties, navigation inlets, boat wakes, dredging and other interruption of physical processes. Coastal erosion is measured as the rate of change in the position or horizontal displacement of a shoreline over a period of time.

Natural recovery after erosive episodes can take months or years. If a dune or beach does not recover quickly enough via natural processes, coastal and upland property may be exposed to further damage in subsequent events. Although death and injury are not associated with coastal erosion, it can cause the destruction of buildings and infrastructure.

Actions to supplement natural coastal processes, such as beach nourishment and dune stabilization, can modify erosion trends. Construction of shore protection structures can mitigate the hazard, but may exacerbate it under some circumstances.

6.2.4. Tsunami Hazard Areas

Tsunamis are large seismic sea waves, typically induced by a rapid, vertical thrust along the subsurface fault line between two tectonic plates of the earth's crust. Also, when a large mass of earth on the ocean bottom impulsively sinks or uplifts, the column of water directly above it is displaced, forming a tsunami wave on the surface. Volcanic activity and submarine landslides (sometimes the result of earthquakes) can also cause tsunamis.

The Great Alaskan Earthquake of 1964 was the largest earthquake in North America (Richter magnitudes reported ranged from 8.4 to 8.6) and second largest ever recorded (the largest occurred in Chile in 1960). It caused 115 deaths in Alaska, all of which were due to tsunamis generated by tectonic uplift of the sea floor and submarine landslides. Impacts from the tsunamis were felt all along the Pacific Region. Thirteen deaths and \$10 million in damages were reported in California as a result of an earthquake-induced tsunami.

Coastal topography defines the landward penetration of tsunami wave runup and flood inundation. Although a subduction-zone tsunami wave event has not occurred in recent history, exposure to potential disaster has increased due to development activities along the coast and the heavily populated coastal area of the West Coast. A subduction-zone earthquake close to the shore could generate a tsunami wave that reaches the shoreline in less than 20 minutes, making evacuation time insufficient.

As part of the international Tsunami Warning System (TWS), NOAA, through the National Weather Service, operates the Alaska Tsunami Warning Center, which serves as the regional warning center for Alaska, British Columbia, Washington, Oregon, and California coastal areas. Tsunami warnings are developed based on seismic data received

from NOAA, the United States Geological Survey, and other member agencies. Warnings include predicted tsunami arrival times at selected coastal communities (i.e., those communities within the potentially affected geographic area). Tsunami warning information is disseminated to national, state, and local emergency officials, as well as the general public. The public is alerted over commercial radio and television channels, the NOAA Weather Radio Station, US Coast Guard marine radios, and through other local programs. Local authorities are responsible for formulating and executing evacuation plans. Currently, emergency procedures for tsunamis are outlined in the County's Multi-Hazard Emergency Plan.

6.3. Monterey County RLP Flood Hazard Description

As required by Step D of the planning process, this section identifies the flooding sources affecting RLPs and provides flooding depths and flooding velocities where such data are available. A summary of the flood hazards affecting each RLP is provided on page 48, Table 4. Maps showing the location of each Monterey County RLP are included in Appendix A. Hydrologic and hydraulic information, as well as travel times, for select streams are provided in Appendix B.

6.3.1. Big Sur River

The drainage area of the Big Sur River has been calculated to be 60.78 square miles (California Department of Water Resources, 1971) and 58.53 square miles (Black & Veatch, 1980). Water from the upper basin is funneled through the Big Sur Gorge in the eastern portion of Pfeiffer-Big Sur State Park. The Lower Big Sur River Basin is approximately 12.5 square miles in area.

The average annual runoff of the Big Sur River for the Twenty-Seven year period between 1950 and 1977 is 64,900 acre feet based on USGS stream gauge records (Vita, 1980). The greatest mean runoff occurs in January when it is more than 240 cubic feet per second. The maximum recorded stream discharge was 7,100 cfs recorded on April 2, 1958.

A USGS stream gauge is located on the Big Sur River just below the gorge (next to the abandoned bridge abutment in Weyland Camp – 0.4 miles upstream from the mouth of Post Creek) in Pfeiffer-Big Sur State Park. Prior to October 1, 1951, the gauge was located 0.9 miles downstream at a different datum.

6.3.2. Calera Creek

Calera Creek is the southern most tributary to El Toro Creek, and is divided into four subwatersheds in the El Toro Creek Master Drainage Plan.

Watersheds 1 and 2 are two adjacent mountainous watersheds that extend to the upper reaches of the ranges meeting at Mount Toro. The main watercourses for both watersheds are well-defined creeks that combine their runoff upon entering Watershed 3.

The estimated 100-year peak flow from watersheds 1 and 2 is 247 cfs and 352 cfs, respectively.

Watershed 3 is also quite mountainous. There is one well defined watercourse through a deep canyon. At the convergence of Watershed 1 and 2 with 3, Underwood Road crosses the watercourse via a 9-foot bridge that clears the streambed by 4.5 feet. The estimated 100-year peak flow from watershed 3 is 691 cfs.

In Watershed 4, a flat-bottomed valley begins to appear part way down and becomes progressively wider toward the end. The Valley soils are granular. This valley includes the upper end of Calera Canyon Road, the public portion of which does not cross the main channel. The lower end of the watershed is at the junction of Corral de Tierra and Robley Roads where Calera Creek joins Watson Creek to form Corral de Tierra Creek. Most of the houses in this area have their own private driveways with structures crossing the creek. The Calera Creek Channel is 8 to 10 feet wide and 4 to 8 feet deep with steep side slopes.

Approximately 3,500 feet of Calera Creek, upstream of the intersection of Corral De Tierra Road and Calera Canyon Road, was studied in detail by FEMA. In this reach, flooding velocities range from 5.0 to 8.6 feet per second. The Monterey County Flood Insurance Study estimates a 100-year peak flow of 850 cfs at Robley Road which is the bottom of Watershed 4 defined in the El Toro Creek Master Drainage Plan.

6.3.3. Carmel River

The Carmel River rises in the California Coast Range of mountains and has a total length of about 35 miles. The entire drainage basin is located on the western slopes of the Sierra De Salinas Range. The watershed rises about 3,500 feet above sea level. The upper reaches flow northwesterly, generally following the trend of the fault block structure of the Coast Range, to confluence with a major tributary, Tularcitos Creek at river mile 15.7, from this point the lower reach flows in a more westerly direction through the Carmel Valley and into the Pacific Ocean at Carmel Bay, just south of the City of Carmel. Average annual precipitation varies from 17 inches in the lower reaches to over 40 inches in the upper tributaries at the higher elevations. The river drains an area of 255 square miles. Level areas are confined mainly to the lower 16 miles of the basin, known as Carmel Valley, where the valley floor widens to approximately one-half mile. The average gradient of the upper reach from the source to the confluence with Tularcitos Creek is about 320 feet per mile and the stream is actively eroding its bed. Valley trenching is particularly evident in the Tularcitos and Cachagua Creek subwatersheds. The average gradient of the lower reach through Carmel Valley is only about 40 feet per mile. In portions of the downstream reach, the valley is braided with discordant channels and evidence exists that the river has meandered considerably over the floodplain in the recent geological past. Flood damage in Carmel Valley is caused by inundation of the floodplain and erosion due to high velocity flows at bends in the river. 100-year Flooding velocities on the Carmel River range from 3.0 to 14.0 feet per second. Peak

discharges and drainage areas at select locations along the River are shown in Appendix B-1.

6.3.4. Carneros Creek

Carneros Creek 100-year flooding velocities range from 0.1 to 10.2 feet per second. Peak discharges and drainage areas at select locations along the Creek are shown in Appendix B-1. Downstream of Elkhorn Road, Carneros Creek becomes Elkhorn Slough.

RLP No. 98 is located approximately ¼ mile downstream from the intersection of San Miguel Canyon Road and Carneros Creek, shown in Figure 16. The photo was taken in July 1998, looking upstream toward San Miguel Canyon Road.

Figure 16 Carneros Creek, July 1998



6.3.5. Castroville Boulevard Wash

At Elkhorn Road, Castroville Boulevard Wash has a 3.5 square mile drainage area and a 100-year peak discharge of 125 cfs. Flooding velocities along the Wash range from 0.7 to 7.8 feet per second. The Castroville Boulevard Wash confluence with Moro Cojo Slough is approximately 2,500 feet downstream from Elkhorn road.

6.3.6. El Toro Creek

El Toro Creek watershed lies to the west of the Salinas River along Highway 68. El Toro Creek drains over 41 square miles and enters the Salinas River just north of State

Highway 68 east of Reservation Road. Elevations within the watershed range from 3,560 feet at Mount Toro to 50 feet at the Salinas River. The longest distance for water to run off to the Salinas River is 16.8 miles via Calera Canyon and El Toro Creek. The 100-year flooding velocities on El Toro Creek range from 3.9 to 8.8 feet per second. Peak discharges and drainage areas at select locations are shown in Appendix B-1.

Most of the higher areas are mountainous with slopes averaging about 50 percent. They are penetrated by narrow alluvium filled valleys. Moving downstream toward Highway 68, these valleys widen and have more gentle slopes. The lowest portion of the watershed includes the El Toro Creek floodplain which is the most highly urbanized portion.

Most of the mountainous area is brush-covered, especially those parts facing south and west. However, there is forest on those portions of the watersheds receiving more rain and having shady slopes. In certain areas the soil is granular and highly permeable, infiltrating a significant amount of precipitation.

Large amounts of sediment and debris were deposited in the stream channel during the 1995 and 1998 floods resulting in increased flooding on lower El Toro Creek. The photos shown in Figures 17 and 18 were taken several hundred feet downstream from the Creekside condominiums looking downstream.

Figure 17 El Toro Creek, January 1998



Figure 18 El Toro Creek, August 2002



6.3.7. Pebble Beach Localized Flooding

The two Pebble Beach RLPs are not located within a FEMA designated 100-year floodplain, nor are there any perennial or intermittent streams nearby. No information is available regarding depth of flooding, velocities, or warning times in the areas that flooded. It was learned through communication with local residents and the Pebble Beach Company staff that flooding resulted from clogged drainage facilities.

6.3.8. Paloma Creek

Paloma Creek is a tributary to Piney Creek. A small portion of the stream was studied in the Monterey County Flood Insurance Study using approximate methods. However, RLP No. 102 is located in Zone C, approximately 500 feet north of the limits of the defined 100-year floodplain. No information is available regarding depth of flooding, velocities, or warning times for Paloma Creek.

6.3.8. Piney Creek

Piney creek, a tributary to the Arroyo Seco River, is a perennial stream located in southern Monterey County, southwest of Greenfield. Piney Creek was studied using approximate methods in the Monterey County Flood Insurance Study. No information is available regarding depth of flooding, velocities, or warning times for Piney Creek.

6.3.9. Ralph Lane

A reclamation ditch for storm water drainage meanders across eleven residential lots on Ralph Lane, located east of Highway 101, approximately three miles north of the City of Salinas, in northern Monterey County. During January 1997, flooding (FEMA Disaster

1155) caused damage to several houses along Ralph Lane including RLP No. 106. The photo in Figure 19 was taken from the Ralph Lane bridge looking downstream. Figure 20 shows the natural channel, and it was taken at the downstream end of the concrete channel shown in the previous figure.

Figure 19 Ralph Lane Channel, January 1998



Figure 20 Ralph Lane Channel, January 1998



6.3.10. San Miguel Canyon Creek

San Miguel Canyon Creek 100-year flooding velocities range from 1.3 to 9.8 feet per second. Peak discharges and drainage areas at select locations along the Creek are shown in Appendix B-1. No flood warning time information is available for the Creek.

6.3.11. Santa Rita Creek

Santa Rita Creek drains approximately 13.7 square miles of watershed into the Reclamation Ditch along Highway 183 according to the *Monterey County Master Drainage for the Santa Rita Creek Watershed*. Included in this area is the 4.2 square mile Espinosa Lake Watershed which drains into Santa Rita Creek about 2,200 feet upstream of its juncture with the Reclamation Ditch.

CH. 6 - HAZARD ASSESSMENT

The furthest upstream point of the Santa Rita Creek watershed is about twelve miles above the Reclamation Ditch. The watershed's width varies from 2,000 to 9,000 feet and elevations range from Sea Level to 500 feet.

The 100-year flooding velocities on Santa Rita Creek range from 1.3 to 5.1 feet per second. Peak discharges and drainage areas at select locations along the Creek are shown in Appendix B-1. No flood warning time information is available for the Creek.

Table 4 RLP Flood Hazard Summary

RL ID #	Flooding Source	Cause of Flooding	Flood Zone	Pre-Firm?	Elev. Cert. On File?
1	Big Sur River	Hillside runoff.	A & C	Y	N
2	Calera Creek	Riverine flooding.	A5, B, C & Floodway	N	N
3	Carmel River	Riverine flooding.	A7	Y	N
4	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
5	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
6	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
7	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
8	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
9	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
10	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
11	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
12	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
13	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
14	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
15	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	Y 10/19/88
16	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
17	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
18	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	Y 1/13/87
19	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
20	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
21	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
22	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
23	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
24	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
25	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
26	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
27	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
28	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
29	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
30	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
31	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
32	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
33	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
34	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
35	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
36	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
37	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
38	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
39	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
40	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
41	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
42	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
43	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
44	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
45	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N

CH. 6 - HAZARD ASSESSMENT

RL ID #	Flooding Source	Cause of Flooding	Flood Zone	Pre-Firm?	Elev. Cert. On File?
46	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
47	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
48	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
49	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
50	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7 & A13	Y	N
51	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7 & A13	Y	N
52	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
53	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A13	Y	N
54	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
55	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
56	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
57	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
58	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
59	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
60	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
61	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
62	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
63	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
64	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
65	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
66	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
67	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
68	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
69	Carmel River	Riverine flooding (Mission Fields-CSA 50).	A7	Y	N
70	Carmel River	Riverine flooding (CSA 50).	A18, A7	Y	N
71	Carmel River	Riverine flooding (CSA 50).	A18, A7	Y	N
72	Carmel River	Riverine flooding (CSA 50).	A18	Y	N
73	Carmel River	Hillside runoff.	A14 & B	Y	N
74	Carmel River	Lowest floor nearly 3' below BFE.	A7	Y	Y 8/16/89
75	Carmel River	Riverine flooding.	A7	Y	N
76	Carmel River	Riverine flooding.	A7 & B	Y	N
77	Carmel River	Riverine flooding.	A7 & Floodway	Y	N
78	Carmel River	Riverine flooding.	A7 & Floodway	Y	N
79	Carmel River	Riverine flooding. Stairs into river.	A7, B & Floodway	Y	N
80	Carmel River	Riverine flooding.	A7 & Floodway	Y	N
81	Carmel River	Riverine flooding.	A7 & Floodway	Y	N
82	Carmel River	Riverine flooding.	A7 & Floodway	Y	N
83	Carmel River	Riverine flooding.	A7, C & Floodway	Y	N
84	Carmel River	Riverine flooding.	A7, C & Floodway	Y	N
85	Carmel River	Riverine flooding.	A7, C & Floodway	Y	N
86	Carmel River	Riverine flooding.	A7, C & Floodway	Y	N
87	Carmel River	Riverine flooding (LFE > 1 foot above BFE).	A7 & C	Y	Y 2/13/92
88	Carmel River	Riverine flooding.	A7 & C	Y	N
89	Carmel River	Riverine flooding.	A7	Y	N
90	Carmel River	Riverine flooding.	A8, A11 & Floodway	N	N
91	Carmel River	Riverine flooding.	A8, B, C & Floodway	Y	N

CH. 6 - HAZARD ASSESSMENT

RL ID #	Flooding Source	Cause of Flooding	Flood Zone	Pre-Firm?	Elev. Cert. On File?
92	Carmel River	Riverine flooding.	A12 & Floodway	Y	N
93	Carmel River	Riverine flooding.	A12 & Floodway	Y	N
94	Carmel River	Riverine flooding.	A12 & Floodway	Y	N
95	Carmel River	Riverine flooding.	A12 & Floodway	Y	N
96	Carmel River	Riverine flooding.	A & C	Y	N
97	Carneros Creek	Riverine flooding.	A3, A5,C & Floodway	Y	N
98	Carneros Creek	Riverine flooding.	A5, C, & Floodway	Y	N
99	Castroville Boulevard Wash	Riverine flooding.	A2 & Floodway	Y	N
100	El Toro Creek	Riverine flooding (sedimentation of channel).	C	Y	N
101	El Toro Creek	Riverine flooding (sedimentation of channel).	A7 & Floodway	Y	N
102	Paloma Creek	Riverine flooding.	C	Y	N
103	Pebble Beach Localized Flooding	Debris clogged street area drains.	C	Y	N
104	Pebble Beach Localized Flooding	Debris clogged culvert under Stevenson Drive.	C	Y	N
105	Piney Creek	Riverine flooding.	A & C	Y	N
106	Ralph Lane Channel	Riverine flooding (sedimentation of channel).	C	Y	N
107	San Miguel Canyon Creek	Riverine flooding.	A4	Y	N
108	Santa Rita Creek	Riverine flooding.	A3	Y	N
109	Santa Rita Creek	Riverine flooding.	A3 & B	Y	N

7. PROBLEM ASSESSMENT

Monterey County Water Resources Agency Staff visited each RLP to view the structure, determine the cause of flooding, and consider potential solutions. Of the 109 RLPs within Monterey County, 94 are located along the Carmel River, most within the FEMA designated 100-year floodplain. A total of 79 RLPs, located on the Carmel River, received their only two losses during January and March 1995. Within County Service Area No. 50, there are 69 RLPs.

The majority of Monterey County RLPs were built prior to the of the County Flood Insurance Rate Maps effective date, January 30, 1984. Therefore, they are considered pre-FIRM. With no floodplain regulations in place prior to 1984, there were no minimum requirements for lowest floor elevations. Subsequently, many structures were built below the base flood elevations currently shown on the FEMA FIRMs.

As required by CRS guidelines, Step E of the 10-Step planning process, the problem assessment includes the number and types of buildings subject to the hazards identified in the chapter 6 hazard assessment, see Table 5 below. A flooding history summary for each repetitive loss property is provided in Table 6 on page 56.

Table 5 Monterey County RLP Building Types

Flooding Source	Total No. of RLPs	Building Types		
		Commercial	Multi-Family	Single Family
Big Sur River	1	1		
Calera Creek	1			1
Carmel River	94		1	93
Carneros Creek	2			2
Castroville Boulevard Wash	1			1
El Toro Creek	2		2	
Paloma Creek	1			1
Pebble Beach Localized Flooding	2	1		1
Piney Creek	1			1
Ralph Lane Channel	1			1
San Miguel Canyon Creek	1			1
Santa Rita Creek	2			2
TOTALS	109	2	3	104

7.1. Review of Repetitive Loss Properties

7.1.1. Big Sur River

The owner of RLP No. 1 explained to MCWRA staff that the 1982 and 1983 flood damages to the pre-FIRM commercial building were caused by hillside drainage, not the Big Sur River. After the 83 floods, the property owner installed drainage improvements to convey stormwater runoff around the structure. According to the property owner, the building has not flooded since 1983.

7.1.2. Calera Creek

RLP No. 2 is a post-FIRM structure located on Calera Creek, within the FEMA designated 100-year floodplain, that received flood damages in March 1995 and February 1998. MCWRA reviewed the discretionary permit application for the single family dwelling in April 1987, and required the lowest floor to be constructed a minimum of 1 foot above the base flood elevation. However, the Agency does not have a FEMA Elevation Certificate on file for this property.

7.1.3. Carmel River (CSA-50)

County Service Area No. 50 is located approximately 1 mile upstream of the Carmel River mouth. Within CSA-50, there are 69 RLPs, which is over 63% of all Monterey County Repetitive Loss Properties. Each structure is considered pre-FIRM, and all are located within the FEMA designated 100-year floodplain.

7.1.4. Carmel River (Outside CSA-50)

Outside of CSA-50, there are 25 additional RLPs located on the Carmel River,. All received damages resulting from riverine flooding. The majority of these properties are located within the FEMA designated 100-year floodplain and received their only two losses during 1995 and 1998 floods. Every building, with the exception of RLP No. 90, is a pre-FIRM structure.

7.1.5. Carneros Creek

RLPs No. 97 and 98 are both pre-FIRM structures located within the FEMA designated 100-year floodplain of Carneros Creek. Each received flood damages when the Creek overtopped it's bank. The current owner of RLP No. 98 is increasing the length and height of an existing three foot high floodwall to divert flood water away from the structure.

7.1.6. Castroville Boulevard Wash

RLP No. 99 is a pre-FIRM structure located in the Floodway portion of the FEMA designated 100-year floodplain of Castroville Boulevard Wash. The structure received losses in 1995, 1996, 1997, & 1998.

7.1.7. El Toro Creek

RLPs No. 100 and 101 are multi-family dwelling units, part of the Creekside Condominium complex, located on El Toro Creek approximately half a mile from the confluence with the Salinas River. Both RLPs received losses in March 1995 and February 1998.

7.1.8. Pebble Beach Localized Flooding

Both Pebble Beach RLPs are pre-FIRM structures located in flood zone C.

RLP No. 103 received flood losses in December 1979 and January 1981 resulting from a clogged catch basin in front of the Chevron station on 17 Mile Drive. According to Pebble Beach Company Property Services and Resource Management Office, stormwater unexpectedly washed away wood chips from Peter Hay Golf Course path. After the floods, they removed the debris from the catch basin and installed drainage improvements. The property has not flooded since 1981.

RLP No. 104 received flood damages resulting from clogged street drains. According to the Pebble Beach Company staff, woody debris clogged the invert to the storm drain under Stevenson Drive in 1993. This resulted in a diversion of flood water toward the residence. The debris in the man-hole was removed. However, flooding occurred again in 1998. After the 98 floods, the Pebble Beach Company installed an asphalt berm and a new catch basin on Stevenson Drive. Water draining into the catch basin is conveyed through a new 15-inch storm drain installed under the driveway of RLP No. 104. This storm drain line replaced a 12-inch line that was connected to the 12-inch storm drain under Stevenson Drive.

7.1.9. Paloma Creek

RLP. No. 102 is a pre-FIRM single family dwelling that received flood losses in March 1995 and February 1998. The entire parcel is located in flood zone C. However, FEMAs approximate study of Paloma Creek did not include the portion running through this property.

7.1.10. Piney Creek

On July 30, 2002, MCWRA staff visited RLP No. 105 located on Piney Creek and talked to the current owner who also lived on the property in 1978 when both losses occurred. According to the property owner, the channel was obstructed by debris in 1995, which

diverted flood waters toward the building, causing severe structural damage. The building was demolished after the 1995 flood and has not be reconstructed.

7.1.11. Ralph Lane Channel

RLP No. 106 is a pre-FIRM single family dwelling that received flood losses in December 1996 and February 1998. The structure is located adjacent to the Ralph Lane Channel in flood zone C. FEMA did not do a detailed or approximate study for this area.

7.1.12. San Miguel Canyon Creek

RLP No. 107 is a pre-FIRM single family dwelling, located within the FEMA designated 100-year floodplain, that received flood losses in February 1998 and February 2002.

7.1.13. Santa Rita Creek

RLPs No. 108 and 109 are both are both pre-FIRM single family dwellings, located within the FEMA designated 100-year floodplain. RLP No. 108 experienced flood losses in January 1993 and March 1995. RLP No. 109 received flood losses in January 1993, January 1995, March 1995 and December 1996.

7.2. Development and Redevelopment Trends in the Floodplain

From 1996 to 2001, Monterey County received an average of 376 discretionary permit applications annually. A total of 238 applications, nearly 40 per year, received conditions of approval relating to floodplain management regulations. Figure 21 below, shows the annual number discretionary applications within the 100-year floodplain, and a development activity report for this period is provided in Appendix D. The report includes the area, development description, and application date for each project located in 100-year floodplain.

As the local administrator of FEMA floodplain regulations, MCWRA enforces the County floodplain ordinance primarily through the development review process. From 1996 through 2001, Monterey County issued no variances to County floodplain regulations.

Figure 21 Floodplain Development Trends 1996-2001

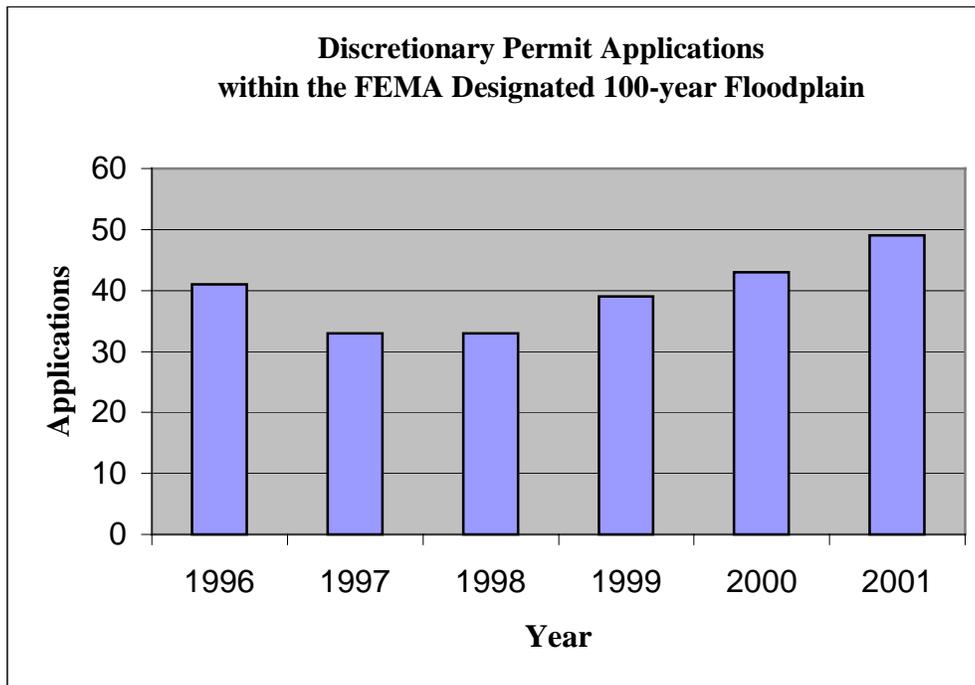


Table 6 RLP Flooding History Summary

RL ID #	Flooding Source	APN	Building Type	Date of Losses			
1	Big Sur River	419-201-011-000	Commercial	01/04/82	03/01/83	03/02/83	
2	Calera Creek	416-332-028-000	Single Family Dwelling	03/09/95	02/03/98		
3	Carmel River	009-504-004-000	Single Family Dwelling	01/23/00	01/11/01		
4	Carmel River	009-541-003-000	Single Family Dwelling	01/10/95	03/10/95		
5	Carmel River	009-541-004-000	Single Family Dwelling	01/10/95	03/09/95		
6	Carmel River	009-541-005-000	Single Family Dwelling	01/10/95	03/09/95		
7	Carmel River	009-541-006-000	Single Family Dwelling	01/10/95	03/10/95		
8	Carmel River	009-541-009-000	Single Family Dwelling	01/09/95	03/10/95		
9	Carmel River	009-541-011-000	Single Family Dwelling	01/10/95	03/09/95		
10	Carmel River	009-541-012-000	Single Family Dwelling	01/10/95	03/10/95		
11	Carmel River	009-541-014-000	Single Family Dwelling	01/08/95	03/09/95		
12	Carmel River	009-541-016-000	Single Family Dwelling	03/09/95	02/05/98		
13	Carmel River	009-541-028-000	Single Family Dwelling	01/10/95	03/10/95		
14	Carmel River	009-541-029-000	Single Family Dwelling	01/10/95	03/09/95		
15	Carmel River	009-541-030-000	Single Family Dwelling	01/09/95	03/09/95		
16	Carmel River	009-541-031-000	Single Family Dwelling	01/10/95	03/09/95		
17	Carmel River	009-541-032-000	Single Family Dwelling	01/09/95	03/09/95		
18	Carmel River	009-541-033-000	Single Family Dwelling	01/10/95	03/09/95		
19	Carmel River	009-541-034-000	Single Family Dwelling	01/10/95	03/09/95	02/03/98	
20	Carmel River	009-551-003-000	Single Family Dwelling	01/10/95	03/09/95		
21	Carmel River	009-551-004-000	Single Family Dwelling	01/10/95	03/10/95		
22	Carmel River	009-551-005-000	Single Family Dwelling	01/09/95	03/10/95		
23	Carmel River	009-551-009-000	Single Family Dwelling	01/10/95	03/11/95		
24	Carmel River	009-551-010-000	Single Family Dwelling	01/10/95	03/10/95		
25	Carmel River	009-551-011-000	Single Family Dwelling	01/10/95	03/09/95		
26	Carmel River	009-551-012-000	Single Family Dwelling	01/10/95	03/10/95		
27	Carmel River	009-551-015-000	Single Family Dwelling	01/10/95	03/09/95		
28	Carmel River	009-551-016-000	Single Family Dwelling	01/10/95	03/11/95		
29	Carmel River	009-551-017-000	Single Family Dwelling	01/10/95	03/10/95		
30	Carmel River	009-551-022-000	Single Family Dwelling	01/10/95	03/10/95		
31	Carmel River	009-551-023-000	Single Family Dwelling	01/09/95	03/10/95		
32	Carmel River	009-551-024-000	Single Family Dwelling	01/10/95	03/09/95		
33	Carmel River	009-551-025-000	Single Family Dwelling	01/11/95	03/10/95		
34	Carmel River	009-551-026-000	Single Family Dwelling	01/10/95	03/09/95		
35	Carmel River	009-551-027-000	Single Family Dwelling	01/10/95	03/09/95		
36	Carmel River	009-552-003-000	Single Family Dwelling	01/10/95	03/09/95		
37	Carmel River	009-552-005-000	Single Family Dwelling	01/10/95	03/09/95		
38	Carmel River	009-552-007-000	Single Family Dwelling	01/10/95	03/09/95		
39	Carmel River	009-552-008-000	Single Family Dwelling	01/10/95	03/10/95		
40	Carmel River	009-552-023-000	Single Family Dwelling	01/09/95	03/10/95		
41	Carmel River	009-552-029-000	Single Family Dwelling	01/10/95	03/10/95		
42	Carmel River	009-552-040-000	Single Family Dwelling	01/09/95	03/11/95		
43	Carmel River	009-552-043-000	Single Family Dwelling	01/10/95	03/10/95		
44	Carmel River	009-552-051-000	Single Family Dwelling	01/11/95	03/09/95		

CH. 7 - PROBLEM ASSESSMENT

RL ID #	Flooding Source	APN	Building Type	Date of Losses				
45	Carmel River	009-552-053-000	Single Family Dwelling	01/10/95	03/09/95			
46	Carmel River	009-552-056-000	Single Family Dwelling	01/10/95	03/09/95			
47	Carmel River	009-552-057-000	Single Family Dwelling	01/10/95	03/10/95			
48	Carmel River	009-552-059-000	Single Family Dwelling	01/10/95	03/10/95			
49	Carmel River	009-552-060-000	Single Family Dwelling	01/10/95	03/09/95			
50	Carmel River	009-571-004-000	Single Family Dwelling	01/10/95	03/10/95			
51	Carmel River	009-571-005-000	Single Family Dwelling	01/10/95	03/09/95			
52	Carmel River	009-571-007-000	Single Family Dwelling	01/10/95	03/10/95			
53	Carmel River	009-571-011-000	Single Family Dwelling	01/10/95	03/09/95			
54	Carmel River	009-571-015-000	Single Family Dwelling	01/10/95	03/10/95			
55	Carmel River	009-571-017-000	Single Family Dwelling	01/10/95	03/11/95			
56	Carmel River	009-571-027-000	Single Family Dwelling	01/10/95	03/09/95			
57	Carmel River	009-571-028-000	Single Family Dwelling	01/10/95	03/09/95			
58	Carmel River	009-572-001-000	Single Family Dwelling	01/09/95	03/09/95			
59	Carmel River	009-572-003-000	Single Family Dwelling	01/10/95	03/09/95			
60	Carmel River	009-572-004-000	Single Family Dwelling	01/09/95	03/11/95			
61	Carmel River	009-572-005-000	Single Family Dwelling	01/10/95	03/10/95			
62	Carmel River	009-572-008-000	Single Family Dwelling	01/10/95	03/10/95			
63	Carmel River	009-572-009-000	Single Family Dwelling	01/10/95	03/10/95			
64	Carmel River	009-572-010-000	Single Family Dwelling	01/10/95	03/10/95	02/06/98		
65	Carmel River	009-572-011-000	Single Family Dwelling	01/09/95	03/10/95			
66	Carmel River	009-572-019-000	Single Family Dwelling	01/10/95	03/10/95			
67	Carmel River	009-572-020-000	Single Family Dwelling	01/10/95	03/10/95			
68	Carmel River	009-572-023-000	Single Family Dwelling	01/10/95	03/09/95	02/05/98		
69	Carmel River	009-581-020-000	Single Family Dwelling	01/10/95	03/11/95			
70	Carmel River	015-021-006-000	Single Family Dwelling	01/27/83	03/02/83			
71	Carmel River	015-021-006-000	Single Family Dwelling	01/10/95	03/10/95			
72	Carmel River	015-021-007-000	Single Family Dwelling	01/27/83	02/28/83	01/10/95	03/10/95	02/02/98
73	Carmel River	015-221-008-000	Single Family Dwelling	03/09/95	02/03/98			
74	Carmel River	015-251-031-000	Single Family Dwelling	03/09/95	02/03/98			
75	Carmel River	015-251-038-000	Single Family Dwelling	12/22/82	01/27/83	02/28/83		
76	Carmel River	015-251-038-000	Single Family Dwelling	01/10/95	03/10/95	02/03/98		
77	Carmel River	015-281-007-000	Single Family Dwelling	01/09/95	03/13/95			
78	Carmel River	015-281-009-000	Single Family Dwelling	01/10/95	03/09/95	02/03/98		
79	Carmel River	189-041-007-000	Single Family Dwelling	03/11/95	02/05/98			
80	Carmel River	189-071-013-000	Single Family Dwelling	03/10/95	02/03/98			
81	Carmel River	189-083-005-000	Single Family Dwelling	03/10/95	02/02/98			
82	Carmel River	189-272-010-000	Single Family Dwelling	01/09/95	03/10/95			
83	Carmel River	189-311-003-000	Single Family Dwelling	01/09/95	03/09/95			
84	Carmel River	189-311-004-000	Single Family Dwelling	01/09/95	03/09/95			
85	Carmel River	189-311-006-000	Single Family Dwelling	01/10/95	03/10/95			
86	Carmel River	189-311-013-000	Single Family Dwelling	01/10/95	03/10/95			
87	Carmel River	189-321-005-000	Single Family Dwelling	01/10/95	03/10/95			
88	Carmel River	189-331-018-000	Single Family Dwelling	01/10/95	03/13/95			
89	Carmel River	189-331-029-000	Single Family Dwelling	01/10/95	03/09/95			
90	Carmel River	189-541-024-000	Single Family Dwelling	01/09/95	03/10/95			

CH. 7 - PROBLEM ASSESSMENT

RL ID #	Flooding Source	APN	Building Type	Date of Losses				
91	Carmel River	189-541-025-000	Single Family Dwelling	01/10/95	03/10/95			
92	Carmel River	197-091-026-000	Single Family Dwelling	03/10/95	02/03/98			
93	Carmel River	197-091-027-000	Single Family Dwelling	01/09/95	03/10/95	02/03/98		
94	Carmel River	197-091-033-000	Single Family Dwelling	01/09/95	03/11/95			
95	Carmel River	197-101-015-000	Single Family Dwelling	01/10/95	03/10/95			
96	Carmel River	417-102-006-000	Single Family Dwelling	01/10/95	03/09/95			
97	Carneros Creek	181-061-028-000	Single Family Dwelling	01/26/97	02/03/98			
98	Carneros Creek	181-161-007-000	Single Family Dwelling	03/11/95	01/02/97	02/03/98		
99	Castroville Boulevard Wash	131-042-017-000	Single Family Dwelling	03/10/95	02/09/96	01/02/97	02/02/98	
100	El Toro Creek	161-481-016-000	Multi Family Dwelling	03/10/95	02/03/98			
101	El Toro Creek	161-531-001-000	Multi Family Dwelling	03/10/95	02/03/98			
102	Paloma Creek	419-341-003-000	Single Family Dwelling	03/09/95	02/03/98			
103	Pebble Beach Localized Flooding	008-423-031-000	Commercial	12/23/79	01/27/81			
104	Pebble Beach Localized Flooding	008-551-006-000	Single Family Dwelling	02/18/93	02/03/98			
105	Piney Creek	419-361-015-000	Single Family Dwelling	02/06/78	03/05/78			
106	Ralph Lane Channel	113-131-005-000	Single Family Dwelling	12/21/96	02/03/98			
107	San Miguel Canyon Creek	133-031-008-000	Single Family Dwelling	02/01/98	02/01/02			
108	Santa Rita Creek	113-172-019-000	Single Family Dwelling	01/18/93	03/12/95			
109	Santa Rita Creek	113-172-031-000	Single Family Dwelling	01/17/93	01/09/95	03/09/95	12/10/96	

8. IMPLEMENTATION PLAN

Various methods to reduce flood losses and to attain the goals of the FMP are analyzed in this Chapter. Current programs were looked at to determine their adequacy and whether new programs were necessary. CRS guidelines require the FMP to identify all the mitigation activities considered and to indicate if an activity is not pursued in this Chapter, why the activity was not recommended. The following provides a discussion regarding the six primary (FEMA-recommended) categories.

Emergency Services: Activities that are undertaken during a flood to minimize its impact, which include warning and evacuation.

Natural Resource Protection: Activities undertaken to protect the natural and beneficial functions of the floodplain, such as wetland protection. These activities include erosion and sediment control and best management practices.

Preventive: Activities that include planning and zoning, open space preservation, floodplain regulations, stormwater management, and drainage system maintenance.

Property Protection: These activities include actions undertaken by the property owners on a case-by-case basis, such as floodproofing and flood insurance, but also include acquisition of land and relocation of structures.

Public Information: Activities that provide information to property and business owners, prospective buyers, residents, contractors, and realtors, about flood hazards and ways to protect people and property from flood damage. These activities include outreach projects and environmental education programs.

Structural Projects: Activities that keep floodwaters away from an area and include channel modifications, water diversion structures, and reservoirs.

8.1. Ongoing County-Wide Flood Mitigation Activities

8.1.1. Emergency Services

8.1.1.1. ALERT System

In the late 1970's, Monterey County developed the first ALERT (Automated-Local-Evaluation-in-Real-Time) flood warning system. The System consists of self-reporting remote sensors, located throughout the County, that transmit rain and stream level data by radio to the Monterey County Water Resources Agency and the County Courthouse base station computers in Salinas.

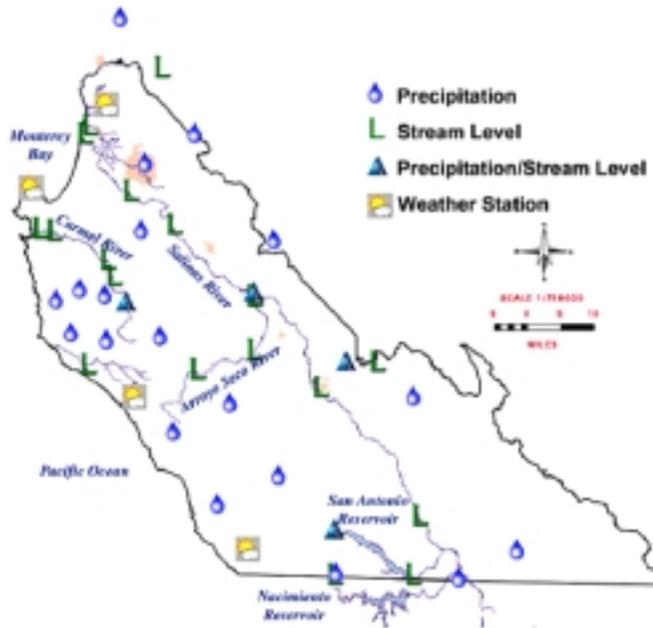
Today, the Monterey County ALERT system consists of 22 rain gages, 9 combination rain and stream gages, and 16 stream or reservoir/lagoon level sensors, see Figure 22

below. Three complete Weather Stations measure rainfall, relative humidity, temperature, barometric pressure, wind speed and direction.

The ALERT computer data presentation is designed so one operator can monitor the rainfall and stream conditions throughout the County as storm events occur. Data received from the ALERT system is the basis for County flood related decisions, and it is used by the California River Forecast Center in Sacramento for larger scale flood warnings.

Other uses of ALERT data include summer-time Salinas River flow monitoring and climatological and rainfall distribution studies. The newest addition to the system are flow meters that will transmit the quantity of water being released from both Nacimiento and San Antonio Reservoirs. This data will significantly aid in the management of the Salinas River.

Figure 22 Monterey County ALERT Stations



8.1.1.2. Sandbag Inventory and Sand Stockpiles

MCWRA is responsible for maintaining the County sandbag inventory and distribution to local fire districts in unincorporated areas of Monterey County. The local fire districts distribute the sandbags to the public, free of charge, for use in flood fighting measures only. A list of local fire districts and their sandbag inventory is shown in Table 7 on page 61. The County has two mechanical sandbaggers and a supply of sand pre-staged at select locations, see Table 8 on page 63. This inventory list is updated as required and maintained in the Monterey County Operational Area EOC.

Table 7 Monterey County Operational Area Sandbag Inventory

Unincorporated Areas			
As of January 8, 2002	Address	Phone Number	Quantity
Aromas Fire (CDF)	492 Carpenteria Rd, Aromas	(831) 726-3130	3,000
Big Sur (BGVFB)	Pfeiffer Ridge, Big Sur	(831) 667-2113	2,000
Carmel Highland (CDF)	Fern Canyon Rd @ Hwy 1, Carmel Highlands	(831) 624-2374	500
Carmel Hill Fire (CDF)	23685 Holman Way, Monterey	(831) 625-6415	3,000
Carmel Valley - Station I (CVFPD)	Carmel Valley Rd @ Schulte Rd, Carmel Valley	(831) 624-5907	4,500
Castroville (NCFPD)	11200 Speegle St, Castroville	(831) 633-2578	2,200
Chualar (SRFPD)	Washington & Jackson St, Chualar	(831) 679-2323	4,000
Laureles Grade/Highway 68 (SRFPD)	Laureles Grade & Hwy 68, Salinas	(831) 484-1197	4,000
Pajaro (NCFPD)	301 Elkhorn Rd, Pajaro	(831) 633-2578	2,000
Pebble Beach CSD (CDF)	1301B Forest Lake Rd, Pebble Beach	(831) 375-4204	8,000
Prunedale (NCFPD)	Pesante Rd @ Hwy 101, Prunedale	(831) 633-2578	800
Public Works (San Miguel Canyon)	San Miguel Canyon Rd, Salinas	(831) 722-2226	2,000
Rio Road (CDF)	3775 Rio Rd, Carmel	(831) 624-4511	11,000
San Ardo (Volunteer)	62180 Railroad St, San Ardo	(831) 627-2543	1,000
South Monterey County (CDF)	401 Canal St, King City	(831) 385-6437	2,000
Toro Park (SRFPD)	19900 Portola Drive, Salinas	(831) 455-1721	3,000
Water Resources Agency (Salinas)		(831) 755-4860	16,000
Total			69,000

8.1.2. Preventative

8.1.2.1. Floodplain and Erosion Control Regulations

Regulations relating to floodplain management and implementation of the National Flood Insurance Act of 1968 are contained in Chapter 16.16 of Monterey County Code. Chapter 21.64 includes additional floodplain regulations for land use in the Carmel Valley floodplain.

8.1.2.2. NPDES Storm Water Program

The NPDES Storm Water Program, mandated by Congress under the Clean Water Act, is a comprehensive two-phased national program for addressing the non-agricultural sources of storm water discharges that adversely affect the quality of our waters. The Program uses the National Pollutant Discharge Elimination System (NPDES) permitting mechanism to require implementation of controls designed to prevent harmful pollutants from being washed by storm water runoff into local water bodies. Monterey County has responsibilities under Phase II of this program.

Monterey County must obtain coverage under a NPDES storm water permit by March 2003 and implement a storm water management program using Best Management

Practices (BMPs) that effectively reduce or prevent the discharge of pollutants into receiving waters to the Maximum Extent Practicable (MEP).

Monterey County Water Resources Agency (Agency) staff is currently defining the boundaries for this permit as well as determining the BMPs that will be implemented. The BMPs will fall into the following six categories:

- 1) Public Education and Outreach
- 2) Public Participation/Involvement
- 3) Illicit Discharge, Detection and Elimination
- 4) Construction Site Runoff Control
- 5) Post-Construction Runoff Control
- 6) Pollution Prevention/Good Housekeeping

The County is currently partnering with nine other entities within the County to develop a regional plan for implementing the six minimum measures listed above. These entities will also be co-permittees on the NPDES permit.

8.1.2.3. *Drainage System Maintenance*

MCWRA operates and maintains drainage facilities in fourteen drainage maintenance zones and districts located throughout Monterey County. The drainage improvements consist of approximately fifty-seven miles of improved drainage way, eight pump stations, nine miles of river levees, two large earthen dams and numerous culverts, tide gates and concrete structures. Routine maintenance consists of ongoing removal of debris in drainage channels and pump stations, access roadway maintenance, and guardrail and fence maintenance, spraying for vegetation control, baiting for rodent control, sediment removal in drainage ways, timely repair of eroded banks, mechanical equipment and damaged facilities and ongoing preventive maintenance program.

The maintenance program is administered by the MCWRA Chief Engineer of Operations and Maintenance, and consists of a full time eleven member crew dedicated to the operation and maintenance of these facilities. Inspection of Agency facilities is performed on a regular schedule, and on a daily basis during storms. The Agency has heavy equipment to perform all of the debris and sediment removal, erosion repair work and access roadway maintenance.

CH. 8 - IMPLEMENTATION PLAN

Table 8 Monterey County Sand Stockpiles

MONTEREY COUNTY PUBLIC WORKS SAND STOCKPILES	
Updated 1/23/2004	
PURPOSE: Sand for sandbags is available free to the public at the below-listed stockpiles <u>only for flood-prevention measures</u> . For further information concerning sand stockpiles, contact the Monterey County Public Works Maintenance Office at (831)755-4925. Sandbags are available from the citizen's nearest unincorporated area fire station.	
SAN MIGUEL ROAD DISTRICT – NORTH MONTEREY COUNTY (Castroville/Prunedale/Aromas/Las Lomas/Moss Landing/Pajaro/Ralph Lane/UNINCORPORATED SALINAS (Boronda/Bolsa Knolls/Davis Road at Salinas River/Spreckels)/CHUALAR NORTH (Spence/Potter)	
STOCKPILE LOCATION	TONNAGE
Bolsa Knolls: Cornwall Ave at little league park.....	40
Castroville: Salinas Street, north of Merritt Street.....	20
Crazy Horse Road at San Juan Grade Road.....	700
Pajaro: San Juan Road, one block west of Porter Drive by levy gate.....	20
Ralph Lane at end of cul-de-sac.....	30
Reservation Road near Portola Drive (Hilltown Stockpile).....	250
San Miguel Canyon Road (south side), ¼ mile east of Hall Road.....	900
Strawberry Road, 500 feet from Elkhorn Road.....	900
MONTEREY ROAD DISTRICT – MONTEREY PENINSULA/RIVER ROAD SOUTH TO CHUALAR/TORO PARK/LAURELES GRADE/SAN BENANCIO/CARMEL/CARMEL HIGHLANDS/CARMEL VALLEY/BIG SUR	
STOCKPILE LOCATION	TONNAGE
Big Sur Fire Brigade (Palo Colorado Rd @ M.P. 2.5).....	20
Carmel Highlands Fire Department.....	5
Carmel Valley Road at Garland Park.....	30
Carmel Valley Village Fire Station.....	5
Mid-Valley Fire Station.....	35
Reservation Road near Portola Drive (Hilltown Stockpile).....	250
Rio Road at Crossroads Shopping Center (rear of parking lot next to Hwy. 1).....	100
GREENFIELD ROAD DISTRICT – CHUALAR SOUTH/GREENFIELD/WEST OF GREENFIELD	
STOCKPILE LOCATION	TONNAGE
Arroyo Seco Road at Piney Creek Bridge.....	15
Chualar River and Foletta Road Intersection.....	15
Greenfield Road Maintenance Yard: 41801 Elm Avenue.....	30
Sycamore Flat Road, ¼ mile south of Arroyo Seco Road.....	15
SAN ARDO ROAD DISTRICT – SAN ARDO/SAN LUCAS/BRADLEY/LOCKWOOD	
STOCKPILE LOCATION	TONNAGE
Bernardo Road at end.....	520
Bradley, at bridge on north end of town (landfill).....	60
Jolon Road, 500 feet from Lockwood Fire Station.....	20

8.1.3. Property Protection

8.1.3.1. Flood Mitigation Assistance

FEMA’s Flood Mitigation Assistance (FMA) is a pre-disaster grant program that provides funding to States and communities to assist in their efforts to reduce or eliminate the risk of repetitive flood damage to buildings, and structures insurable under the National Flood Insurance program (NFIP). Planning, technical assistance and project grants are offered under this program. FMA was created as part of the National Flood Insurance Reform Act of 1994 with the goal of reducing or eliminating claims under the NFIP.

FMA is provided in the form of two types of grants to communities. Planning Grants are given to states and communities to develop or update Flood Mitigation Plans, and Project Grants are given to States and Communities to implement measures to reduce flood losses. FEMA may contribute up to 75 percent of total eligible costs. At least 25 percent of total eligible costs must be provided by a non-Federal source. Of this 25 percent, no more than half can be provided as in-kind contributions from third parties. There are limits on the frequency of grants and the amount of funding that can be allocated to a State or community in any 5-year period. Priority is given to projects that mitigate NFIP-insured structures with multiple flood losses. Such Activities include:

- Elevation of insured structures.
- Acquisition of insured structures and real property.
- Relocation or demolition of insured structures.

To be eligible for a Project Grant, a project must, at a minimum, be:

- Cost effective.
- Cost beneficial to the National Flood Insurance Fund.
- Technically Feasible.
- Physically located in a participating NFIP community or must reduce future flood damages in an NFIP community.

A project must also conform with:

- The minimum standards of the NFIP Floodplain Management Regulations.
- The applicants Flood Mitigation Plan.
- All applicable laws and regulations, such as Federal and State environmental standards or local building codes.

MCWRA received a FMA Planning Grant to develop the FMP, and Agency staff continues to research the availability of FMA Project Grants. Annual funding is provided to each state for both planning and project grants.

8.1.3.2. *Flood Insurance*

It is recommended that all RLP owners obtain flood insurance which is available for insurable buildings and their contents. Renters can take out a policy with contents coverage, even if there is no structural coverage.

On June 1, 1997, the NFIP began offering additional coverage to all holders of structural flood insurance policies. This coverage is called Increased Cost of Compliance or ICC. The name refers to cases where the local floodplain management ordinance requires elevation or retrofitting of a substantially damaged building. Under ICC, the flood insurance policy will not only pay for repairs to the flooded building, it will pay up to \$15,000 to help cover the additional cost of complying with the County's floodplain ordinance. This is available for any flood insurance claim and, therefore, is not dependent on the community receiving a disaster declaration. Insureds under the Group Flood Insurance Policy and insured with condominium unit owner's coverage are ineligible for ICC coverage, nor are Policies issued or renewed in Emergency Program communities. All other policies include the coverage.

8.1.4. **Public Outreach**

As required by CRS Activity 320, a public notice is sent annually, via e-mail, to local realtors, insurance agents, and lenders. Recipients are informed of the availability of flood zone information, and asked to provide MCWRA staff with the Assessor's Parcel Number for an official determination.

MCWRA also completes an annual public outreach project targeting all County parcels located within or near the FEMA designated 100-year floodplain. During July 2002, brochures were mailed to 4,302 County residents. As required by CRS Activity 330, the mailing included information concerning the local flood hazard, flood safety, flood insurance, property protection measures, the flood warning system, floodplain development permit requirements, and the substantial improvement/damage requirements.

8.1.5. **Structural Projects**

After the 1995 floods, several of the recommendations in the *Lower Carmel River Flood Control Project Engineering Report*, prepared by Nolte and Associates in July 1989, were implemented. In general, the Nolte Report recommended the lowering of various areas along the south levees, allowing the creation of an enlarged floodway in what was historically the river's floodplain, but which had become levee protected to allow continuous agricultural use. The report also suggested building a "tie-back levee" to prevent flow into the upper Rio Road area.

During 1996 and 1997, construction of the Rio Road tie-back levee and notches in the south levee was completed. The value of the improvements was demonstrated during the high flows of February 1998, with minimal damage sustained in these areas. Some work,

such as raising and bringing to FEMA standards the north levee at Mission Fields, downstream of Hwy 1, is continuing and still incomplete, see chapter 8.2.1. When the work affecting base flood elevations is complete, MCWRA will request that the lower Carmel River be restudied by FEMA.

8.2. RLP Mitigation Activities

The intent of this chapter is to recommend mitigation measures appropriate for the community resources, identify who does what, when it will be done, and how it will be financed. Based on analysis of available information resulting from field investigations, interviews with property owners, and other technical information, the likely cause of flooding was identified and property protection activities recommended, for each RLP, to reduce or eliminate the flood hazard, see Table 9 on page 72.

With the exception of the proposed Ralph Lane Flood Control Project and CSA-50 Lower Carmel River Flood Control Project, RLP flood protection activities are generally small-scale in nature and meant to be implemented at the discretion of the property owner.

The following property protection activity summary describes common measures undertaken to mitigate flooding. For each RLP, the potential solutions shown below were analyzed, and only those activities determined to be effective and economically feasible were recommended as primary and secondary solutions, see Table 10. Implementation will occur at the property owners discretion. Interested parties may receive financial assistance as FMA Project Grant funding becomes available.

Property Protection Activities Considered – Property Owner Responsibility

- A. Construct or modify retaining walls with proper drainage.
- B. Construct berms to divert water flows.
- C. Install debris fences or traps.
- D. Install yard inlets to convey runoff to the street.
- E. Construct on-site detention basins
- F. Improve headwalls for water conveyance.
- G. Floodproof retaining walls.
- H. Floodproof entrances.
- I. Add sump pump to drainage systems.
- J. Construct terrace drain and plant slope to reduce erosion.
- K. Plant slopes to reduce erosion and water flows.
- L. Improve on-site grading and add french-drain.
- M. Convert flood prone living space and replace with new story.
- N. Elevate the lowest floor a minimum of 1 foot above the base flood elevation (residential).
- O. Elevate the lowest floor a minimum of to the base flood elevation (non-residential).

- P. Waterproof lower level.
- Q. Extend the walls of the house upward and raise the lowest floor.

8.2.1. Carmel River (CSA-50) Lower Carmel River Flood Control Project

Due to the historical flooding within CSA-50, which has caused extensive damage to residences and businesses in the area, the Monterey County Board of Supervisors approved a Professional Services Agreement, on June 26, 2001, with Philip Williams and Associates, Ltd. (PWA). The objective was to perform computer modeling of flooding impacts associated with stormwater runoff and flow from the Carmel River for CSA-50 with the goal of reducing the magnitude and frequency of flooding within CSA-50 and optimizing the use of CSA-50 funds on the most cost effective projects. The Board authorized the General Manager of the Water Resources Agency (MCWRA) and the Public Works Director to execute the agreement. As a result of the agreement, Philip Williams and Associates, Ltd prepared *The Lower Carmel River Flood Control Project Final Report*, dated August 9, 2002.

As described in the report, the scope of work for the project consisted of seven tasks briefly described as follows:

Task 1 – Review of Existing Information. The objectives of this task were to identify and utilize existing information resources to refine the understanding of current flood hazard conditions, to develop appropriate hydrologic design criteria, to better understand potential engineering and permitting constraints.

Task 2 – Collection of Additional Information. The objective of this task was to supplement existing topographic information describing the physical conditions along the north bank of the Carmel River for the purposes of developing a hydraulic model and design concepts.

Task 3 – Preparation of the Hydraulic Model. The objective of this task was to develop an analytical tool to predict the response of the Lower Carmel River under various flood conditions and various levee configurations along the north bank of the river.

Task 4 – Evaluation of Drainage Areas Protected by Levees. The objective of this task was to understand the contribution of storm water runoff to flooding and to determine potential pumping system modifications to reduce flood hazards due to runoff.

Task 5 – Identification of Structural and Operational Alternatives. The objective of this task was to identify preferred actions for potential implementation (project components).

Task 6 – Benefit Quantification. The objective of this task was to determine zones of inundation under existing conditions for the studied range of hypothetical storm events for the purpose of understanding how implementation would benefit the areas protected by the project components.

Task 7 – Project Reporting. This task is the compilation of the study results into a final project report.

In *The Lower Carmel River Flood Control Project Final Report*, a set of structural and operational improvements were identified to reduce flood hazards within CSA-50. Recommended structural improvements include adding pumping capacity, installing flood walls, raising and extending levees and grading on the south floodplain of the Carmel River. Recommended operational improvements include the preparation of operations and maintenance plans for pumping facilities and adaptive management of vegetation at strategic points along the south bank of the Carmel River.

According to the report, flood hazards are posed by the Carmel River and by stormwater runoff accumulating in low lying areas in the Crossroads Shopping Center and at two ponds located in the Mission Fields neighborhood. With implementation of the recommended improvements, it would be expected that the Carmel River would not cause flooding within CSA-50 during the 100-year frequency event.

Flood hazards associated with the accumulation of storm water runoff would also be reduced. The level of protection provided by the recommended improvements would be expected to safely convey the 25-year storm, with water accumulation on local streets and around existing homes during the 100-year event. Some property damage could be expected in the 100-year event, although not to the extent that would be expected without implementation of the recommended improvements.

The hydrologic basis for evaluation of Carmel River flows is discussed in the report. Flow frequency analysis was performed to examine the effect of incorporating the peak flow records for the period from 1998-2000. Because the updated flow frequency distribution was consistent with the values present in the FEMA 1991 Flood Insurance Study, the FEMA values were selected for use in the study.

Hydraulic analysis of the Carmel River was performed using the MIKE 11 hydrodynamic model. The model and methods are discussed in Report. The MIKE 11 model was selected because it can simulate the one-dimensional movement of water model in multiple and inter-connected channel networks. The model was calibrated to measured discharge and water levels as recorded at the Monterey Peninsula Water Management District Highway 1 gauge. After calibration, the model was used to examine a range of possible improvements that could increase conveyance of flows through the south floodplain area, thereby reducing the flow rate in the main channel and lowering flood levels in the main channel. Six options for reducing flood hazards were identified. Option 3 (widen and lower the levee notch) is the most beneficial. This option involves modification of the existing levee notch at the eastern boundary of the Odello East property to increase flows in the south floodplain. Widening and lowering the existing levee notch is recommended for implementation.

Flood hazards associated with storm water runoff were examined and are discussed in the report. Runoff hydrographs were developed for a range of return frequency storms and

for a range of storm durations. Currently, runoff water ponds at three locations: the Crossroads Shopping Center, and Ponds 1 and 2 in the Mission Fields neighborhood. Runoff hydrographs were developed to represent the inflow to these areas. To examine potential pumping needs, stage-storage relationships were developed for each location where runoff water accumulates. The runoff hydrographs were then routed through these “storage” basins and hypothetical pumping capacities were calculated.

The structural and operational improvements identified in the report include:

- Implementation of a vegetation management plan designed to promote the development of a mature riparian canopy and to prevent the development of flow restricting dense vegetation at the upstream and downstream side of the Carmel River Highway 1 Bridge.
- Implementation of a pump system operation and maintenance plan designed to keep pumping systems in good operating condition and to clearly identify the names and positions of those responsible for maintaining and operating the systems.
- Pumping capacity improvements to increase the size of pump systems so that they would be more effective in handling a wider range of storm events. Ultimately, CSA-50 must decide how much pumping capacity to provide.
- Levee and floodwall improvements of varying heights and types extending from Mission Fields Little League Field at the west end of CSA-50 to and along Val Verde Road at the east end of CSA-50.

The structural and operational improvements are estimated to cost approximately \$3.3M including construction, engineering, permitting and environmental documentation and construction administration.

A statistical examination of repetitive loss reports for residential properties in CSA-50 was made to illustrate a range of potential annual flood damage costs. The calculated mean annual flood damage is \$1,092,644 with a low of \$109,264 per year and a high of \$2,076,023 per year. Using an interest rate of 5-percent, the cash flow equivalent of the mean annual losses would be able to pay for the capital costs of the proposed improvements in a period of about 3.4 years. Depending upon the interest rate and duration of the capital improvement loan, an average 1,600 square foot unit would need to pay an annual assessment ranging from a low of \$173 (3-percent interest and 25-year term) to a high of \$737 (7-percent interest and 5-year term). Expressed on a per foot basis, the annual assessment could range from a low of \$0.108 (3-percent interest and 25-year term) to a high of \$0.46 per square foot (7-percent interest and 5-year term). More detailed presentation of repayment amounts for various interest rates and load terms is included in the report.

8.2.2. El Toro Creek Sediment Removal Project

After the 1995 floods, the need to remove sediment in El Toro Creek was recognized and the Lower El Toro Creek Sediment Removal Project was implemented. The project was

CH. 8 - IMPLEMENTATION PLAN

made possible through participation in the USDA-Natural Resources Conservation Service Emergency Watershed Protection Program (EWP). The EWP was invoked as a result of the March 1995 flooding of the Creekside Condominium property. Removal of 7,954 cubic yards of sediment from 3,062 lineal feet of El Toro Creek adjacent to the Creekside Condominium property and the PG&E Substation was completed on December 29, 1995. The entire project was undertaken on (then) U.S. Army property at Fort Ord. A corridor of approximately 30 feet width was also cleared of vegetation for the entire length of the project. Approximately 100 rooted willow trees were removed. Final excavated dimensions of the channel were 20 feet bottom width with 2:1 side slopes. Scrapers removed the sediment to a nearby transfer point where bottom dump trailers were loaded and the sediment hauled to pre-arranged disposal sites. Construction cost was \$69,659.60. U.S. Bureau of Land Management staff sprigged approximately 300 willow cuttings in February 1996 at critical locations to help prevent further erosion of already eroded creek banks.

Project participants:

- Major funding provider: USDA – Natural Resources Conservation Service
- Partial funding provider: California State Office of Emergency Services
- Partial funding provider: Monterey County Service Area No. 15
- Designer/Construction Manager/Project Admin: Monterey County Water Resources Agency
- Tree/Vegetation trimming and removal: Gabilan Conservation Camp, State Department of Corrections, Soledad, CA
- Construction Contractor: The Don Chapin Company
- Willow Planting Labor: U.S. Bureau of Reclamation
- Sediment disposal site providers: Monterey County Public Works Department and Merrill Farms, Salinas, CA

Project permits obtained:

- Landowner Agreement to Enter and Construct: U.S. Army-Fort Ord
- Landowner Access Agreement:
 1. Creekside Property Owners Association
 2. Salinas Rural Fire District – El Toro Station
- Landowner Disposal Agreement: Merrill Farms
- Record of Environmental Consideration: U.S. Army-Fort Ord
- California Dept. of Fish and Game Stream Alteration Agreement No. 1172-95
- U.S. Army Corps of Engineers Clean Water Act Section 404 Permit exemption
- California Regional Water Quality Control Board, Water Quality Certification

8.2.3. Ralph Lane Flood Control Project

After the 1996 flood, the Monterey County Water Resources Agency (MCWRA) coordinated efforts with various Monterey County Departments and Caltrans to provide solutions to prevent future flooding in the area. The solutions included the following:

CH. 8 - IMPLEMENTATION PLAN

- Better erosion control practices on neighboring strawberry farms.
- MCWRA would clear the drainage channel within the existing right of way.
- Channel road drainage away from the houses along Ralph Lane.
- Increased maintenance of Highway 101 drainage facilities

During the 1998 El Nino floods, the Ralph Lane area received flood damage again (FEMA Disaster 1203). After the floods, MCWRA hosted several public meetings with Ralph Lane residents to determine potential actions to alleviate future flooding.

MCWRA staff presented an engineering solution that required property owners to dedicate a portion of their land for a right of way easement necessary to construct and maintain the proposed project. Over a period of about eighteen months, MCWRA staff met with the property owners both collectively and individually to discuss the need to acquire the right of way. Due to the unwillingness of some property owners to dedicate their property for the needed right of way, it was decided in October of 1999 that no further action would be pursued.

Summary of Events:

- The Board of Supervisors directed MCWRA to obtain the necessary right of way to construct the Ralph Lane Flood Control Project by coordinating with the property owners and with Supervisor Pennycook, and using eminent domain powers, if necessary.
- Supervisor Pennycook invited the 11 affected property owners to a meeting on October 27, 1999. Staff and the Supervisor met with five of the eleven property owners to request their support for the project by granting the needed right of way.
- The project was reviewed and various issues discussed, such as making minor changes to the proposed ditch alignment and inquiring on the use of right of way from Caltrans (Highway 101).
- Supervisor Pennycook provided an Option of Easement form to property owners in attendance requesting their commitment to the project. She stated that if they responded positively by signing and returning the document to the Agency, she would contact and coordinate with the other six property owners not present.
- To date, the Agency has not received a response from any of the property owners.
- The Agency sent out Requests For Proposals (RFPs) to two locally qualified appraisers for conducting an initial appraisal for negotiation purposes and to complete a full appraisal for court proceedings, if necessary. Only one proposal was received by the Agency.
- Staff plans no further action unless the Committee or Supervisor Pennycook provides direction.

CH. 8 - IMPLEMENTATION PLAN

Table 9 RLP Recommended Solution Summary

RL ID #	Problem	No Problem	Primary Potential Solution	Alternate Potential Solution
1	X		Improve on-site grading and add french drain.	Install yard inlets to convey runoff to the street.
2	X		Elevate lowest floor 1' above BFE.	Relocate structure outside the 100-year floodplain.
3	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
4	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
5	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
6	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
7	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
8	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
9	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
10	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
11	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
12	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
13	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
14	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
15	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
16	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
17	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
18	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
19	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
20	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
21	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
22	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
23	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
24	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
25	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
26	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
27	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
28	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
29	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
30	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
31	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
32	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
33	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
34	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
35	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
36	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
37	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
38	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
39	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
40	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
41	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
42	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
43	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
44	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.

CH. 8 - IMPLEMENTATION PLAN

RL ID #	Problem	No Problem	Primary Potential Solution	Alternate Potential Solution
45	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
46	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
47	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
48	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
49	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
50	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
51	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
52	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
53	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
54	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
55	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
56	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
57	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
58	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
59	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
60	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
61	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
62	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
63	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
64	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
65	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
66	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
67	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
68	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
69	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
70	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
71	X		Lower Carmel River Flood Control Project.	Elevate lowest floor 1' above BFE.
72	X		Elevate lowest floor 1' above BFE.	No alternate available.
73	X		Elevate lowest floor 1' above BFE.	No alternate available.
74	X		Elevate lowest floor 1' above BFE.	No alternate available.
75	X		Elevate lowest floor 1' above BFE.	No alternate available.
76	X		Elevate lowest floor 1' above BFE.	No alternate available.
77	X		Elevate lowest floor 1' above BFE.	No alternate available.
78	X		Elevate lowest floor 1' above BFE.	No alternate available.
79	X		Elevate lowest floor 1' above BFE.	No alternate available.
80	X		Elevate lowest floor 1' above BFE.	No alternate available.
81	X		Elevate lowest floor 1' above BFE.	No alternate available.
82	X		Elevate lowest floor 1' above BFE.	No alternate available.
83	X		Elevate lowest floor 1' above BFE.	No alternate available.
84	X		Elevate lowest floor 1' above BFE.	No alternate available.
85	X		Elevate lowest floor 1' above BFE.	No alternate available.
86	X		Elevate lowest floor 1' above BFE.	No alternate available.
87	X		Elevate lowest floor 1' above BFE.	No alternate available.
88	X		Elevate lowest floor 1' above BFE.	No alternate available.
89	X		Elevate lowest floor 1' above BFE.	No alternate available.
90	X		Elevate lowest floor 1' above BFE.	No alternate available.

CH. 8 - IMPLEMENTATION PLAN

RL ID #	Problem	No Problem	Primary Potential Solution	Alternate Potential Solution
91		X	Structure removed. New structure's LFE 2 feet above BFE.	
92	X		Elevate lowest floor 1' above BFE.	No alternate available.
93	X		Elevate lowest floor 1' above BFE.	No alternate available.
94	X		Elevate lowest floor 1' above BFE.	No alternate available.
95	X		Elevate lowest floor 1' above BFE.	No alternate available.
96	X		Elevate lowest floor 1' above BFE.	No alternate available.
97	X		Elevate lowest floor 1' above BFE.	Relocate structure outside the 100-year floodplain.
98	X		Elevate lowest floor 1' above BFE.	Relocate structure outside the 100-year floodplain.
99	X		Elevate lowest floor 1' above BFE.	Relocate structure outside the 100-year floodplain.
100	X		Elevate lowest floor 1' above BFE.	Clean out sediment from channel.
101	X		Elevate lowest floor 1' above BFE.	Clean out sediment from channel.
102	X		Elevate lowest floor 1' above BFE.	No alternate available.
103		X	Debris removed and drainage improvements installed.	
104		X	Debris removed from street drains. No claims since 1983.	
105		X	Structure removed after 1995 flood.	
106	X		Elevate lowest floor 1' above BFE.	Ralph Lane Flood Control Project.
107	X		Elevate lowest floor 1' above BFE.	No alternate available.
108	X		Elevate lowest floor 1' above BFE.	No alternate available.
109	X		Elevate lowest floor 1' above BFE.	No alternate available.

CH. 9 - ADOPTION, REPORTING, EVALUATING, AND REVISING

9. ADOPTION, REPORTING, EVALUATING, AND REVISING

9.1. Plan Adoption Process

The FMP adoption process consists of several steps. The first step after completion of the Draft FMP is to provide it to the MCWRA Planning Committee, other interested agencies, and the public for review and comment. This step will be completed on October 10, 2002. Anyone wishing to submit comments will have until November 25, 2002 to provide them to the Water Resources Agency. Agency staff will review all recommendations, and make any necessary changes prior to the December 2, 2002 MCWRA Board of Directors meeting. After the Agency Board of Directors review and approve the FMP, it will go before the County Board of Supervisors for adoption at the December 10, 2002 hearing.

9.2. Reporting Process

The Monterey County Water Resources Agency, Floodplain Management and Development Review Section, will maintain the FMP. The County CRS Coordinator will work with other County departments as needed regarding the implementation of programs, and will prepare the Annual FMP Evaluation Report which will include an overview of the FMP and the progress made over the preceding 12 months.

9.3. Evaluation Process and Revision Process

Any necessary revisions to the FMP will be included in the Annual FMP Evaluation Report. The Water Resources Agency will form a FMP Committee who will review the Annual FMP Evaluation Report before its submittal to the Agency Board of Directors, the County Board of Supervisors, and FEMA. Annual updates will be released to the media and made available to the public.

ACRONYMS AND GLOSSARY

ACRONYMS

ASFPM – Association of State Floodplain Managers

BMP – Best Management Practice

CA OES – California Office of Emergency Services

CFM – Certified Floodplain Manager

CMP – Corrugated Metal Pipe

CRS – Community Rating System

DSOD – Division of Safety of Dams

FEMA – Federal Emergency Management Agency

FIA – Federal Insurance Administration

FIRM – Flood Insurance Rate Map

FIS – Flood Insurance Study

FMP – Floodplain Management Plan

GIS – Geographic Information System

ICC – Increased Cost of Compliance

MCWRA – Monterey County Water Resources Agency

MCDPW – Monterey County Department of Public Works

NFIP – National Flood Insurance Program

NOAA – National Oceanographic and Atmospheric Administration

RLP – Repetitive Loss Property

SFHA – Special Flood Hazard Area

GLOSSARY

Acre-Feet – A measurement of water volume. One acre-foot equals 325,851 gallons.

Act – The National Flood Insurance Act of 1968 and Flood Disaster Protection Act of 1973, both as amended.

Alluvial Fan – A sedimentary deposit located at a topographic break such as the base of a mountain front, escarpment, or valley side, that is composed of streamflow and/or debris flow sediments and which has the shape of a fan, either fully or partially extended.

Annual FMP Evaluation Report – A report prepared by the MCWRA and based on information compiled from other agencies responsible for implementing programs identified in Chapter 8 of the FMP. This report will identify the progress toward the objectives and identify needed changes to the FMP. This report will be submitted to FEMA during the County’s Annual CRS credit recertification.

Association of State Floodplain Managers (ASFPM) – The ASFPM is a national organization of professionals (in both the public and private sector) involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning and recovery.

Association of State Floodplain Managers (ASFPM) Certified Floodplain Manager (CFM) Program – A national program for professional certification of floodplain managers established by the ASFPM. The primary goal of this program is to help reduce the nation’s flood losses and protect and enhance the natural resources and functions of its floodplains by improving the knowledge and abilities of floodplain managers in the United States.

Base Flood (100-year flood) – The flood having a 1 percent chance of being equaled or exceeded in any given year.

Catch Basin – An opening in the street adjacent to the curb that allows water from the street to flow into an underground drainage pipe.

Certified Floodplain Manager (CFM) – This certification is granted by the ASFPM directly to individuals who demonstrate knowledge of the basic national standards and programs of floodplain management, but who reside or work in states where ASFPM-accredited certification is not available.

Community Rating System (CRS) – A program developed by the Federal Insurance Administration (FIA) to provide incentives for those communities in the Regular Program that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.

ACRONYMS AND GLOSSARY

Critical Facility – Facilities housing or serving many people, which are necessary in the event of an earthquake or flood, such as hospitals, fire, police, and emergency service facilities; utility “lifeline” facilities such as water, electricity, and gas supply; sewage disposal; and communications and transportation facilities. In addition, critical facilities include manufacturing facilities that store water reactive materials.

Dam and Reservoir Emergency Notification List – A list maintained and updated by the Monterey County Water Resources Agency that contains agency contact names and numbers to be used in the case of an emergency involving dams or reservoirs.

Erosion – The process by which soil and rock are detached and moved by running water, wind, ice, and/or gravity.

Federal Emergency Management Agency (FEMA) – The federal agency under which the National Flood Insurance Program (NFIP) is administered.

Federal Insurance Administration (FIA) – The federal entity within FEMA that directly administers the National Flood Insurance Program (NFIP).

FEMA Designated 100-year Flood Zones – Darkly shaded area(s) on a Flood Hazard Boundary Map (FHBM) or a Flood Insurance Rate Map (FIRM) that identifies an area that has a 1 percent chance of being flooded in any given year (100-year floodplain). Over a 30-year period, the life of most mortgages, there is at least a 26 percent chance that this area will be flooded. The FIRM identifies these shaded areas as FIRM Zones A, AO, AH, A1-A30, AE, A99, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V, V1-V30, and VE.

Flood – A general and temporary condition of partial or complete inundation of normally dry land areas from which such events as the following: overflow of inland or tidal waters, the unusual and rapid accumulation or runoff of surface waters from any source, mudslides (i.e., mudflows) which are proximately caused by flood (see below for definition), or the collapse or subsidence of land along a body of water as a result of erosion or undermining caused by waves or currents of water exceeding the cyclical events.

Flood Control Channel – An open conduit usually trapezoidal or rectangular in shape used to move extremely large amounts of water through a drainage area.

Flood Insurance Rate Map (FIRM) – Official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community.

Floodplain – The relatively level land area on either side of the banks of a stream regularly subject to flooding. That part of the floodplain subject to a 1 percent chance of flooding in any given year is designated as an “area of special flood hazard” by the Federal Insurance Administration.

ACRONYMS AND GLOSSARY

Floodplain Management – The operation of an overall program of corrective and preventative measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations.

Floodproofing – Any combination of structural and nonstructural additions, changes, or adjustment to structures, which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitation facilities, or structures with their contents.

Floodway – The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the “base flood” without cumulatively increasing the water surface elevation more than one foot. No development is allowed in floodways.

Floodway Fringe – All land between the floodway and the upper elevation of the 100-year flood.

Grade Elevation – The average or highest natural (pre-construction) ground level that is immediately adjacent to the walls of the building.

Increased Cost of Compliance – An additional claim payment made to a flood insurance policy holder to help cover the cost of bringing a substantially damaged or repetitively damaged building into compliance with the NFIP construction standards for new buildings.

Map Revision – A change in the Flood Hazard Boundary Map (FHBM) or Flood Insurance Rate Map (FIRM) for a community that reflects revised zone, base flood, or other information.

Mudflow (Mudslide) – A river of liquid and flowing mud on the surface of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current. A mudflow down a hillside is usually the result of a dual condition of loss of brush cover and the subsequent accumulation of water on or under the ground, preceded by a period of unusually heavy or sustained rain.

Natural Grade – The grade unaffected by construction techniques such as fill, landscaping, or berming.

NFIP-CRS Coordinator – County Engineer’s designee to implement the Community Rating System activities including preparation of Countywide FMP.

Nuisance Flooding – Flooding that affects people in some way but does not cause damage to property.

Ponding Hazard – A flood hazard that occurs in flat areas when there are depressions in the ground that collect “ponds” of water. The ponding hazard is represented by the zone designation AH on the FIRM.

ACRONYMS AND GLOSSARY

Regulated Floodway – The regulated floodway is shown on the FIRM and consists of the river/stream channel plus that portion of the overbanks that must be kept free from encroachment in order to discharge the 100-year event without increasing flood levels. The County is responsible for prohibiting encroachments, including fill, new construction, and substantial improvements, within the regulated floodway unless it has been demonstrated through hydrologic and hydraulic analyses that the proposed encroachment will not increase flood levels. In shallow flooding areas that are outside of the regulated floodway (termed the “floodway fringe”), development is allowed, provided that it causes no more than a 100-year flood water-surface elevation.

Repeated Loss – Indicates multiple incidents of flood damages (refers to properties not included in the County’s Repetitive Loss Property list).

Repetitive Loss Properties – Those properties suffering two or more losses within a 10-year period (since 1978) that exceed \$1,000 each. FEMA has identified a total of 109 Repetitive Loss Properties within the County of Monterey.

Repetitive Loss Plan – A mandatory activity for the County to participate in the CRS was the development of this Floodplain Management Plan, with the purpose to identify reasonable and cost-effective mitigation measures to help reduce damages to the RLPs.

Runoff – That portion of rain (or snow) that does not percolate into the ground and is discharged into streams instead.

Sheet Flow Hazard – A type of flood hazard with flooding depths of 1 to 3 feet that occurs in areas of sloping land. The sheet flow hazard is represented by the zone designated AO on the FIRM.

Significant (Substantial) Improvement (FEMA definition) – Any reconstruction, rehabilitation, addition, or other improvement of a building, the cost of which equals or exceeds 50 percent of the market value of the building before the “start of construction” of the improvement. Substantial improvement includes buildings that have incurred “substantial damage,” regardless of the actual repair work performed. The term does not, however, include either any project for improvement of a building to correct existing state or local code violations or any alteration to a “historic building,” provided that the alteration will not preclude the building’s continued designation as a “historic building.”

Special Flood Hazard Areas (SFHA) – An area that would be inundated by the 100-year flood. See definitions for Base Flood and FEMA Designated 100-year Flood Zones.

Stormwater System – A system composed of pipes, catch basins, gutters, channels, and pump stations designed to transport stormwater to a larger body of water, e.g., lake, bay, ocean.

ACRONYMS AND GLOSSARY

Velocity – The rate of water flow measured in feet per second.

Watercourse (Waterway) – Natural or once-natural flowing (perennially or intermittently) water (mapped and unmapped) including rivers, streams, and creeks. Includes natural waterways that have been channelized, but does not include manmade channels, ditches, and underground drainage and sewage systems.

Watershed – The total area above a given point on a watercourse that contributes water to its flow; the entire region drained by a waterway or watercourse that drains into a lake, or reservoir.

Wetlands – Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Under a “unified” methodology now used by all federal agencies, wetlands are defined as “those areas meeting certain criteria for hydrology, vegetation, and soils.”

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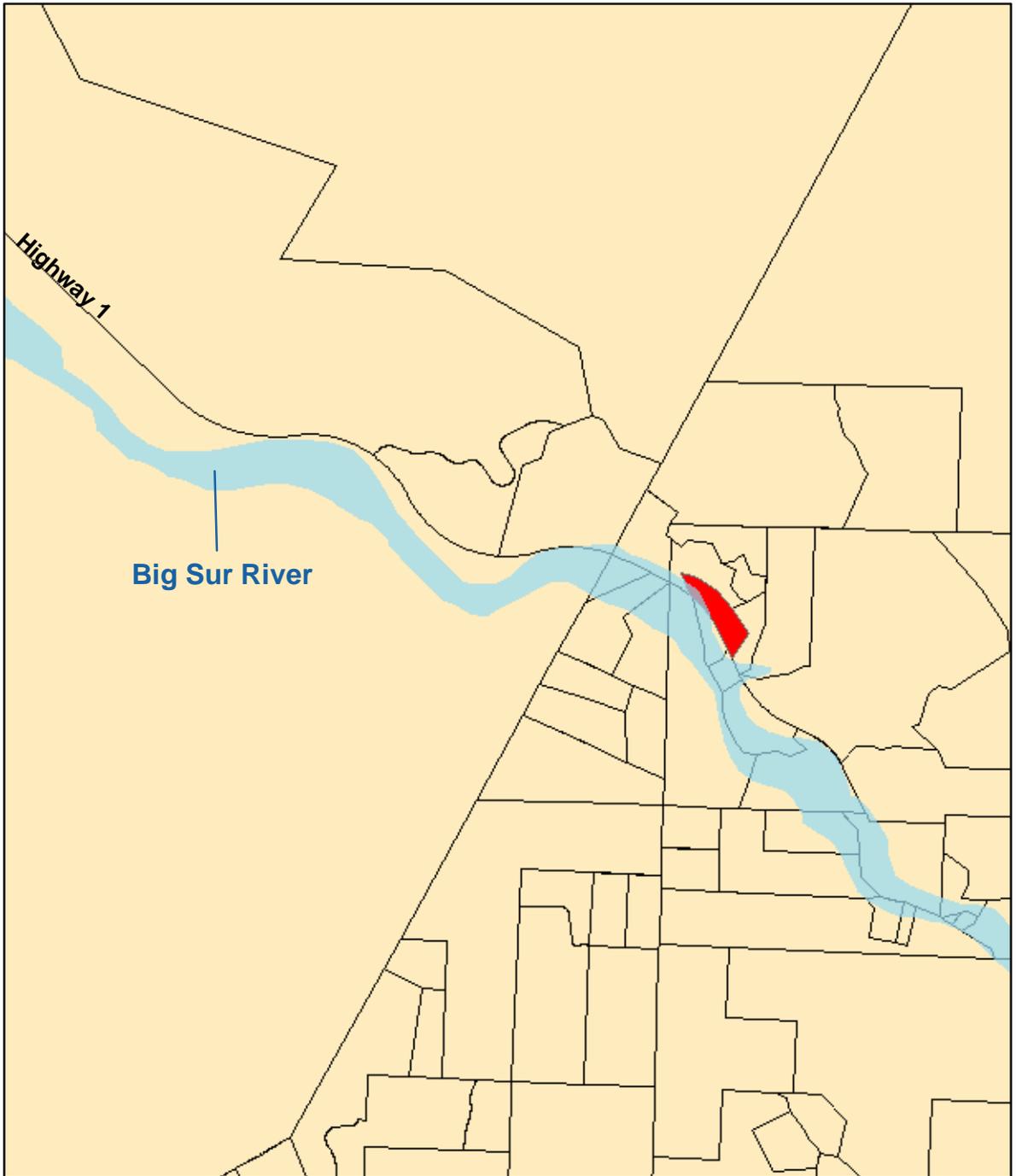
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APPENDIX A

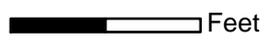
MAPS

A-1. Big Sur River



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels

 Feet
0 750 1,500



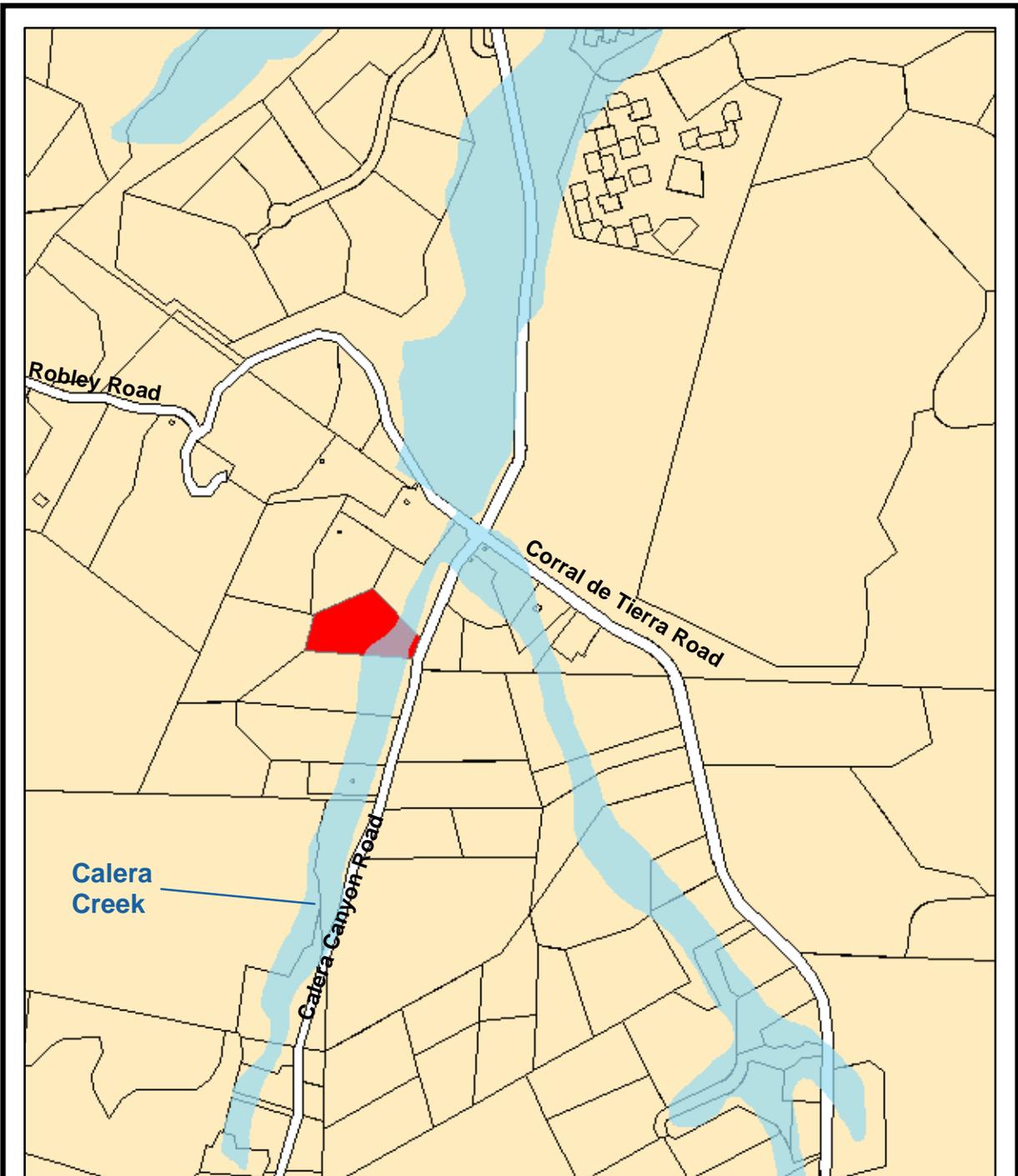
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



August 2, 2002

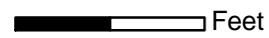
A-2. Calera Creek



Legend

-  Repetitive Loss Parcels
-  100-year Floodplain



 Feet
0 415 830

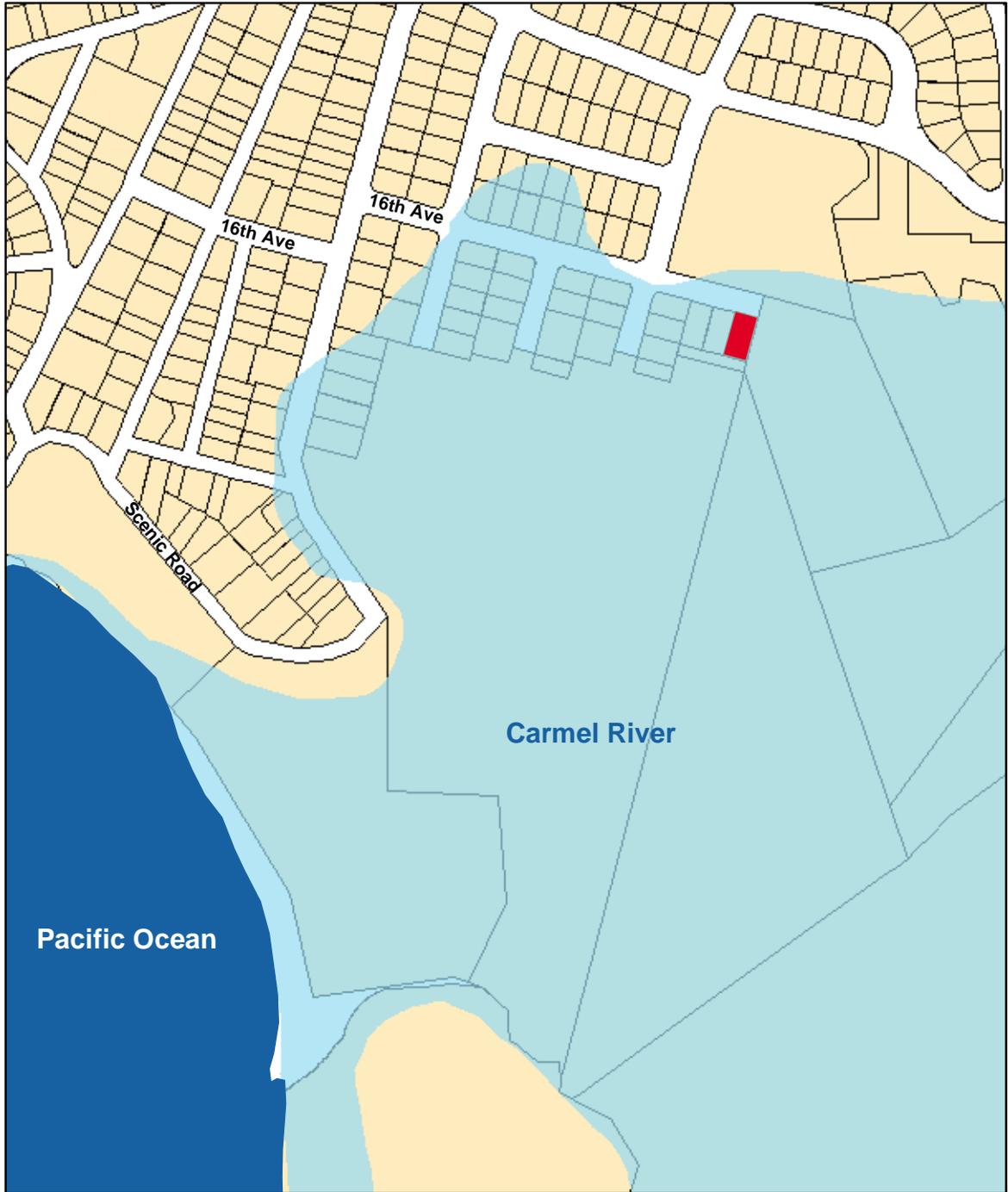
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown herein are approximate and are not intended as a guide for design or survey work.



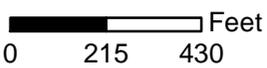
August 2, 2002

A-3. Carmel River



Legend

-  Repetitive Loss Parcels
-  100-year Floodplain



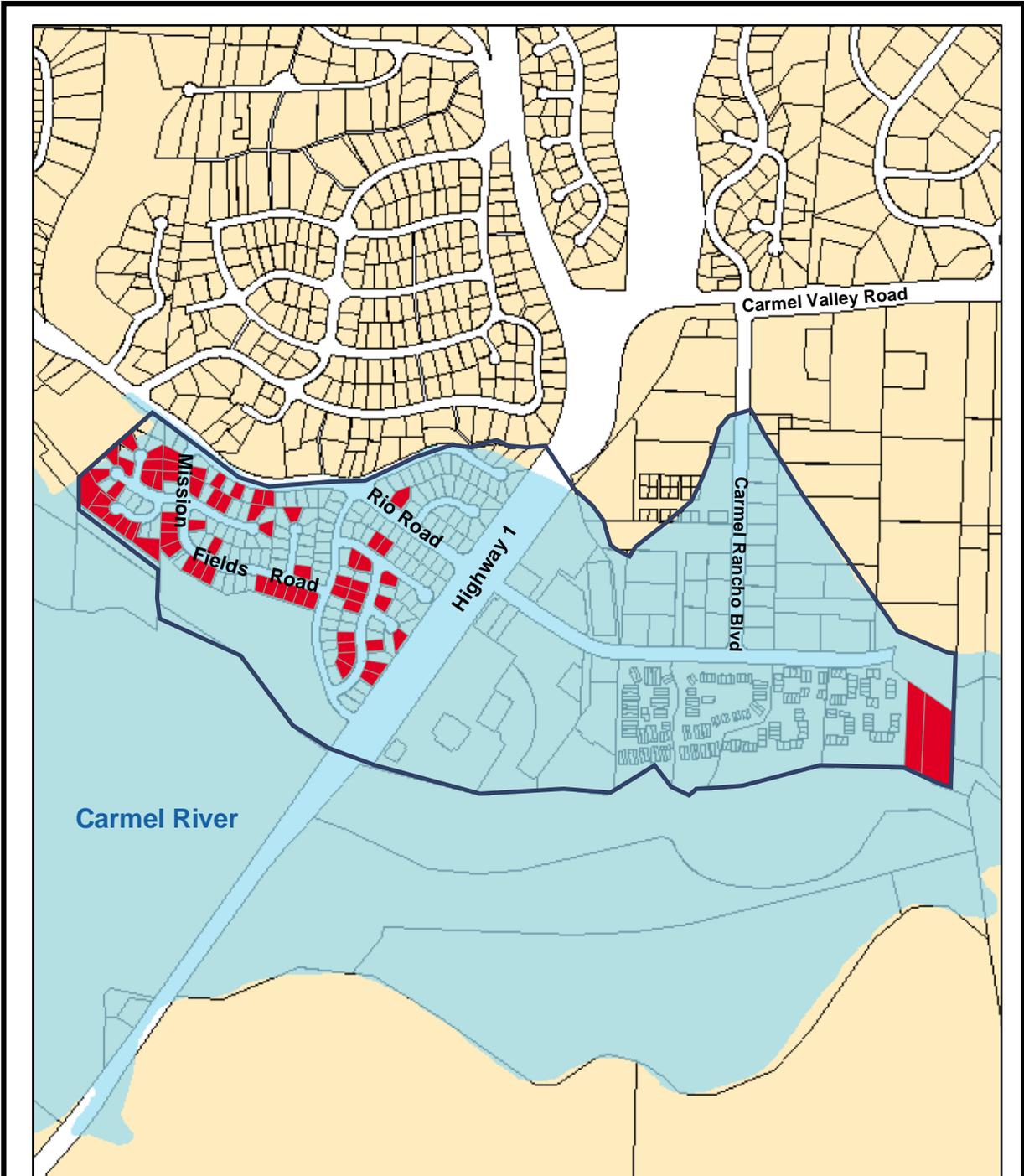
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



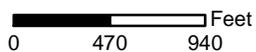
August 2, 2002

A-4. Carmel River (CSA 50 Area)



Legend

- Repetitive Loss Parcels
- 100-year Floodplain
- CSA 50



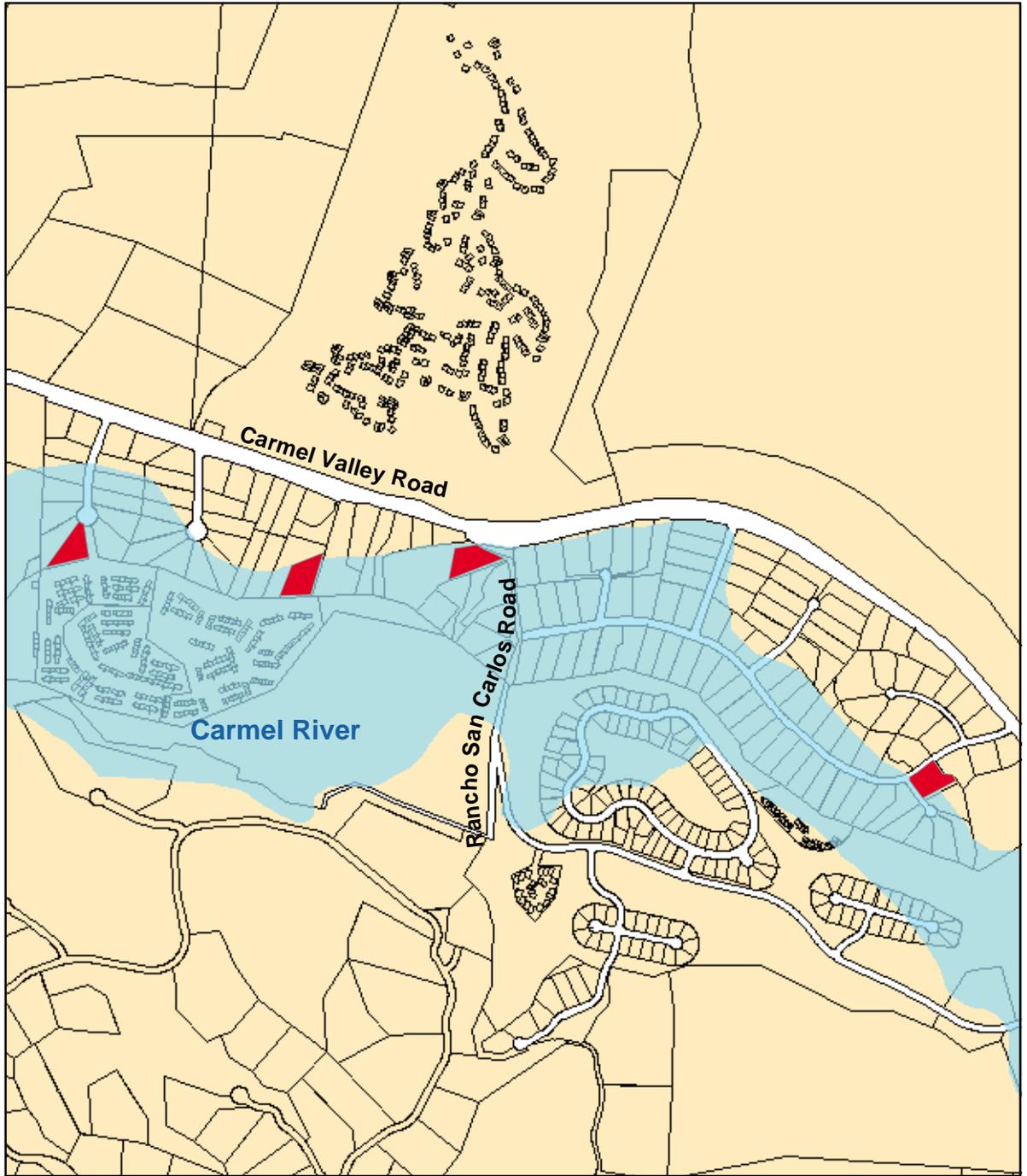
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



August 2, 2002

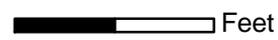
A-5. Carmel River



Legend

-  Repetitive Loss Parcels
-  100-year Floodplain



 Feet
0 600 1,200

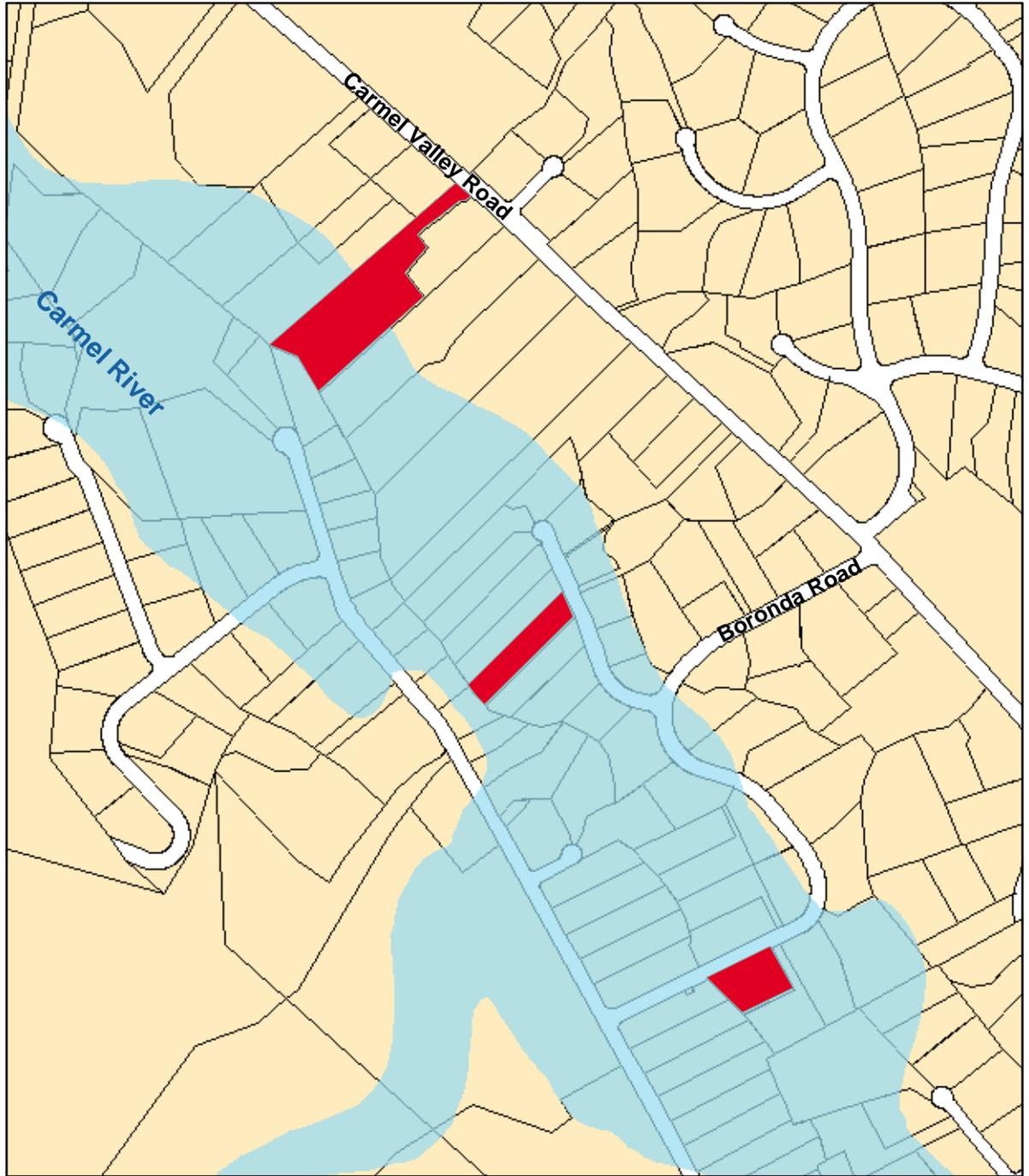
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



August 2, 2002

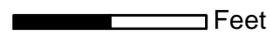
A-6. Carmel River



Legend

-  Repetitive Loss Parcels
-  100-year Floodplain



 Feet
0 315 630

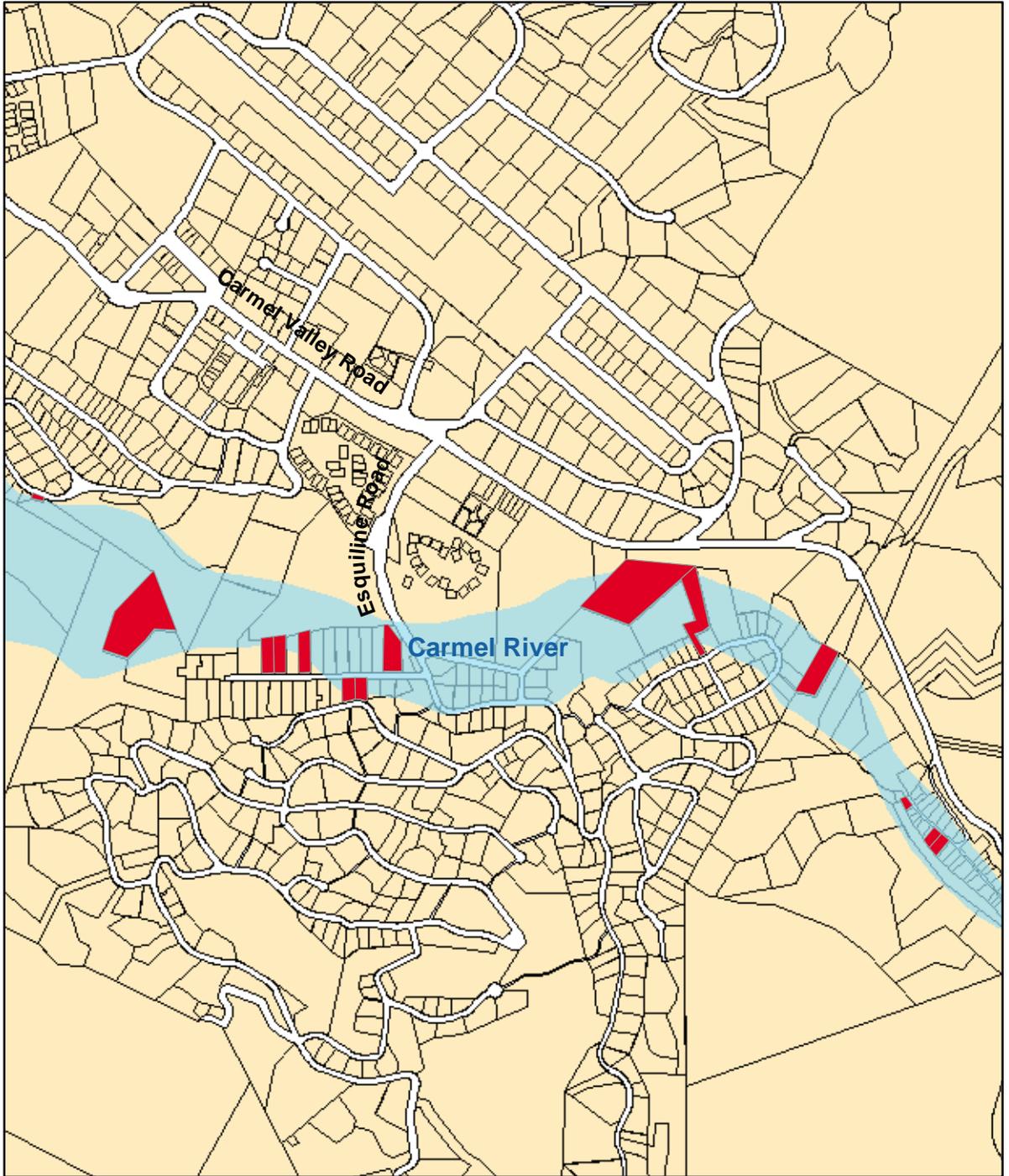
Monterey County Water Resources Agency



Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

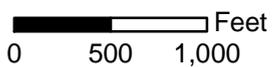
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A-7. Carmel River



Legend

-  Repetitive Loss Parcels
-  100-year Floodplain



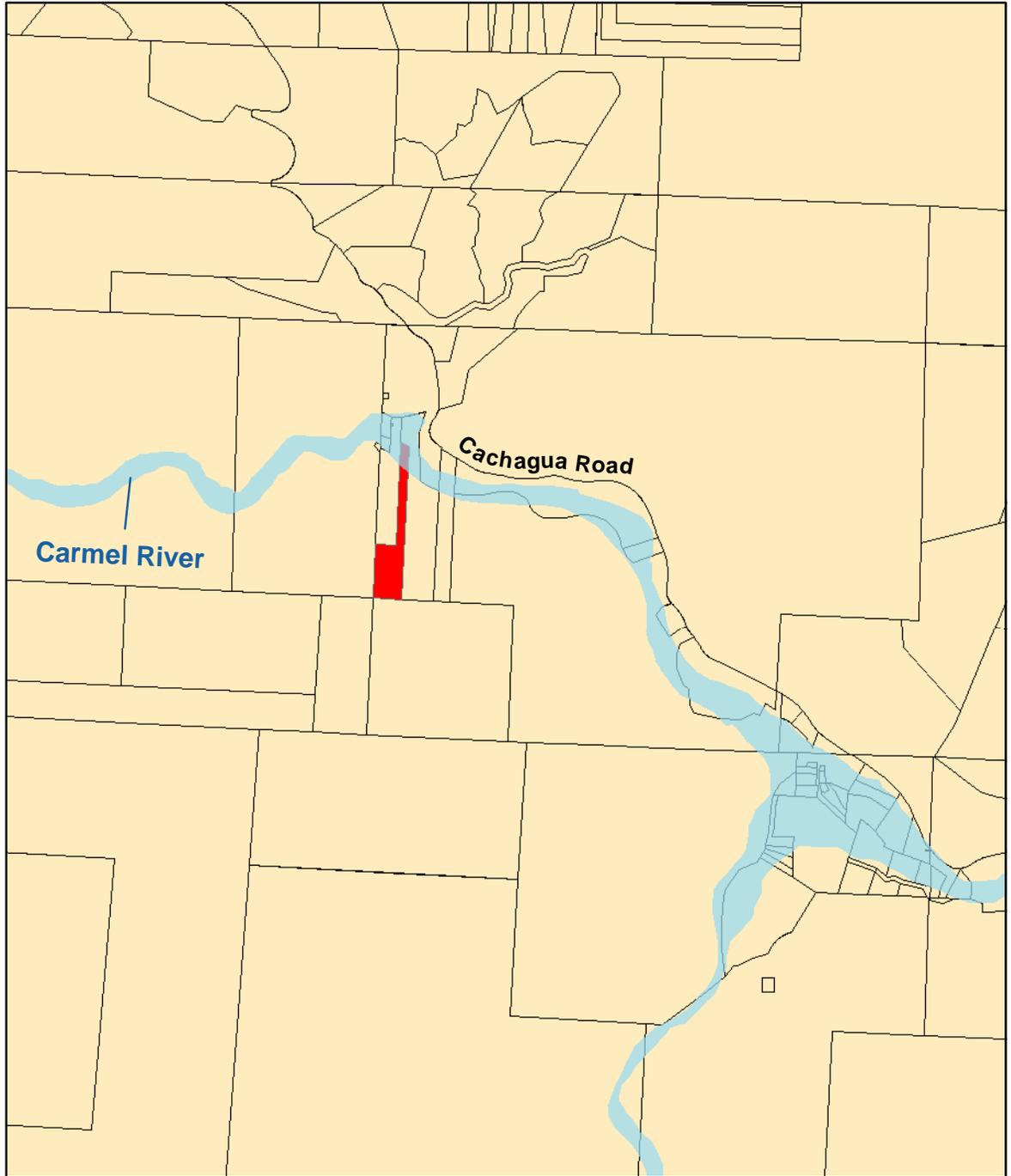
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



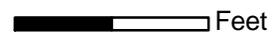
August 2, 2002

A-8. Carmel River



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels

 Feet
0 800 1,600



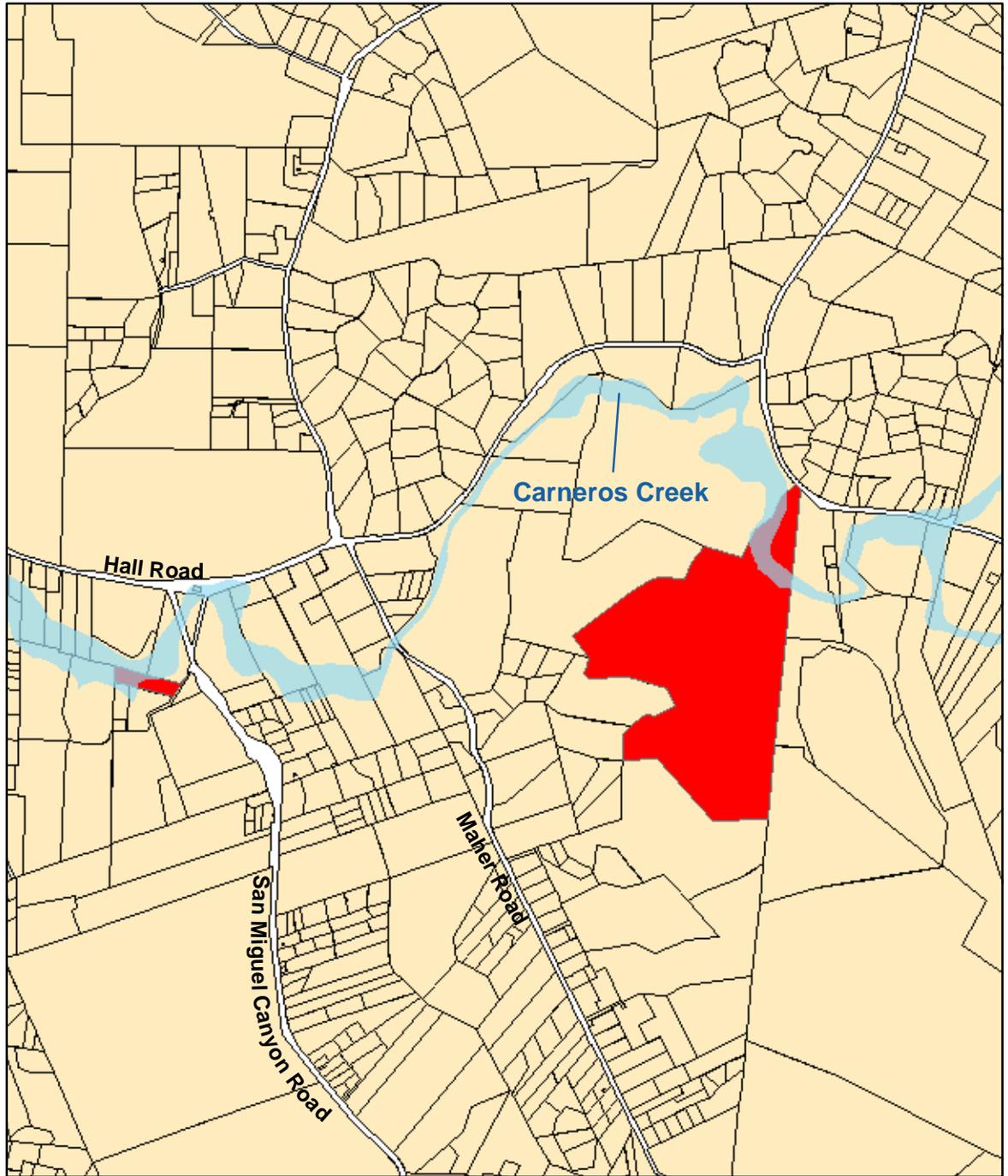
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



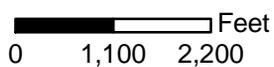
August 2, 2002

A-9. Carneros Creek



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels



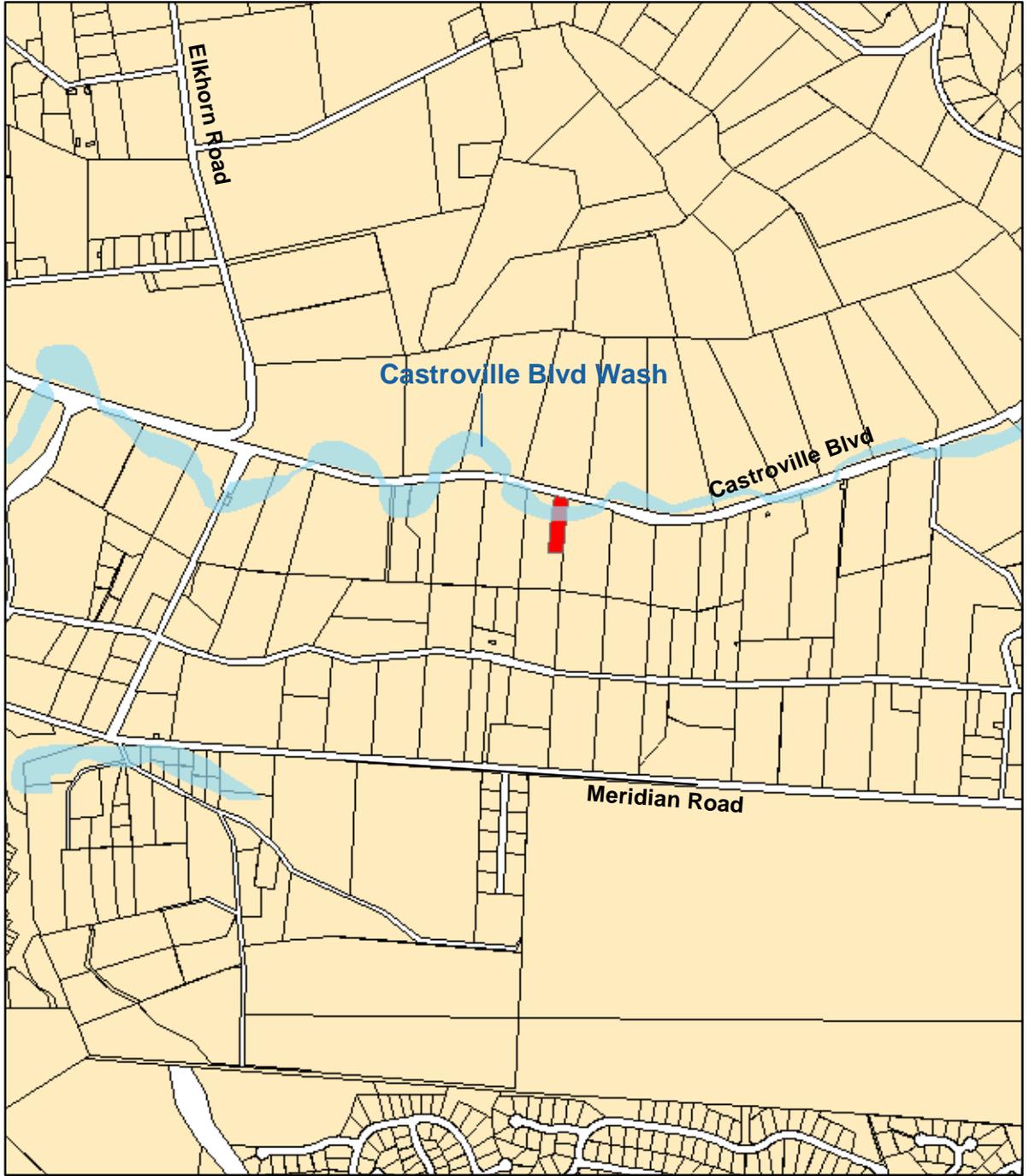
Monterey County Water Resources Agency



Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

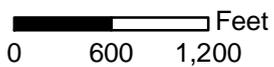
August 2, 2002

A-10 Castroville Boulevard Wash



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels



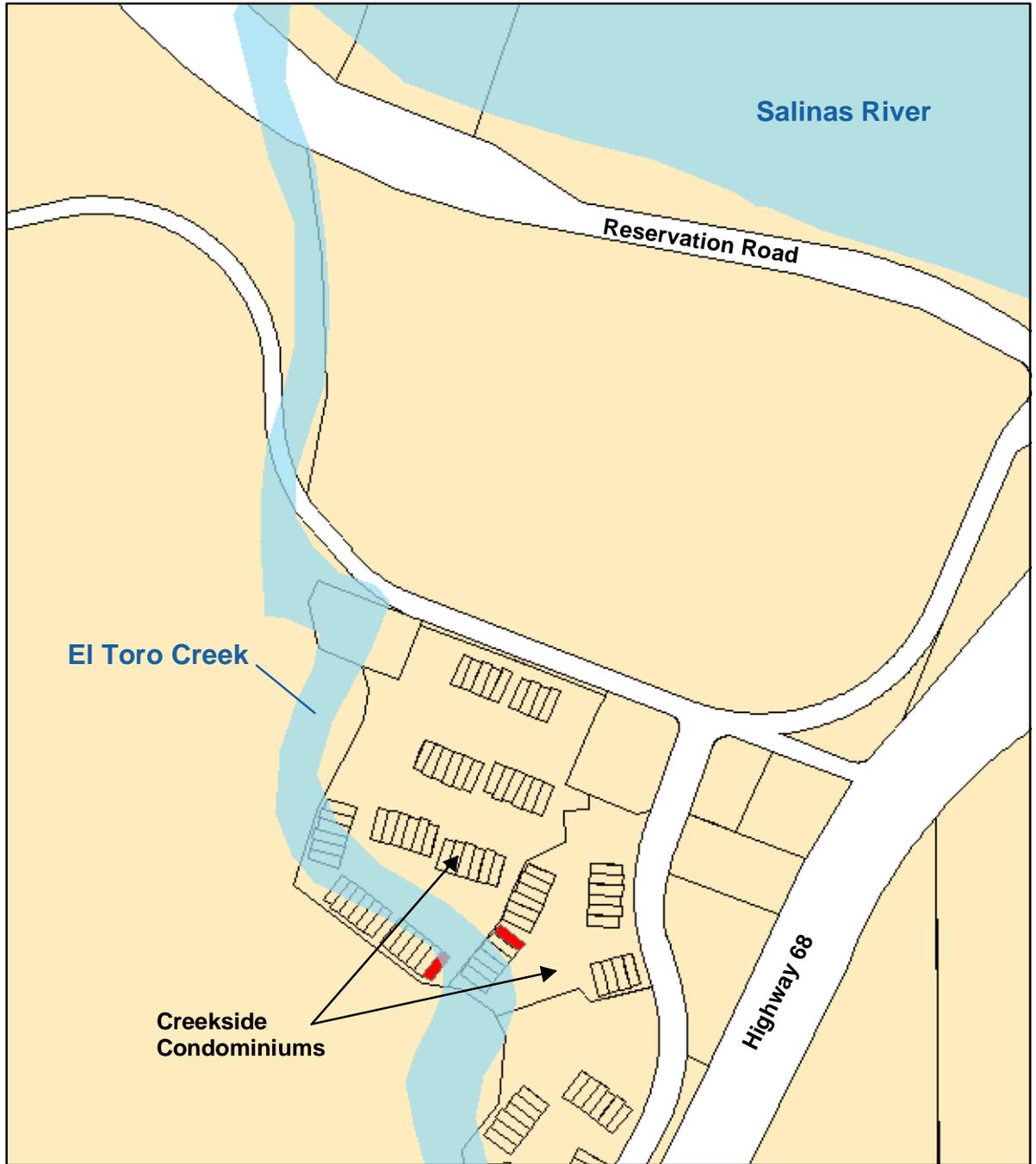
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



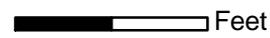
August 2, 2002

A-11. El Toro Creek



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels

 Feet
0 187.5 375



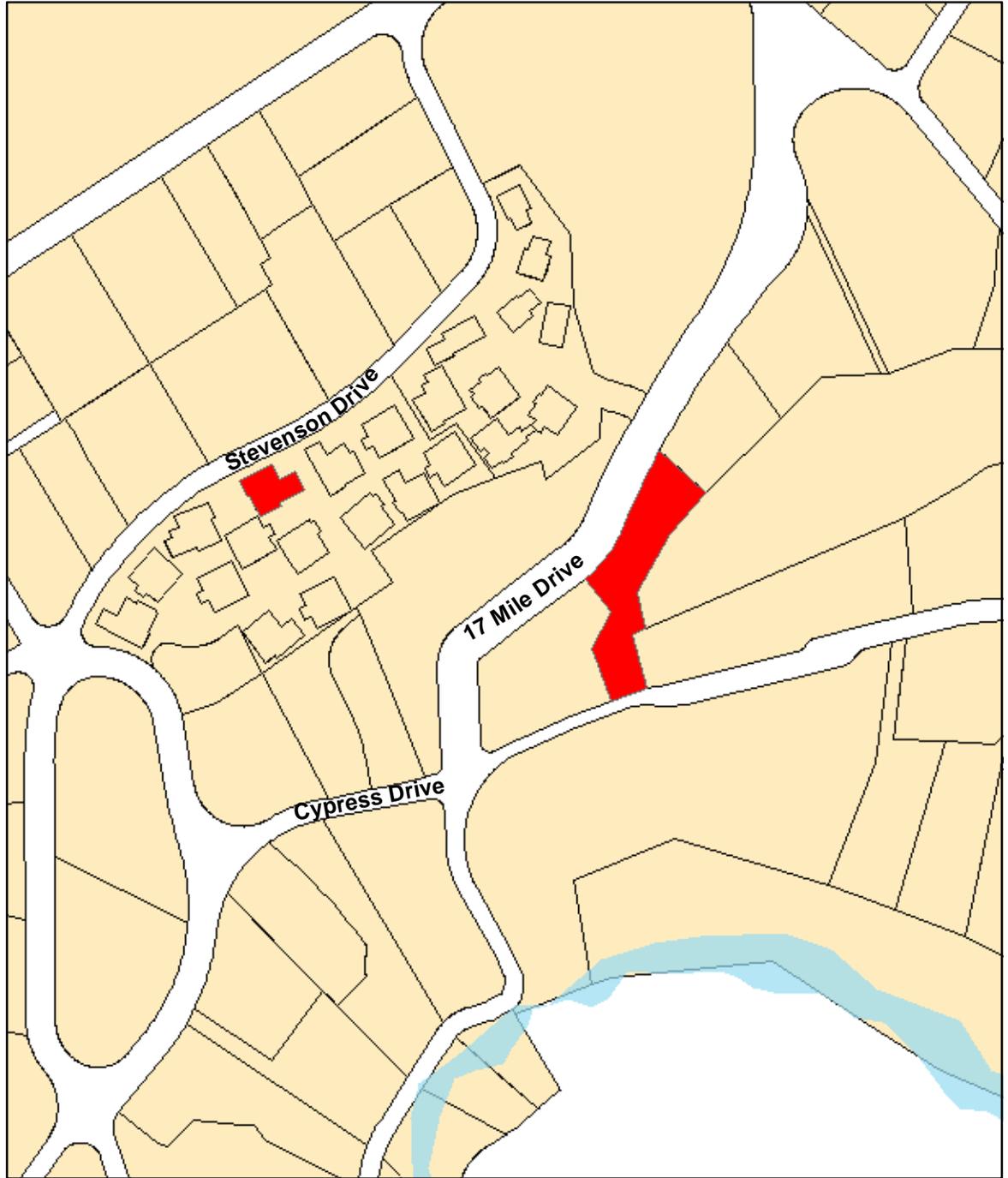
Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



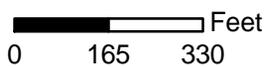
August 2, 2002

A-12. Pebble Beach Street Flooding



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels



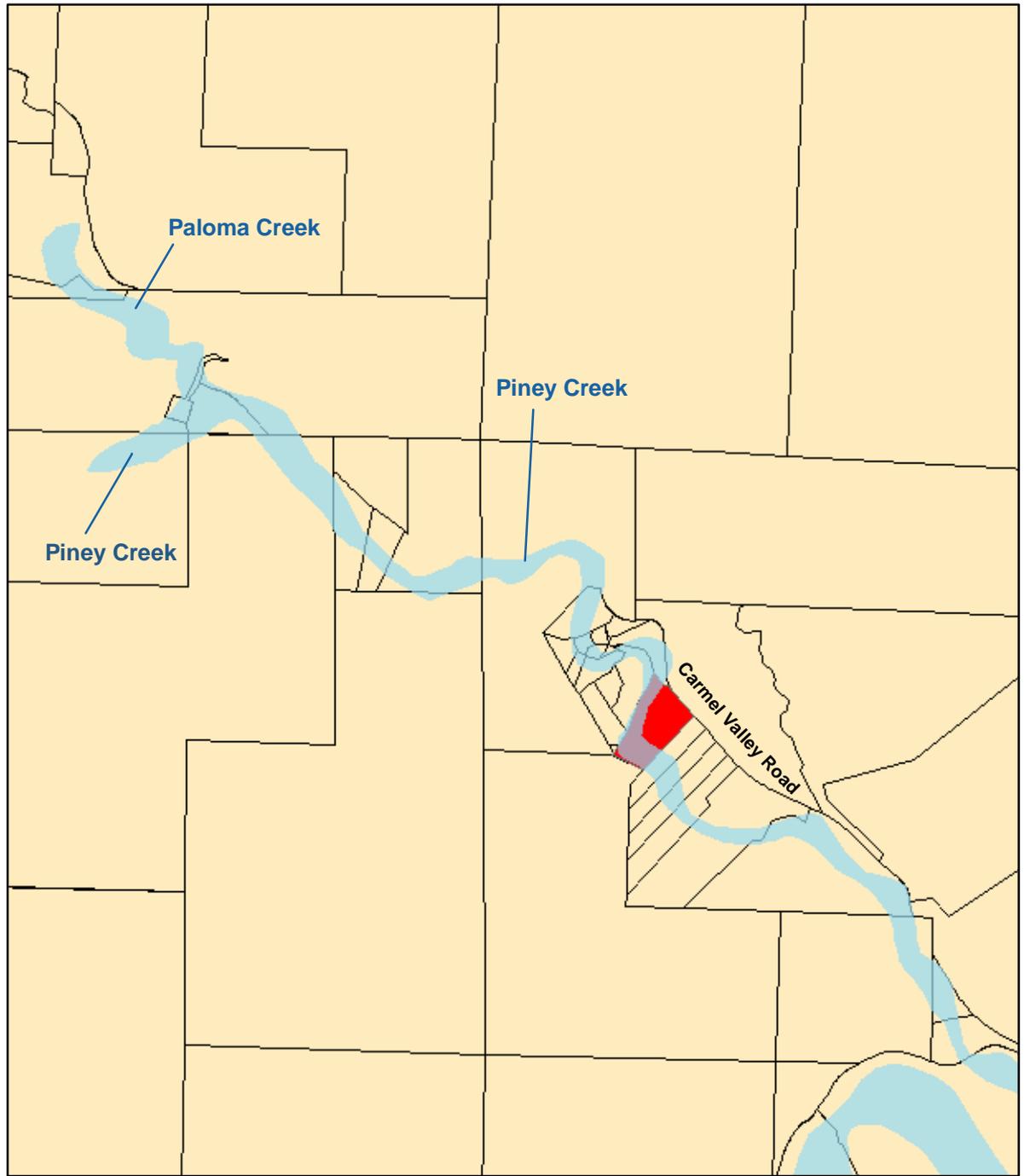
Monterey County Water Resources Agency



Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

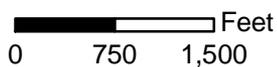
August 2, 2002

A-13. Piney Creek and Paloma Creek



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels



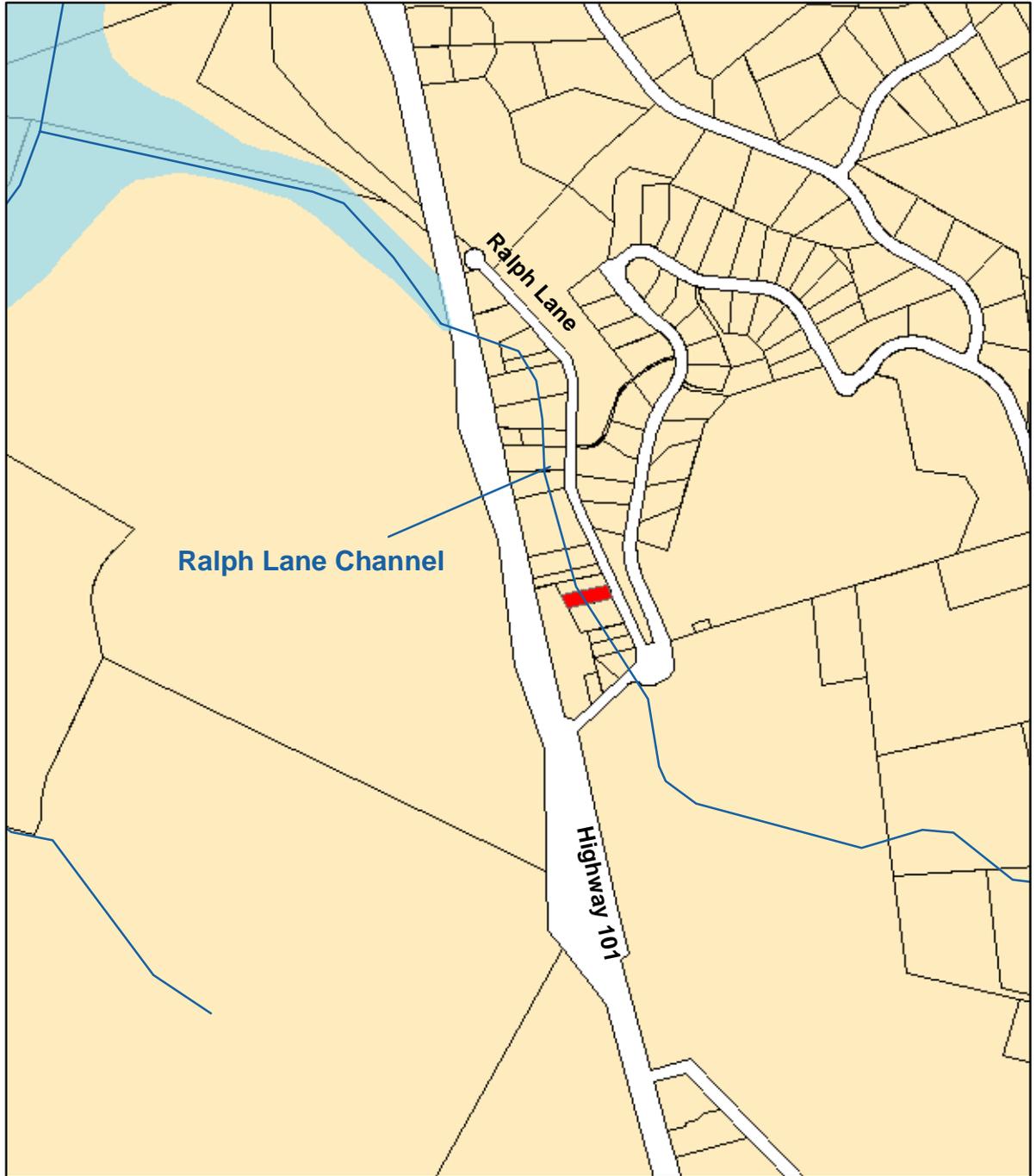
Monterey County Water Resources Agency



Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

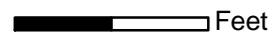
August 2, 2002

A-14. Ralph Lane Channel



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels
-  Streams

 Feet
0 380 760



Monterey County Water Resources Agency

Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.



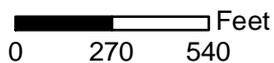
August 2, 2002

A-15. San Miguel Canyon Creek



Legend

-  Repetitive Loss Parcels
-  100-year Floodplain



Monterey County Water Resources Agency



Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

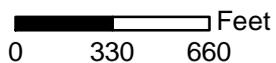
August 2, 2002

A-16. Santa Rita Creek



Legend

-  100-year Floodplain
-  Repetitive Loss Parcels



Monterey County Water Resources Agency



Data Source: 100-yr floodplain boundaries obtained from 1996 FEMA Q3 Flood Data.
Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design work.

August 2, 2002

APPENDIX B

HYDROLOGIC AND HYDRAULIC INFORMATION

B-1. Stream Discharge Summary for Select Streams

Carmel River		Peak Discharges (cfs)*			
Location	Drainage Area (square miles)	10-year	50-year	100-year	500-year
At San Clemente Dam	125	7,900	15,500	19,200	28,500
At Robles Del Rio	193	9,400	19,700	25,000	37,500
At USGS Gage Near Carmel	246	11,000	23,000	29,100	45,000
Carneros Creek		Peak Discharges (cfs)*			
Location	Drainage Area (square miles)	10-year	50-year	100-year	500-year
At U.S. Highway 101	4.4	120	325	400	760
At Maher Road	22.0	410	1,200	1,530	3,021
At Elkhorn Road	34.0	475	1,370	1,740	3,460
At State Highway 1	48.7	370**	960**	1200**	2330**
El Toro Creek		Peak Discharges (cfs)*			
Location	Drainage Area (square miles)	10-year	50-year	100-year	500-year
At San Benancio Road	23.4	240	860	1,400	2,400
At USGS Gage (Downstream of highway 68)	31.9	400	1,340	1,900	3,500
At confluence with Salinas River	41.4	400	1,390	2,000	3,600
San Miguel Canyon Creek		Peak Discharges (cfs)*			
Location	Drainage Area (square miles)	10-year	50-year	100-year	500-year
At Echo Valley Pond	1.5	15	50	80	160
At State Highway 156	6.0	65	250	300	750
At Upstream Crossing of Hwy 101	8.2	90	305	440	940
At Downstream Crossing of Hwy 101	12.8	145	490	690	1,460
Santa Rita Creek		Peak Discharges (cfs)*			
Location	Drainage Area (square miles)	10-year	50-year	100-year	500-year
At North Main Street (In City of Salinas)	4.2	160	400	465	810

* Source: Flood Insurance Study, Monterey County, California. Revised September 27, 1991.

** Reduction in Flow Values Due to Overbank Storage in Tidal Flats

MONTEREY COUNTY WATER RESOURCES AGENCY

PEAK FLOW ARRIVAL AT PAJARO R. nr CHITTENDEN
 U.S.G.S. Station No. 11159000

Peaks Recorded at Pajaro R. nr Chittenden Station:

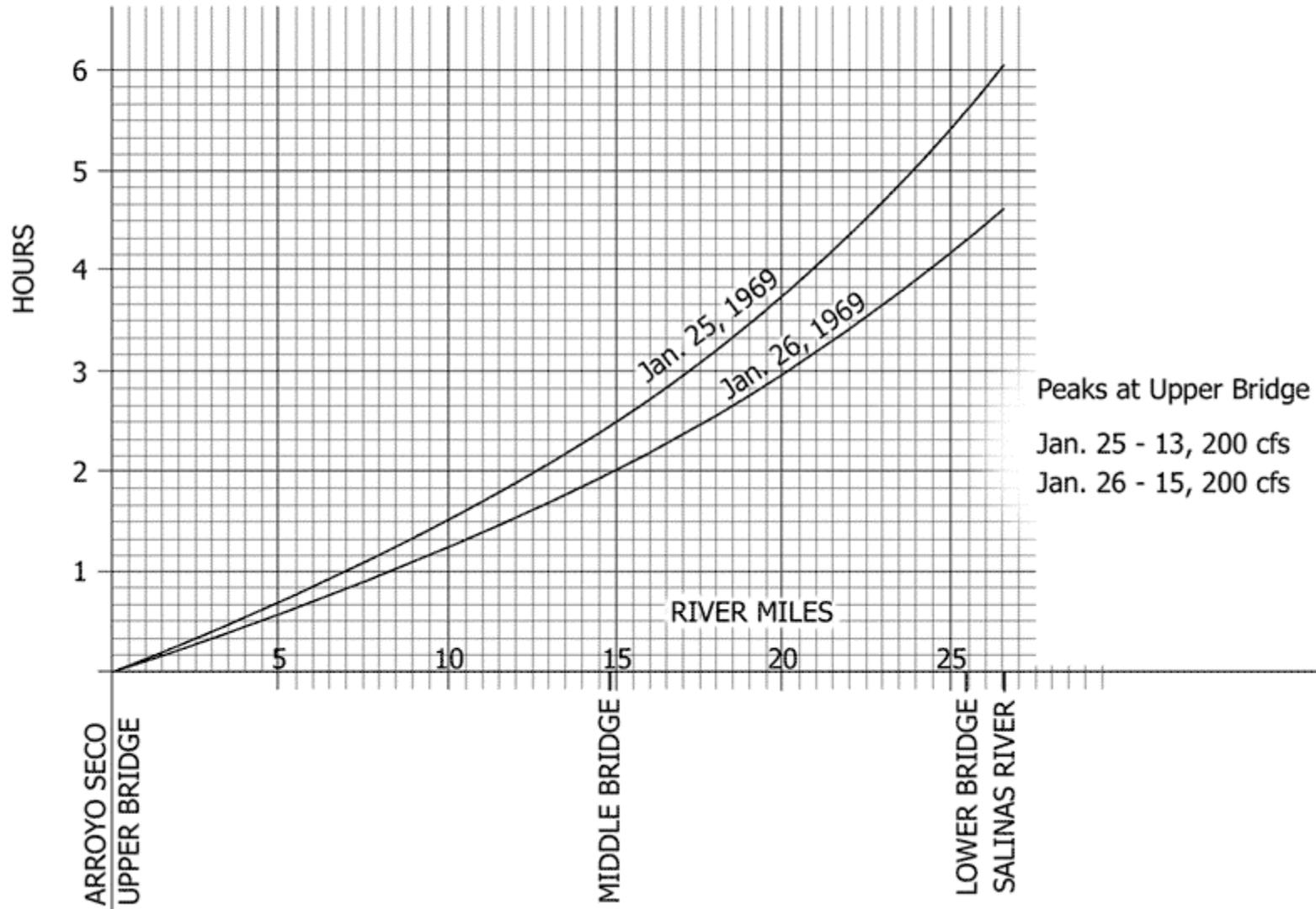
3/10/95 2200 hrs G.H. 32.13 Q 21,300

3/11/95 1300 hrs G.H. 32.20 Q 21,500

ARRIVAL DATE/TIME

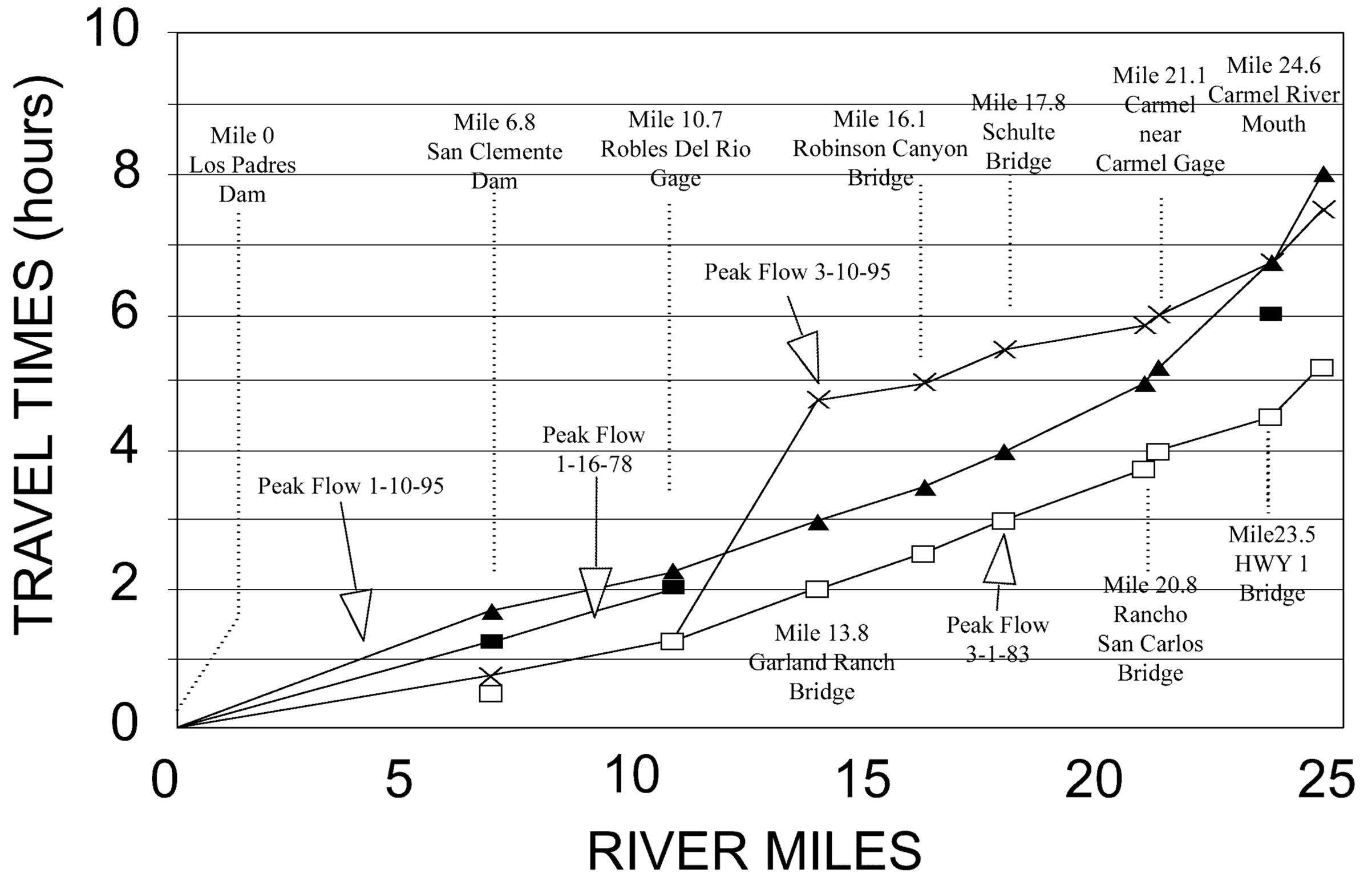
CFS	DATE/TIME (local)	FROM	APPROX. MILES FROM CHITT.	TRAVEL TIME (hours)	ESTIMATE	ACTUAL	REMARKS
16,700*	03/10 1600	San Benito R. @ Hwy 156	12	6	03/10 2200	2200	
12,500	03/10 1415	Pacheco Cr. Nr Dunneville	24	9-10	03/10 2345	2200	Peak coincides with San Benito R. peak @ Chittenden
4,160	03/10 1700	Uvas Reservoir Spillway	22	6-7	03/10 2330	0300	Peak from S.C.V.W.D Records
934	03/11 0345	Llagas Cr. Below Chesbro Reservoir	27	7-8	03/11 1135	1200	Peak from S.C.V.W.D Records
11,200*	03/11 0900	San Benito R. @ Hwy 156	12	6	03/11 1500	1300	Peak coincides with Llagas Cr. Peak @ Chittenden
7,420*	03/12 0115	San Benito R. @ Hwy 156	12	6	03/12 0700	0600	

Approximate Time of Travel of Peak Flow on Arroyo Seco River From Arroyo Seco Upper Bridge to Salinas River



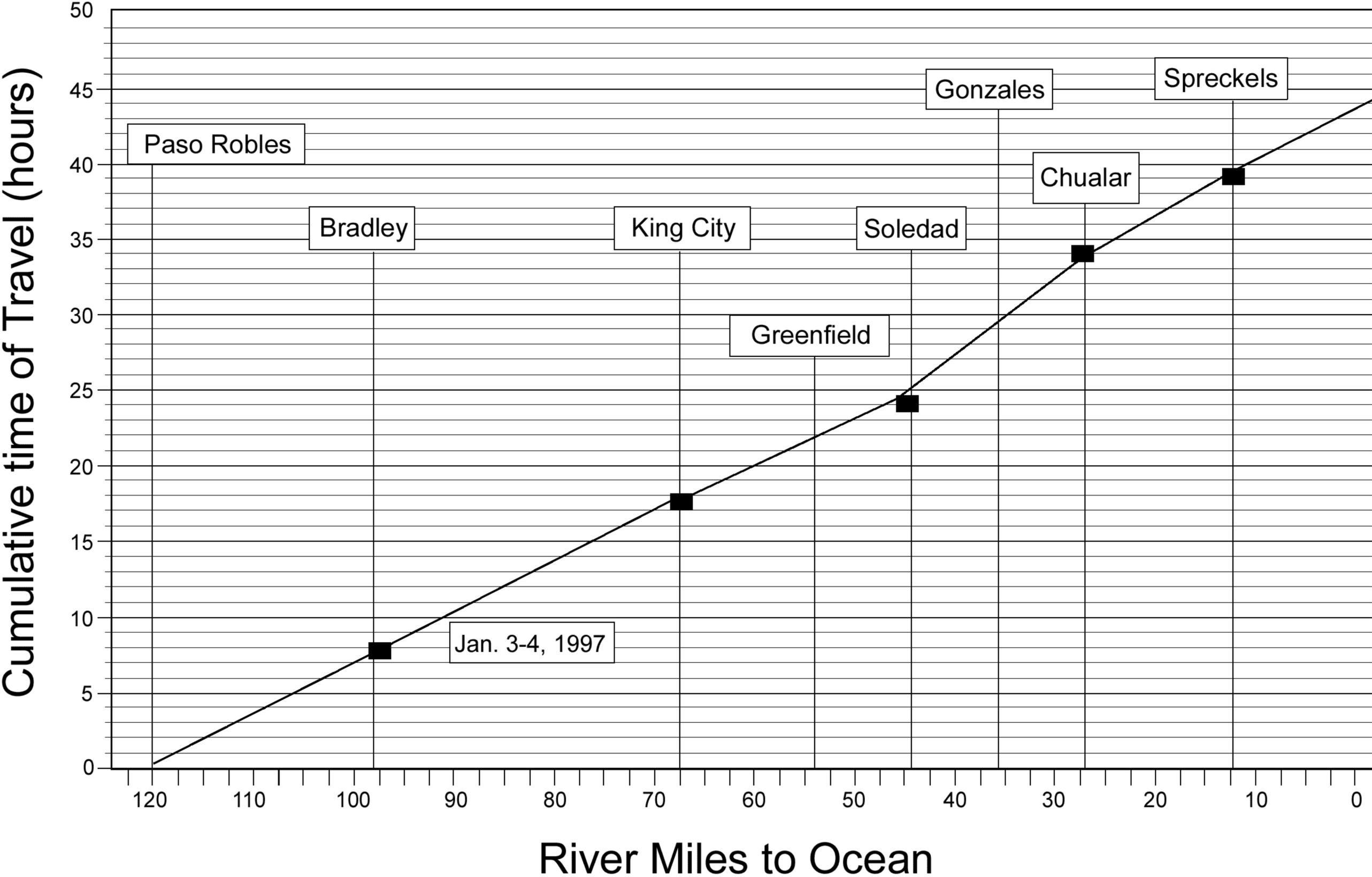
CARMEL R. - TRAVEL TIMES FM LOS PADRES

HISTORIC PEAK FLOWS



Salinas River Travel Times

Hours From Paso Robles



**SALINAS RIVER TRAVEL TIMES FOR SMALL CONSECUTIVE
FLOWS WITH WET CHANNEL***

Peak #1	Gage	Date/Time	Q	Time of Travel (hours)
	ASM	01/10 2115	1760	
				} 7.5
	ASL	01/11 0445	620	
				} 16.5
	CHU	01/11 2115	400	
				} <u>13</u>
	SPR	01/12 1030	425	
				Total 37

Peak #2

ASM	01/11 2130	1710	
			} 5
ASL	01/12 0230	977	
			} 15.5
CHU	01/12 1800	860	
			} <u>10.5</u>
SPR	01/13 0430	780	
			Total 31

*Arroyo Seco channel dry from ASM to ASL. Salinas channel wet through reservoir releases to SPR

Monterey County ALERT System

■ Stage / Precipitation

- ASM, 1340/1341, ARROYO SECO nr SOLEDAD (MIDDLE)
- ASU, 1343/1344, ARROYO SECO nr GREENFIELD (UPPER)
- BSR, 1080/1081, BIG SUR RIVER nr BIG SUR
- LOR, 1094/1095, SAN LORENZO CREEK bl BITTERWATER CREEK, nr KC
- LPD, 1320/1321, LOS PADRES DAM (CARMEL RIVER)
- NAD, 1254/1251, NACIMIENTO RESERVOIR
- SAD, 1264/1261, SAN ANTONIO RESERVOIR
- SAR, 1031/1032, SAN ANTONIO RIVER nr LOCKWOOD
- SOL, 1017/1018, SALINAS RIVER at SOLEDAD
- UUR, 1472/2078, UVAS RESERVOIR

▲ Precipitation

- BLA, 1305, BLANCO CIRCLE
- BLC, 1077, BLACK CONE
- BRY, 1026, BRYSON
- CEN, 1069, CENTRAL
- CHA, 1039, CHALK PEAK
- CHE, 1075, CHEWS RIDGE
- CRB, 1037, CAMP ROBERTS
- ESL, 1043, ELKHORN SLOUGH
- FCP, 1257, FLORES CAMP
- FRE, 1059, FREMONT PEAK
- GLG, 1063, GLORIA GRADE
- HLH, 1061, HUNTER LIGGETT
- HPC, 1233, HERNANDEZ RESERVOIR (SAN BENITO RIVER)
- MCP, 1442, MCPHAILS PEAK
- MIN, 1015, MINING RIDGE
- MTM, 1085, MOUNT MADONNA
- MUS, 1071, MUSTANG RIDGE
- NAV, 1091, NATIVIDAD
- PAL, 1012, PALO COLORADO
- PIC, 1067, PICO BLANCO
- PIN, 1035, PINYON PEAK
- PON, 1073, PONCIANO
- TOR, 1087, MOUNT TORO
- VIN, 1042, VINEYARD CANYON
- WRK, 1065, WHITE ROCK

● Weather Stations

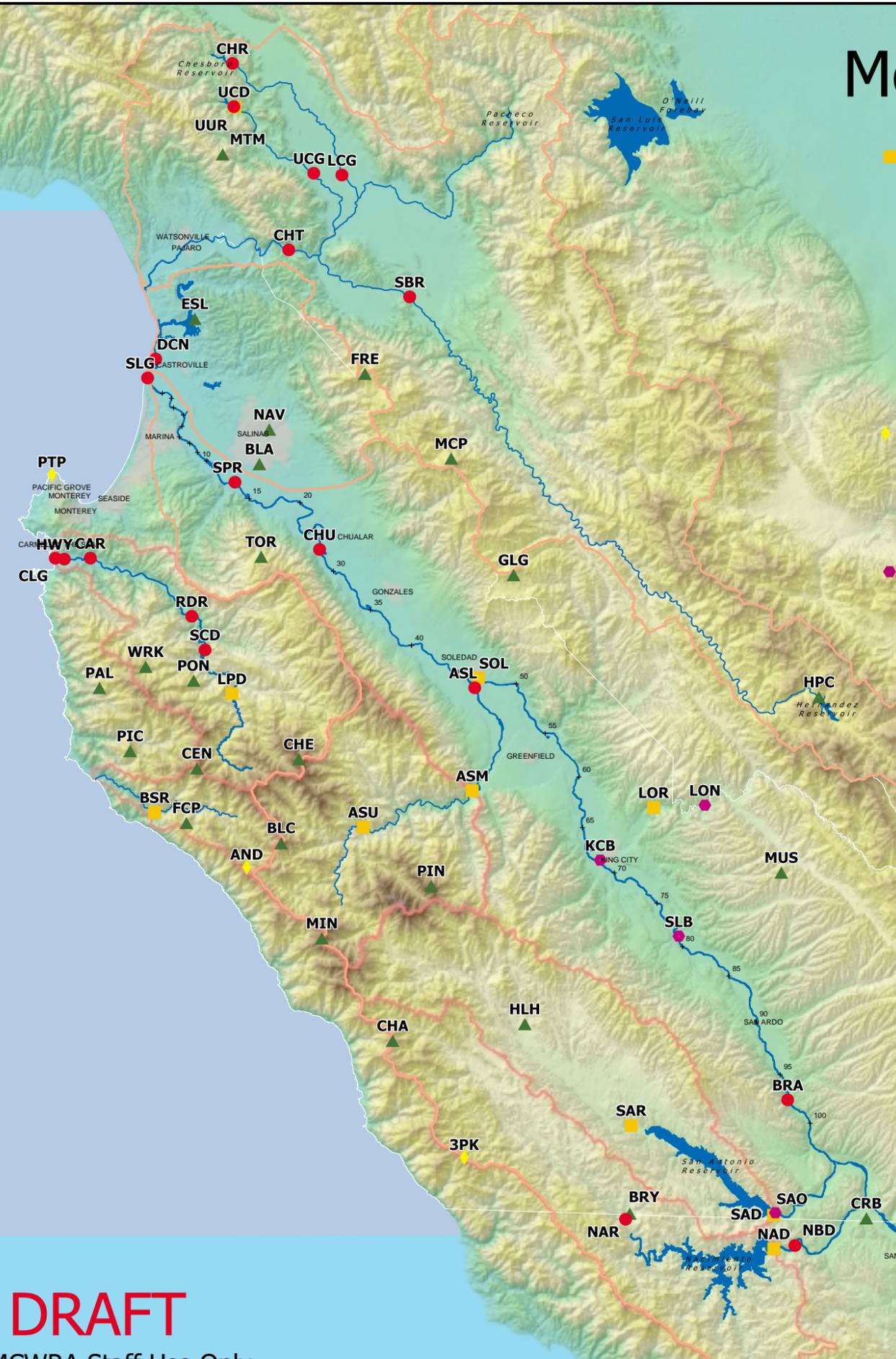
- 3PK, 1023, THREE PEAKS
- AND, 1053, ANDERSON PEAK
- PTP, 1003, POINT PINOS

● Sonic Down Lookers / Flow Meters

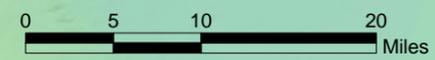
- KCB, 1263, KING CITY BRIDGE
- LON, 1274, LONOAK
- SAO, 1245, SAN ANTONIO OUTFLOW
- SLB, 1381, SAN LUCAS BRIDGE (SALINAS RIVER)

● Stage

- ASL, 1096, ARROYO SECO bl RELIZ CREEK, nr SOLEDAD
- BRA, 1401, SALINAS RIVER nr BRADLEY
- CAR, 1008, CARMEL RIVER nr CARMEL
- CHR, 1472, CHESBRO RESERVOIR
- CHT, 1310, PAJARO RIVER at CHITTENDEN
- CHU, 1255, SALINAS RIVER nr CHUALAR
- CLG, 1288, CARMEL RIVER LAGOON
- DCN, 1312, DUNES COLONY
- HWY, 1282, CARMEL RIVER at HIGHWAY 1
- LCG, 2086, LLAGAS CREEK at SOUTHSIDE DRIVE (GILROY)
- NAR, 1033, NACIMIENTO RIVER bl SAPAQUE CREEK, nr BRYSON
- NBD, 1375, NACIMIENTO RIVER bl NACIMIENTO DAM
- RDR, 1048, CARMEL RIVER at ROBLES DEL RIO
- SBR, 1243, SAN BENITO RIVER at HWY 156
- SCD, 1330, SAN CLEMENTE DAM (CARMEL RIVER)
- SLG, 1294, SALINAS RIVER LAGOON
- SPR, 1267, SALINAS RIVER nr SPRECKELS
- UCD, 1538, UVAS CREEK bl UVAS DAM
- UCG, 2084, UVAS CREEK at W. LUCHESSA AVE (GILROY)



DRAFT
For MCWRA Staff Use Only



Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for survey or design work.
Map Date: February 12, 2004

APPENDIX C

FMP CREDIT CALCULATIONS

Floodplain Management Plan - Credit Points Overview

CRS Activity 510

CRS credit for step a: (Maximum credit: 10 points). The credit for this step is the total of the following points, which are based on how the community organizes to prepare its floodplain management plan:

Item	Point	Description
1.	2	if the planning process is under the supervision or direction of a professional planner.
2.	6	if the planning process is conducted through a committee composed of staff from those community departments that will be implementing the majority of the plan's recommendations.
3,	2	if the planning process and/or the committee are formally created or recognized by <u>action of the community's governing board.</u>

CRS credit for step b: (Maximum credit: 48 points). The term “public” includes residents, businesses, property owners, and tenants in the floodplain and other known flood hazard areas. The credit for this step is the total of the following points based on how the community involves the public during the planning process. **TO RECEIVE CREDIT FOR THIS STEP, THE PROCESS MUST INCLUDE ITEM 1.**

Item	Points	Description
1.	2	for at least one meeting to obtain public input on the draft plan held at the end of the planning process at least two weeks before submittal of the recommended plan to the community's governing body. Simply discussing the plan at a regular public meeting of the governing body, just before it is voted on, is not sufficient for CRS credit. The CAS does not require public hearings. There must be at least one public meeting at the end of the planning process at which the proposals are explained and people can ask questions and submit their comments. State and local laws take precedence, however. The community's legal counsel should determine if a public hearing is required.
2.	8	if one or more public meetings are held in the affected area(s) at the beginning of the planning process to obtain public input on flood problems and possible solutions.
3.	4	if public information activities are implemented to explain the planning process and encourage input to the planner or planning committee.
4.	4	if questionnaires are distributed asking the public for information on their flood problems and possible solutions. The questionnaires must be distributed to at least 90% of the floodplain residents. For example, they could be included as a page in a newsletter or other outreach project, such as those credited under Activity 330 (Outreach Projects). If the plan covers only the repetitive loss areas, they could go to at least 90% of the residents of those areas.
5.	4	if written comments and recommendations are solicited from neighborhood advisory groups, homeowners' associations, parent-teacher organizations, the Chamber of Commerce, or similar organizations that represent the public in the affected area(s).

6.	26	<p>if the planning process is conducted through a planning committee that includes members of the public. If this is the same planning committee credited under 51 1.a.2 and 3, at least one-half of the members must be representatives of the public, preferably from the floodprone areas. No CRS credit is provided if the committee only meets once or twice. It must meet a sufficient number of times to involve the members in the following key steps of the planning process (e.g., at least one meeting on each step):</p> <ul style="list-style-type: none"> d. Assess the hazard e. Assess the problem f. Set goals g. Review possible activities h. Draft an action plan
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CRS credit for step c: (Maximum credit: 18 points) Other agencies must be contacted to see if they are doing anything that may affect the community's program and to see if they could support the community's efforts. The credit for this step is the total of the following points. **TO RECEIVE CREDIT FOR THIS STEP, THE COORDINATION MUST INCLUDE ITEM 4.**

Item	Points	Description
1.	3	if the other agencies are contacted at the beginning of the planning process and asked for their input.
2.	10	if meetings are held with representatives of agencies to review common problems, development policies, mitigation strategies, inconsistencies and conflicts in policies, plans, programs, and regulations. The meetings need only be held with those agencies that have the most impact on the community's flood problem. Some agencies may be so important that their representatives may be invited to sit on the planning committee.
3.	3	if the planning includes a review of the community's needs, goals, and plans for the area. These should already be identified as part of previous comprehensive planning activities. If not, they should be identified to ensure that the plan's recommendations will be coordinated with other community activities. Community development and floodplain management goals may be mutually supportive or they may conflict. For example, if the community wants more recreational opportunities, clearing out the floodplain to provide a scenic waterfront park may be most appropriate. Conversely, if the floodplain includes the downtown and local officials are solidly behind economic development, the plan should probably recommend measures other than removing the community's economic base.
4.	2	for sending the draft action plan to the other agencies and asking them to comment by a certain date.

CRS credit for step d: (Maximum credit: 10 points). The credit for this step is the total of the following points based on what the community includes in its assessment of the hazard. **TO RECEIVE CREDIT FOR THIS STEP, THE ASSESSMENT MUST INCLUDE ITEM 1.**

Item	Points	Description
1.	5	for including the following in the plan: a. a map of the known flood hazards. "Known flood hazards" means the floodplain shown on the FIRM, repetitive loss areas, areas not mapped on the FIRM that have flooded in the past, and surface flooding identified in existing studies. No new studies need to be conducted for this assessment. b. a description of the known flood hazards, including source of water, depth of flooding, velocities, and warning time, where such data are available. c. a discussion of past floods, where such data are available.
2.	5	the plan includes a map and description of other natural hazards, such as erosion, tsunamis, earthquakes, and hurricanes.

CRS credit for step e: (Maximum credit: 35 points) The credit for this step is the total of the following points based on what is included in the assessment of the impact of flooding on the community. **TO RECEIVE CREDIT FOR THIS STEP, THE ASSESSMENT MUST INCLUDE ITEM 1.**

Item	Points	Description
1.	2	for including the number and types of buildings subject to the hazards identified in the hazard assessment. The inventory must include how many and what types of buildings are affected (e.g., residential, commercial, industrial, with or without basements, etc.). In smaller communities, exact counts can be made using aerial photos or windshield surveys. In larger communities, these numbers will likely be approximate.
2.	5	if the assessment includes a review of ALL properties that have received flood insurance claims (in addition to the repetitive loss properties).
3.	6	if the plan includes a description of the impact that past or predicted flooding has on buildings, infrastructure, and public health and safety. The information usually can be obtained from post-flood damage assessment reports, flood insurance claims, disaster assistance data, and flood control studies. Emergency management offices and FEMA may be able to help locate such data.
4.	3	if the plan describes the need and procedures for warning and evacuating residents and visitors.
5.	4	if the plan identifies critical facilities, such as hospitals, fire stations, and chemical storage companies.
6.	4	if the plan describes areas that provide natural and beneficial functions, such as wetlands, riparian areas, sensitive areas, and habitat for rare or endangered species.
7.	5	if the plan includes a description of development, redevelopment, and population trends and a discussion of what the future brings for development and redevelopment in the floodplain, the watershed, and natural resource areas.
8.	6	if the plan includes a summary of the impact of flooding on the community and its economy and tax base.

CRS credit for step f: (Maximum credit: 2 points). The two credit points for this step are provided if the plan includes a statement of the goals of the community's floodplain management program.

Item	Points	Description
1.	2	if the plan includes a statement of the goals of the community's floodplain management program.

CRS credit for step g: (Maximum credit: 30 points) The plan must describe those activities that were considered and note why they were or were not recommended. If an activity is currently being implemented, the plan must note whether it should be modified. The discussion of each activity needs to be detailed enough to be useful to the lay reader. The credit for this step is the total of the following points based on which floodplain management activities are reviewed in the plan.

Item	Points	Description
1.	5	if the plan reviews preventive activities, such as floodplain and stormwater management regulations and preservation of open space and the effectiveness of current regulatory and preventive standards and programs.
2.	5	if the plan reviews property protection activities, such as acquisition, floodproofing, and flood insurance.
3.	5	if the plan reviews activities to protect the natural and beneficial functions of the flood plain, such as wetlands protection.
4.	5	if the plan reviews emergency services activities, such as flood warning and sandbagging.
5.	5	if the plan reviews structural projects, such as reservoirs and channel modifications.
6.	5	if the plan reviews public information activities, such as outreach projects and environmental education programs.

CRS credit for step h: (Maximum credit: 65 points). The credit for this step is based on what is included in the action plan. For each recommendation, the action plan must identify who does what, when it will be done, and how it will be financed.

Item	Points	Description
1.	10	if the action plan includes recommendations for activities from two of the six categories listed in Figure 510-1.
2.	20	if the action plan includes recommendations for activities from three of the six categories listed in Figure 510-1.
3.	30	if the action plan includes recommendations for activities from four of the six categories listed in Figure 510-1.
4.	40	if the action plan includes recommendations for activities from five of the six categories listed in Figure 510-1.
5.	10	additional points are provided if the action plan establishes post-disaster mitigation policies and procedures. These should account for the expected damage from a base flood or other disaster. For example, the action plan should identify the areas likely to be worst hit and the policies should determine whether they will be rebuilt if substantially damaged.
6.	10	additional points are provided if the action plan's recommended natural resource protection activities include the recommendations from its community-wide Habitat Conservation Plan. This credit is subject to acceptance of the plan by the U.S. Fish and Wildlife, Service or the National Marine Fisheries Service.

CRS credit for step i: (Maximum credit: 2 points) The 2 credit points for this step are provided if the plan and later amendments are officially adopted by the community's governing body. The plan must be an official plan of the community, not an internal staff proposal. State and regional plans are not adequate unless they specifically address the community's flood hazards and the community's governing body adopted the plan. Adoption must be in the form of a resolution, ordinance, or other official act of the governing body.

Item	Points	Description
1.	2	if the plan and later amendments are officially adopted by the community's governing body.

CRS credit for step j: (Maximum credit: 10 points) The credit for this step is the total of the following points based on how the community monitors and evaluates its plan.

Item	Points	Description
1.	2	if the community has procedures for monitoring implementation, reviewing progress, and recommending revisions to the plan in an annual evaluation report. The report must be submitted to the governing body, released to the media, and made available to the public.
2.	10	if the evaluation report is prepared by the same committee that prepared the plan.

CRS credit for step k: (Maximum credit: 10 points) The CRS provides 10 points for adopting a community-wide Habitat Conservation Plan. This credit is subject to acceptance of the plan by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. The credit is separate from the rest of the credit in Activity 510 for preparing a floodplain management plan.

Item	Points	Description
1.	10	for adopting a community-wide Habitat Conservation Plan.

APPENDIX D

FLOODPLAIN DEVELOPMENT ACTIVITY REPORT

Monterey County Floodplain Development Activity Report (1996-2001)

Area	Review Date	Project Description
AROMAS	01/06/1998	MAJOR USE PERMIT FOR COMMUNITY PARK INCLUDING PLAYING FIELDS, COMMUNITY CENTER, RESTROOM, AND PARKING FACILITIES
	05/24/1999	COASTAL ADMINISTRATIVE PERMIT TO ALLOW FOR THE CONSTRUCTION OF A 690 SQ FT SENIOR CITIZEN UNIT ON A 7.4 ACRE PARCEL
	03/27/2000	18-FOOT BRIDGE OVER CARNEROS CREEK.
	04/10/2000	AN 850 SQ FT DETACHED SENIOR CITIZEN UNIT AND A DETACHED 128 SQ FT CARPORT.
	09/18/2000	ADJUST THE BOUNDARIES BETWEEN TWO EXISTING LOTS OF RECORD OF 9.56 AND .38 ACRES RESPECTIVELY RESULTING IN TWO LOTS OF 8.94 AND 1.00 ACRES RESPECTIVELY. VARIANCE TO ALLOW THE REDUCTION OF MINIMUM SIZE ALLOWED UNDER L.U. DESIGNATION
	06/04/2001	CONSTRUCTION OF A 2,250 SQ FT AGRICULTURAL STEEL BUILDING.
	08/06/2001	INSTALLATION OF A REPLACEMENT WELL ON SAN JUAN ROAD WITH A RELATED 1,500 FOOT PIPELINE ALONG SAN JUAN ROAD AND 8,100 FEET ALONG CARPENTERIA ROAD TO AN EXISTING STORAGE TANK ON PINE TREE LANE.
ARROYO SECO	10/07/1997	USE PERMIT TO ALLOW INSTALLATION OF 4 NEW MODULAR LIVING UNITS TO REPLACE 7 EXISTING LIVING UNITS FOR THE EXISTING CAMP GROUNDS
BIG SUR	07/09/1996	COMB DEV PERMIT CONSISTING OF A COASTAL DEV PERMIT & MAJOR LOT LINE ADJUSTMENT.
	06/15/1997	CHANGE DESIGN TO EXISTING APPROVED COASTAL PERMIT; FROM 2 MOTEL TYPE BLDGS, 8 UNITS TO 10 BLDGS PLUS LODGE, SPA AND MAINTENANCE GARAGE, POLE HOUSES; MAT'LS OF CLEAR HEART REDWD W/CERAMIC TILES
	07/21/1998	COASTAL ADMINISTRATIVE PERMIT FOR WATER SYSTEMS FACILITY INCLUDING WELLS AND STORAGE TANKS SERVING THREE LOTS
BRADLEY	04/21/1998	LOT LINE ADJUSTMENT BETWEEN THREE LEGAL LOTS OF RECORD TO PROVIDE IMPROVED ACCESS BETWEEN AFFECTED PARCELS
	11/10/1998	LOT LINE ADJUSTMENT BETWEEN 14 EXISTING PARCELS.
	05/08/2000	U.P. TO ALLOW A HUNTING FACILITY IN AN EXISTING SINGLE FAMILY RESIDENCE
	06/04/2001	CONSTRUCTION OF A 1,200 SQ FT AGRICULTURAL SUPPORT FACILITY FOR SLAUGHTERING OF DEER RAISED ON THE PROPERTY AND FOR PROCESSING OF DEER MEAT.
	10/22/2001	DRILLING OF AN EXPLORATORY OIL AND/OR GAS WELL WITH PORTABLE DRILLING RIG CAPABLE OF DRILLING TO A DEPTH OF 11,300 FT.
	12/10/2001	REMOVE TWO LOT LINES TO CREATE TWO PARCELS FROM FOUR.
BRYSON/HESPERIA	02/18/1997	LOT LINE ADJUSTMENT BETWEEN 15 EXISTING LOTS OF RECORD.
CACHAGUA	03/24/1998	LOT LINE ADJUSTMENT.
	12/11/2000	SINGLE-STORY 48' X 40' COMMUNITY CENTER BUILDING & ASSOCIATED SITE IMPROVEMENTS.
CAMPHORA	04/02/1996	MINOR LOT LINE ADJUSTMENT OF FOUR PARCELS TO CONFORM TO USAGE.

Area	Review Date	Project Description
CARMEL	07/29/1997	COASTAL DEVELOPMENT PERMIT TO DEMOLISH EXISTING SINGLE FAMILY DWELLING AND REBUILD WITH NEW TWO STORY SINGLE FAMILY DWELLING WITH ATTACHED GARAGE IN BASEMENT; DESIGN APPROVAL
	10/07/1997	CDP CONSISTING OF A MAJOR USE PERMIT, GENERAL DEVELOPMENT PLAN AND DESIGN APPROVAL TO ALLOW THE REMOVAL OF EXISTING AUTO SERVICE STATION TO PERMIT CONSTRUCTION OF NEW SERVICE STATION
	03/10/1998	AP FOR CONVENIENCE MARKET WITHIN EXISTING SERVICE STATION BUILDING; DESIGN APPROVAL FOR MINOR EXTERIOR MODIFICATIONS
	09/29/1998	CDP CONSISTING OF A UP TO ALLOW A SINGLE STORY 32 FT HIGH AND 1600 SQ FT CHURCH; A SINGLE STORY 15 FT HIGH 800 SQ FT OFFICE AND RESTROOMS; AP TO ALLOW BLDG IN A SITE PLAN RVW DIST; DA
	01/26/1999	ADMINISTRATIVE PERMIT FOR DEVELOPMENT OF 64 STRUCTURE PARKING SPACES AND ACCESS ROADS, REMOVAL OF VEGETATION, AND GRADING (950 C.Y.)
	02/09/1999	SINGLE FAMILY DWELLING, CARETAKER'S UNIT AND A DETACHED GARAGE.
	03/22/1999	MINOR LOT LINE ADJUSTMENT.
	07/19/1999	AP FOR A NEW 2,680 SQ FT SINGLE FAMILY RESIDENCE ON A 1.30 AC LOT.
	09/27/1999	LLA TO RECONFIGURE LOT LINES BETWEEN THREE 0.48, 0.12 AND 415.79 ACRE PARCELS RESULTING IN THREE 0.6, 405.79, AND 10.0 ACRE PARCELS
	11/20/2000	CONSTRUCTION OF A NON-POTABLE WELL FOR IRRIGATION PURPOSES.
	11/20/2000	TEMPORARY OF USE OF PROPERTY FOR SALE OF PUMPKINS AND CHRISTMAS TREES, MARATHON STATION AND OTHER EVENTS.
	11/27/2000	CONSTRUCTION OF A BACK-UP WELL FOR AGRICULTURAL PURPOSES.
	12/26/2000	CONSTRUCTION OF A 68-UNIT ASSISTED LIVING FACILITY FOR SENIOR CITIZENS ON A 4.3 ACRE PARCEL.
	04/30/2001	CONSTRUCTION OF A TWO STORY 29,424 SQ FT COMMUNITY CENTER ON AN APPROXIMATELY 5 ACRE SITE.
	05/29/2001	CONSTRUCTION OF A SINGLE FAMILY DWELLING IN THE CARMEL RIVER FLOODPLAIN.
	07/02/2001	CONSTRUCTION OF A 60 FT WIRELESS TELECOMMUNICATION TOWER WITH A 514 SQ FT EQUIPMENT SHELTER AND A 6 FT TALL FENCE.
	07/09/2001	LOT LINE ADJUSTMENT TO REFLECT THE EXISTING USE OF THE PROPERTIES.
	08/06/2001	CONSTRUCTION OF A 1,002 SQ FT TWO STORY ADDITION TO AN EXISTING 1,986 SQ FT SINGLE STORY RESIDENCE AND DEMOLITION OF AN EXISTING 504 SQ FT DETACHED GARAGE.
	08/13/2001	CONVERSION OF AN EXISTING 1,000 SQ FT SINGLE FAMILY RESIDENCE TO A CARETAKER'S UNIT AND CONSTRUCTION OF A NEW 1,200 SQ FT SFD WITH A 625 SQ FT GARAGE.
	10/01/2001	DEMOLITION OF AN EXISTING SINGLE FAMILY DWELLING AND THE CONSTRUCTION OF A NEW 4,165 SQ FT SINGLE FAMILY DWELLING WITH AN ATTACHED TWO CAR GARAGE.
	10/22/2001	DEMOLITION OF AN EXISTING 2,335 SQ FT SINGLE FAMILY DWELLING AND REPLACE WITH A NEW 2,885 SQ FT SINGLE FAMILY DWELLING WITH ATTACHED TWO CAR GARAGE AND 1,231 SQ FT FINISHED BASEMENT.

Area	Review Date	Project Description
CARMEL	11/05/2001	CONSTRUCT A PIPELINE WITH INDIVIDUAL CONNECTION POINTS WITHIN THE POINT LOBOS STATE RESERVE AND ALONG HWY 1 WHICH CONNECTS TO THE CARMEL AREA WASTEWATER DISTRICT SEWAGE INFRASTRUCTURE.
CARMEL VALLEY	01/02/1996	LOT LINE ADJUSTMENT (TO FACILITATE SALE OF 80 ACRE SUBDIVISION PARCEL TO THE BIG SUR LAND TRUST, CONSOLIDATION OF 659 ACRE PARK PARCEL, 51 ACRE PARCEL TO BE RETAINED BY THE CONDON FAMILY.
	02/06/1996	COMB. DEV. PERMIT CONSISTING OF A USE PERMIT AND DES. APPROVAL TO ADD 67 SF TO MSTR BEDRM, AND 93 SF OF COVERED DECK TO 2ND FLR. OF EXIST. SFD. IN CARMEL RIVER 100 YR. FLOODWAY FRINGE.
	03/19/1996	
	03/19/1996	BUILD NEW TWO STORY 2,250 SQ.FT. SINGLE FAMILY DWELLING.
	03/26/1996	ADDITION TO EXISTING SINGLE FAMILY DWELLING, CARPORT ADDITION AND 2 SKYLIGHTS.
	04/09/1996	COMBINED DEVELOPMENT CONSISTING OF A USE PERMIT & DESIGN APPROVAL TO CONSTRUCT A 360 SQUARE FOOT ADDITION TO AN EXISTING SINGLE FAMILY RESIDENCE IN THE CARMEL RIVER 100 YEAR FLOODPLAIN.
	04/30/1996	CONVERT EXIST GARAGE TO CHILD CARE CTR-10 CHILDREN,WKND ONLY; DEVELOPMENT WITHIN 100 YR FLOODPLAIN,INTENSIFY USE,VARBELL TOWER HT,ADMIN PERMIT FOR MONKS' TRAILER & DESIGN APPROVAL
	05/07/1996	3 STRY BLDG + SUBGRADE PKG, VARIANCES TO EXCEED GROSS SQUARE FOOTAGE OF RESIDENTIAL UNITS TO COMMERCIAL UNITS AND REDUCTION OF ON-SITE PKG, GRADING, TREE REMOVAL
	06/11/1996	MINOR LOT LINE ADJUSTMENT.
	08/13/1996	CONSTRUCT A SINGLE FAMILY DWELLING WITH DETACHED GARAGE.
	09/10/1996	USE PERMIT FOR DEVELOPMENT IN FLOODWAY FRINGE; ADMINISTRATIVE PERMIT FOR SITE CONTROL; DESIGN APPROVAL
	10/01/1996	VARIANCE TO ALLOW THE LOT COVERAGE FOR THE RESIDENTIAL UNIT TO INCREASE FROM %25 TO %35; DESIGN APPROVAL
	03/04/1997	ADMINISTRATIVE PERMIT FOR A SINGLE FAMILY DWELLING AND DESIGN APPROVAL; COLORS AND MATERIALS INCLUDE
	04/15/1997	LOT LINE ADJUSTMENT.
	07/15/1997	COMBINED DEVELOPMENT PERMIT TO ALLOW A TWO-STORY, 45,000 SQ.FT. MULTI-PURPOSE COMMUNITY CENTER ON AN APPROXIMATE 5 ACRE SITE.
	08/05/1997	MINOR LOT LINE ADJUSTMENT.
	10/28/1997	SENIOR CITIZEN UNIT.
	02/17/1998	USE PERMIT FOR PARKING AREA LOCATED WITHIN THE FLOODWAY FRINGE; VARINACE FOR POOL ENCROACHING WITHIN THE REQUIRED SIDE YARD SETBACKS; PROPOSED SITTING AREA AND HANDICAP ACCESS MAP/RAILINGS
	04/28/1998	LOT LINE ADJUSTMENT.
	06/23/1998	LOT LINE ADJUSTMENT.
	07/21/1998	EXTENSION OF A USE PERMIT FOR CONSTRUCTION OF A NEW 1344 SQ FT SFD AND ATTACHED 400 SQ FT CARPORT IN THE FLOODWAY FRINGE

Area	Review Date	Project Description
CARMEL VALLEY	10/20/1998	REFURBISH AND EXPAND EXISTING EQUESTRIAN CENTER, LOT LINE ADJUSTMENT BETWEEN TWO LEGAL LOTS OF RECORD TO IMPROVE USEABLE AREA; DESIGN APPROVAL
	01/05/1999	CDP CONSISTING OF AN ADMINISTRATIVE PERMIT FOR A CONVENIENCE MARKET AND A USE PERMIT FOR THE ON-SITE SALE OF ALCOHOLIC BEVERAGES; DESIGN APPROVAL FOR DEVELOPMENT IN THE HISTORIC RESOURCES DISTRICT
	01/26/1999	CDP CONSISTING OF A USE PERMIT TO DRILL A WELL WITHIN 200 FT OF CARMEL RIVER; UP TO ALLOW REMOVAL OF 4 OAKS; AP TO ALLOW A 4488 SQ FT SFD WITH A 1200 SQ FT ATTACHED GARAGE IN SITE CONTROL ZONING DISTRICT
	03/22/1999	STANDARD SUBDIVISION TO DIVIDE APPROXIMATELY 284 ACRES INTO 14 LOTS (13 BUILDABLE LOTS AND 1 OPEN SPACE LOT)
	07/12/1999	ADMINISTRATIVE PERMIT FOR A CARETAKER'S UNIT.
	07/12/1999	USE PERMIT TO ALLOW CONSTRUCTION OF A 140 FT X 65 FT, 30 FT HIGH 1.5 MILLION GALLON CONCRETE TANK, INSTALLATION OF 2600 LINEAR FEET OF SUBSURFACE PIPELINE WITHIN A 9'X6' DEEP EXCAVATED TRENCH; INSTALLATION OF A SUBSURFACE FLOW CONTROL STATION
	08/30/1999	LOT LINE ADJUSTMENT TO LEGALIZE PRIOR EQUAL EXCHANGE OF LAND
	11/20/1999	AP TO ALLOW A 2,653 SQ FT TWO STORY SINGLE FAMILY DWELLING WITH AN 840 SQ FT ATTACHED GARAGE IN A SITE CONTROL ZONING DISTRICT; AND DESIGN APPROVAL
	12/27/1999	DEVELOPMENT OF A SINGLE FAMILY DWELLING AND A BARN/CARETAKER'S UNIT IN THE "S" (SITE REVIEW) ZONING DISTRICT
	01/24/2000	DETACHED CARETAKER'S UNIT.
	02/14/2000	CONSTRUCTION OF A 4,298 SQ FT ONE-STORY SINGLE FAMILY DWELLING INCLUDING A 925 SQ FT 3 CAR GARAGE. (DEMOLISHING THE EXISTING STRUCTURE)
	05/15/2000	LLA BETWEEN TWO EXISTING LEGAL PARCELS FROM 42.4 ACRES AND 84 ACRES, TO 63.50 ACRES EACH.
	05/22/2000	A ONE-STORY 6,490 SQ FT SINGLE FAMILY DWELLING WITH ATTACHED GARAGE AND SECOND STORY LOFT.
	06/12/2000	DEVELOPMENT OF A 2,352 SQ FT SINGLE-FAMILY RESIDENCE, A THREE-CAR DETACHED GARAGE, REMOVAL OF THREE PROTECTED OAKS TREES & DEMOLITION OF AN EXISTING 1,176 SQ FT SINGLE FAMILY DWELLING
	11/20/2000	DEVELOPMENT IN THE FLOODWAY FRINGE OF THE CARMEL VALLEY RIVER FOR PARTIAL DEMOLITION, REMODEL AND SECOND STORY ADDITION TO AN EXISTING ONE-STORY SINGLE FAMILY DWELLING.
	01/02/2001	LOT LINE ADJUSTMENT BETWEEN TWO LEGAL LOTS OF RECORD RESULTING IN AN EQUAL AREA EXCHANGE OF LAND.
	02/20/2001	CONVERSION OF THE EXISTING GARAGE INTO A SINGLE FAMILY DWELLING AND BUILD A NEW DETACHED GARAGE.
	03/12/2001	INTENSIFICATION OF THE USE OF EXISTING STRUCTURES TO SERVE AS A SMALL SCALE RETREAT SITE FOR DISADVANTAGED/DISABLED CHILDREN.
	05/21/2001	CONSTRUCTION OF AN 8,000 SQ FT AGRICULTURAL SUPPORT FACILITY AND REMOVAL OF TWO 800 SQ FT OUT-BUILDINGS.
	07/09/2001	LOT LINE ADJUSTMENT BETWEEN THREE PARCELS AND CONSTRUCTION OF 267 SINGLE STORY MINI-STORAGE WAREHOUSE UNITS WITH A TOTAL AREA OF 68,297 SQ FT. CONSTRUCTION OF A 900 SQ FT OFFICE.
	10/22/2001	CONSTRUCTION OF A 1,960 SQ FT SINGLE FAMILY DWELLING

Area	Review Date	Project Description
CARMEL VALLEY	12/31/2001	REBUILD EXISTING GARAGE (894 SQ FT).
CASTROVILLE	06/11/1996	COMB DEV PERMIT-TENTATIVE MAP-8 LOT SUBDIV, MAJOR ADMIN PERMIT, CONSTRUCT 9,450 SQ FT DUPLEX-LOT 5, SPECIAL SETBACKS FOR EXIST SFD PROPOSED LOT 1
	08/27/1996	COMBINED DEVELOPMENT PERMIT CONSISTING OF AN ADMINISTRATIVE PERMIT FOR LOCATING A CARETAKER UNIT; USE PERMIT FOR DRY STORAGE OF BOATS AND VEHICLES.
	08/27/1996	USE PERMIT FOR OPEN AIR RETAIL SALES (IN A PICK-UP TRUCK).
	06/04/2001	CONSTRUCTION OF A 3,025 SQ FT SINGLE FAMILY DWELLING WITH AN ATTACHED GARAGE AND A 2,240 SQ FT HORSE BARN.
CHUALAR	03/19/1996	CONSOLIDATE EXISTING LEGAL PARCELS INTO ONE AND CREATING 40 Ac. PARCELS ALONG CHUALAR CANYON ROAD.
	07/02/1996	
	08/21/2000	AN INSTREAM SAND AND GRAVEL MINE IN THE SALINAS RIVER WITH STOCKPILING AND PORTABLE SCREENING EQUIPMENT LOCATED ON THE ADJACENT TERRACE, WESTERLY OF THE RIVER.
	08/21/2000	ADJUST THE BOUNDARIES OF TWO EXISTING LEGAL LOTS OF RECORD OF 85.8 AND 140.7 ACRES RESPECTIVELY. THE PROPOSED LLA WOULD RESULT IN TWO LOTS OF 40 AND 188.2 ACRES.
	06/25/2001	USE PERMIT FOR CONTINUED USE OF THIS SITE FOR THE OPERATION OF MODEL AIRPLANES.
CORRAL DE TIERRA	07/02/2001	CONSTRUCTION OF A 118 FT LATTICE TOWER INCLUDING A WINDMILL THAT DISGUISES 4 PANEL ANTENNAS AND CONSTRUCTION OF AN EQUIPMENT SHELTER.
	01/21/1997	LOT LINE ADJUSTMENT.
	05/29/2001	CONSTRUCTION OF A 2,913 SQ FT SINGLE FAMILY RESIDENCE WITH AN ATTACHED 1,042 SQ FT GARAGE.
DOLAN ROAD	07/30/2001	LOT LINE ADJUSTMENT INVOLVING FIVE LEGAL LOTS OF RECORD.
	07/23/1996	COASTAL ADMINISTRATIVE PERMIT FOR A SINGLE FAMILY DWELLING.
ELKHORN	02/13/1996	FORMER MOBILE HOME AND SEPTIC SYTEM.
	02/04/1997	A COASTAL DEVELOPMENT PERMIT FOR A LOT LINE ADJUSTMENT OF FIVE PARCELS FROM 326.6, 94, 85.13, 3.56, AND 127 ACRES TO 124.8, 11.5, 163.8, 97.3 AND 241.2 ACRES
ELKHORN ROAD AREA	10/08/1996	COMBINED DEVELOPMENT PERMIT CONSISTING OF A LOTLINE ADJUSTMENT TO ADJUST A .560 ACRE PARCEL TO A 440 ACRE PARCEL AND A 1.25 ACRE PARCEL TO A 1.37 ACRE PARCEL; VAR FOR NONCONFORMING LOTS
ESPINOSA ROAD	08/20/1996	NEW SFD; CHRISTMAS TREE FARM W/RELATED OFFICE, 2 FARM LABOR DWELLING UNITS AND AGRICULTURAL SALES STAND
	09/09/1997	LOT LINE ADJUSTMENT.
GONZALES	02/25/1997	TENTATIVE MAP TO ALLOW DIVISION OF A 136 ACRE PARCEL INTO 2 PARCELS OF 40 ACRES EACH, AND 1 PARCEL OF 56 ACRES.
	08/11/1998	MINOR LOT LINE ADJUSTMENT.
	11/01/1999	MINOR LOT LINE ADJUSTMENT.

Area	Review Date	Project Description
GONZALES	02/22/2000	RENEW EXPIRED USE PERMIT FOR EXISTING FARM WORKER HOUSING FACILITY. THE FACILITY IS PROPOSED TO BE UPGRADED WITH NEW UNITS AND ALLOW UP TO 12 MOBILE OR MANUFACTURED UNITS PLUS AN EXISTING DWELLING ON 4.3 ACRES.
	03/12/2001	LOT LINE ADJUSTMENT BETWEEN TWO EXISTING LOTS OF RECORD.
	08/20/2001	CONSTRUCTION OF A 22,000 SQ FT COLD STORAGE BUILDING WITH A 5,400 SQ FT SHADE ROOF, A 1,800 SQ FT OFFICE, 320 SQ FT OFFICE, ICE BINS, REFRIGERATOR UNITS, RETENTION POND, TRUCK PARKING AREA AND GRADING (407 CUBIC YARDS).
	08/27/2001	ALLOW FOR A PROCESSING PLANT TO PROCESS ORGANIC MATERIALS INTO COMPOST FERTILIZER. PROJECT CONSISTS OF 8 STORAGE TANKS ON A CONCRETE PAD, 3 STORAGE BUILDINGS, AND GRADING (590 CUBIC YARDS).
	10/01/2001	ESTABLISHMENT AND OPERATION OF A GRANITE ROCK QUARRY WITH ASSOCIATED PROCESSING PLANT, ASPHALTIC CONCRETE BATCH PLANT, PORTLAND CEMENT CONCRETE CEMENT PLANT AND ASPHALT AND CONCRETE RECYCLING FACILITY.
GREENFIELD	10/20/1998	UP TO ALLOW A GRAPE JUICING FACILITY AND CONVERSION OF THREE EXISTING BLDGS AS FOLLOWS (1) 720 SF BLDG TO AN OFFICE (2) 6400 SF BLDG TO MNTNC SHOP (3) 4900 SF BLDG TO EQPMT CHEMCL FUEL STORG
HATTON FIELDS	10/22/1996	COMBINED DEVELOPMENT PERMIT FOR A SINGLE FAMILY DWELLING AND GRADING, AND WAIVER OF POLICY PROHIBITING DEVELOPMENT OF SLOPES GREATER THAN 30%; DESIGN APPROVAL
KING CITY	05/19/1998	USE PERMIT TO ALLOW CONVERSION OF AN EXISTING ONSITE DAIRY BARN TO A WINERY.
	01/05/1999	LOT LINE ADJUSTMENT TO ADJUST THE BOUNDARIES OF THREE LEGAL LOTS OF REOCD.
	06/28/1999	MINOR SUBDIVISION TO SUBDIVIDE AN EXISTING 176.5 ACRE PARCEL INTO FOUR PARCELS OF 45.0, 44.5, 46.0, AND 41.0 ACRES RESPECTIVELY
	10/18/1999	LOT LINE ADJUSTMENT.
	11/22/1999	LLA BETWEEN FOUR PARCELS (40, 605, 1056, AND 919 ACRES) WHEN ADJUSTED WILL BE (82, 897, 1049, 592 ACRES).
	03/27/2000	LOT LINE ADJUSTMENT BETWEEN TWO PARCELS.
	08/28/2000	A.P. TO ALLOW A MOBILEHOME WHICH WAS MANUFACTURED MORE THAN 10 YEARS PRIOR TO THE DATE OF APPLICATION.
LAKE SAN ANTONIO	06/04/2001	INSTALLATION OF AN ABOVE GROUND FUEL TANK AT SAN LORENZO PARK.
	06/30/1998	MINOR LOT LINE ADJUSTMENTS.
LAS LOMAS	08/26/1997	COASTAL ADMINISTRATIVE PERMIT FOR A SECOND SINGLE FAMILY DWELLING.
LOCKWOOD	01/31/2000	LOT LINE ADJUSTMENT INVOLVING TEN LEGAL LOTS OF RECORD TOTALLING 1,379 ACRES.
	11/05/2001	LOT LINE ADJUSTMENT BETWEEN TWO PARCELS TOTALING APPROXIMATELY 202.7 ACRES, IN ORDER TO PROVIDE A 40 ACRE PARCEL AROUND THE EXISTING SINGLE FAMILY RESIDENCE, A WELL, OUT-BUILDINGS AND A RESERVOIR.
MID-CARMEL VALLEY	06/04/1996	TENTATIVE MAP TO ALLOW DIVISION OF A 7.7 ACRE PARCEL INTO 2 PARCELS OF 2.0 ACRES AND 5.7 ACRES EACH.
MONTEREY-SALINAS HIGHWAY	05/15/2000	DIVIDE A 4.336 ACRE PARCEL INTO 4 LOTS WITH A REMAINDER PARCEL.

Area	Review Date	Project Description
MONTEREY-SALINAS HIGHWAY	05/22/2000	REPLACE AN EXISTING 50 FOOT WIRELESS COMMUNICATION MONOPOLE WITH A 70 FOOT MONOPOLE FOR TWO CARRIERS, INCLUDING GTE 12'X20' EQUIPEMENT SHELTER.
MOSS LANDING	01/02/1996	MINOR LOT LINE ADJUSTMENT; ADMINISTRATIVE COASTAL DEVELOPMENT.
	09/02/1997	CDP CONSISTING OF A CAP FOR A SFD AND A DETACHED GARAGE, AND A CAP FOR A TEMPORARY MOBILE HOME DURING CONSTRUCTION OF THE MAIN RESIDENCE
	12/09/1997	EXCHANGE THE APPROVED WAREHOUSE STORAGE BUILDING TO ALLOW FOR THE EXPANSION OF THE MARINE OPERATIONS BUILDING FOR OFFICE & LAB USE; INCREASE # OF ONSITE PARKING SPACES & LANDSCAPING RQRMNT
	08/25/1998	CDP FOR A MS OF 16.6 ACRE PARCEL INTO TWO PARCELS OF 14.4 ACRES AND 1.2 ACRES AND A COASTAL DEVELOPMENT PERMIT AND DESIGN APPROVAL TO DEVELOP AN ENV. TRAINING CAMP FOR YOUNG CHILDREN
	12/15/1998	CDP CONSISTING OF A CDP, GEN DEV PLAN, AND DA TO REMODEL AN EXISTING HISTORIC STRUCTURE TO PROVIDE FOR FISH PROCESSING, MARINE RELATED OFFICE, MANUFACTURING FACILITIES, ICE FACILITY
	06/21/1999	A 181 SPACE PARKING LOT FOR MBARI'S EXISTING AND FUTURE COMMERCIAL USES ON MOSS LANDING ISLAND AND DUNES HABITAT RESTORATION PROJECT. PROJECT ALSO INCLUDES 1900 SQ FT INTERIOR ADDITION TO BLDG B TO ACCOM. 8 ADDITIONAL EMPLOYEES
	10/18/1999	RELOCATE PHIL'S FISH MARKET FROM ITS CURRENT LOCATION OF MBARI PROPERTY TO AN ADJOINING MBARI PROPERTY AND STRUCTURE
	01/19/2001	REPLACE PUMPOUT TOILETS WITH RESTROOMS AT 6 BEACH PARKING LOTS.
	06/25/2001	CONSTRUCTION OF A NEW COMMERCIAL FACILITY INCLUDING THE FOLLOWING: (1) SINGLE STORY 4,444 SQ FT RETAIL CONVENIENCE MARKET WITH 800 SQ FEET OF PRODUCE/FRUIT STANDS; (2) 61 PARKING SPACES; (3) TRASH ENCLOSURES.
	11/26/2001	CHANGE OF USE WITHIN AN EXISTING COMMERCIAL BUILDING TO ALLOW FOR A RESIDENTIAL UNIT ON THE SECOND FLOOR.
NATIVIDAD	10/22/1996	CDP TO CONSIST OF A MINOR LLA FOR THE INCREASE OF PARCEL 211-041-017-000 AND DECREASE OF PARCEL 211-041-021-000; VARIANCE FOR THE REDUCTION IN NON-CONFORMING PARCEL 211-041-021
NORTH COUNTY	08/20/1996	COASTAL ADMINISTRATIVE PERMIT TO ALLOW DEMOLITION OF EXIST SFD & CARPORT-REPLACE W/MOBILE HOME ON PERMANENT FOUNDATION AND SEPTIC SYSTEM
	09/10/1996	LOT LINE ADJUSTMENT BETWEEN FIVE PARCELS.
OLD STAGE RD.	09/17/1996	ADMINISTRATIVE PERMIT FOR SENIOR CITIZEN UNIT; DESIGN APPROVAL.
OLD STAGE ROAD	06/25/1996	PRODUCE COOLING FACILITY; ADDITION TO LOT COVERAGE REQUIREMENTS (VARIANCE).
	12/23/1996	COMBINED DEVELOPMENT PERMIT CONSISTING OF AN ADMINISTRATIVE PERMIT FOR CARETAKER'S UNIT, AND USE PERMIT'S FOR PUBLIC STABLE AND SALE OF HAY NOT GROWN ON PREMISES; DESIGN APPROVAL
	01/07/1997	TENTATIVE MAP TO ALLOW DIVISION OF A 139 ACRE PARCEL INTO PARCELS OF 40 ACRES AND 99 ACRES EACH.
PAJARO	04/30/1996	COMB DEV PERMIT-STD SUBDVESTING TENTATIVE MAP-DIVISION 4.94 AC PARCEL TO 53 CLUSTERED TOWNHOUSE LOTS & COMMON AREAS, GEN PLN AMEND, ZONE RECLASSIFY HI TO HDR/B-6,BELOW MARKET RATE
	11/05/1996	USE PERMIT FOR OUTDOOR ADVERTISING STRUCTURE AND SIGN.

Area	Review Date	Project Description
PAJARO	04/29/1997	USE PERMIT FOR AUTO SALES.
	10/14/1997	COASTAL ADMINISTRATIVE PERMIT TO ALLOW DEMOLITION OF AN EXISTING SINGLE FAMILY DWELLING AND CONSTRUCTION OF A NEW SINGLE FAMILY DWELLING
	12/09/1997	COASTAL ADMINISTRATIVE PERMIT FOR A ONE STORY MOBILE HOME ON A PERMANENT FOUNDATION WITH AN ATTACHED GARAGE
	03/10/1998	ADMINISTRATIVE PERMIT FOR THE CONSTRUCTION OF A SINGLE FAMILY DWELLING INCLUDING GRADING, WELL AND SEPTIC SYSTEM
	09/29/1998	COASTAL DEVELOPMENT PERMIT TO INSTALL A NEW WELL AND IRRIGATION SYSTEM FOR 85 ACRES OF CULTIVATED FARMLAND (ORCHARD & ROW CROP) ON TWO ADJACENT PARCELS
	11/17/1998	CDP CONSISTING OF A COASTAL DP FOR NCLUP AMENDMENTS/REZONINGS; CDP FOR THE EXPANSION/RENOVATION OF THE EXISTING GOLF COURSE; CDP EXPANSION OF CLUBHOUSE/RESTAURANT; AP TO CONSTRUCT 84 TOWNHMS
	11/17/1998	EXTENSION OF A STD SUB VTM TO ALLOW DIV OF A 4.94 ACRE PARCEL INTO A 53 LOT PUD, INCLUDING COMMON AREAS, FOR INCLUSIONARY HOUSING, AND EXT OF A UP TO ALLOW RED USES EXCEEDING 10 DU/AC
	12/22/1998	COMBINED DEVELOPMENT PERMIT CONSISTING OF A USE PERMIT TO EXCEED THE ALLOWABLE 50% LOT COVERAGE TO 68.86% FOR EXISTING COMMERCIAL GREENHOUSES; VARIANCE TO REDUCE THE REQUIRED 30 FT SETBACK FROM A PRIVATE RIGHT OF WAY TO ZERO FEET FOR ONE GREENHOUSE BUILDING IN THE FRONT
	02/16/1999	COASTAL ADMINISTRATIVE PERMIT FOR THE CONSTRUCTION OF A ONE-STORY 2600 SQ FT SFD WITH A BASEMENT AND AN ATTACHED TWO-CAR GARAGE, INSTALLATION OF A SEPTIC SYSTEM; GRADING
	06/07/1999	ADMINISTRATIVE PERMIT FOR EXPANSION OF CONVENIENCE MARKET.
	06/14/1999	COASTAL ADMINISTRATIVE PERMIT TO ALLOW FOR THE PLACEMENT OF A 1208 SQ FT SINGLE STORY MANUFACTURED HOME ON A PERMANENT FOUNDATION AND A 400 SQ FT DETACHED GARAGE
	11/08/1999	MINOR SUBDIVISION TO DIVIDE APPROXIMATELY 40.6 ACRES INTO FOUR 3.6, 3.0, 4.8 & 7.0 ACRE PARCELS WITH A 22.3 ACRE REMAINDER PARCEL
	11/15/1999	USE PERMIT TO ALLOW DISMANTLING OF AUTO PARTS IN ADDITION TO AUTO REPAIR AT AN EXISTING INDUSTRIAL SITE.
	01/31/2000	AP TO ALLOW DEMOLITION OF A SECOND HOME AND ITS REPLACEMENT WITH A 1,620 SQUARE FOOT HOME WITH A 440 SQUARE FOOT ATTACHED GARAGE
	02/07/2000	REMOVE 2 EXISTING MULTIPLE POINT DISPENSERS AND INSTALL 3 MULTIPLE POINT DISPENSERS; CANOPY EXTENSION BY 6' BY 28' AND CORRESPONDING CONCRETE PAD EXPANSION
	03/20/2000	AP TO ALLOW DEMOLITION OF A SECOND HOME AND ITS REPLACEMENT WITH A 1,620 SQUARE FOOT HOME WITH A 440 SQUARE FOOT ATTACHED GARAGE
	03/27/2000	AN 1,800 SQ FT ADDITION TO AN EXISTING METAL BUILDING; LOT LINE ADJUSTMENT TO ABANDON AN EXISTING LOT LINE TO CREATE A 5.45 ACRE PARCEL
	03/27/2000	A 8,000 SQ FT METAL BUILDING AND 3,000 SQ FT CANOPY FOR A FISH PROCESSING PLANT.
	07/17/2000	ALLOW A RESIDENTIAL USE IN A HEAVEY COMMERCIAL ZONING DISTRICT AND LIGHT COMMERCIAL USES; 1520 SQ FT OF RETAIL COMMERCIAL USE ON THE FIRST FLOOR WITH SEVEN INDIVIDUAL BOARDING ROOMS AND SHARED BATHROOM/BATHING FACILITIES

Area	Review Date	Project Description
PAJARO	03/19/2001	CONSTRUCTION OF A NEW WAREHOUSE BUILDING, TWO-STORY EMPLOYEE/OFFICE ADDITION TO EXISTING PROCESSING BUILDING AND A CANOPY ADDITION TO THE EXISTING PROCESSING BUILDING.
PEBBLE BEACH	12/03/2001	DEMOLITION OF AN EXISTING 516 SQ FT RESTROOM AND CONSTRUCTION OF A NEW 870 SQ FT RESTROOM.
POTTER ROAD	11/05/1996	MINOR LOT LINE ADJUSTMENT.
PRUNEDALE	06/11/1996	COMB DEV PERMIT-TENTATIVE MAP-DIVIDE 4.45a into 4 parcels, AMEND NO COUNTY AREA PLAN FROM LDR TO COMM, ZONING RECLASSIF. FROM LDR TO LC FOR LOTS A & B
	03/25/1997	CDP CONSISTING OF A MAJOR USE PERMIT AND A GENERAL DEVELOPMENT PLAN FOR THE CONSTRUCTION OF A 1200 SF SERVICE STATION/CONVEN STORE WITH A 32 SF TRASH ENCLOSURE, A 4X10 SF DOUBLE FACED SIGN
RANCHO SAN CARLOS	06/01/1999	DEVELOPMENT OF A COUNTRY CLUB INCLUDING AN EXISTING 14,000 SQ FT MAIN HOUSE (HACIENDA BUILDING), SPORTING CENTER, EQUESTRIAN CENTER, AND REMODELING OF AN EXISTING BARN TO BE USED FOR SOCIAL/RECREATIONAL EVENTS
ROYAL OAKS	05/22/2000	A 3,318 SQ FT SINGLE STORY SINGLE FAMILY DWELLING WITH A 1,107 SQ FT DETACHED GARAGE, BBQ AND POOL.
	10/09/2000	ADDITION OF 9,500 SQ FT (TOTAL) TO TWO EXISTING WAREHOUSES IN AN EXISTING AGRICULTURAL SUPPORT FACILITY.
	08/20/2001	CONSTRUCTION OF A 1,760 SQ FT SINGLE FAMILY DWELLING WITH DETACHED 953 SQ FT CARPORT, A NEW SEPTIC SYSTEM, AND REACTIVATION OF EXISTING WELLS.
	12/10/2001	CONSTRUCT A NEW 3,475 SQ FT SINGLE FAMILY DWELLING AND THREE-CAR GARAGE.
SALINAS	09/30/1997	LOT LINE ADJUSTMENT TO INCREASE PARCEL 1 FROM 1.26 ACRES TO 2.0 ACRES AND DECREASE PARCEL 2 FROM 12.94 ACRES TO 12.2 ACRES
	10/21/1997	INCREASE THE 1.24 ACRE PARCEL TO ACCOMODATE POSSIBLE STORAGE AREA FOR HORSE & 4-H PROJECTS.
	02/03/1998	EXTENSION OF TENTATIVE PARCEL MAP TO ALLOW DIVISION OF A 41.75 ACRE PARCEL INTO 1 PARCEL OF APPROXIMATELY 10 ACRES, AND 3 PARCELS OF APPROXIMATELY 10.2 ACRES EACH
	05/05/1998	AP TO ALLOW A 2537 SQ FT SINGLE STORY SFD WITH 720 SQ FT GARAGE AND APPROXIMATELY 1000 SQ FT PATIO AREA IN A VISUAL SENSITIVITY AREA
	05/05/1998	AP TO ALLOW A 2537 SQ FT SINGLE STORY SFD WITH 720 SQ FT GARAGE AND APPROXIMATELY 1000 SQ FT PATIO AREA IN A VISUAL SENSITIVITY AREA
	09/22/1998	LOT LINE ADJUSTMENT TO ADJUST A LOT LINE BETWEEN TWO EXISTING 1.46 AND 2.33 ACRE PARCELS, RESULTING IN THE CREATION OF TWO 1.49 AND 2.30 ACRE PARCELS RESPECTIVELY
	10/20/1998	USE PERMIT FOR THE DEVELOPMENT OF THREE NON-SOIL DEPENDENT GREENHOUSES OF 49,612, 24,805 & 3,456 SQ FT
	02/09/1999	USE PERMIT EXTENSION FOR A FARM LABOR AUTO PARKING/BUS PICK UP SITE.
	04/12/1999	CONSTRUCT A ONE-STORY 3368 SQ FT SINGLE FAMILY DWELLING WITH ATTACHED GARAGE ON PROPERTY.
	06/28/1999	TENTATIVE PARCEL MAP TO PERMIT DIVISION OF A 160.9 ACRE PARCEL INTO THREE PARCELS OF 47.0 ACRES, 40.0 ACRES, AND 73.9 ACRES EACH
	07/26/1999	A.P. FOR FARM LABOR MOBILE HOME.

Area	Review Date	Project Description
SALINAS	07/26/1999	PROPOSED MINI-STORAGE COMPLEX CONSISTING OF 8 DIFFERENT BUILDINGS, A MANAGER'S UNIT & OFFICE.
	08/16/1999	TENTATIVE PARCEL MAP TO PERMIT DIVISION OF A 160.9 ACRE PARCEL INTO THREE PARCELS OF 47.0 ACRES, 52.0 ACRES, AND 58.7 ACRES EACH
	10/25/1999	PRODUCE COOLING FACILITY AND VARIANCE FROM THE LOT COVERAGE REQUIREMENTS.
	11/22/1999	ON-SITE FARM STAND USING EXISTING BUILDINGS; SELLING FRUITS AND VEGETABLES; CONDUCTING EDUCATIONAL ACTIVITIES, INCLUDING FARM TOURS
	11/29/1999	USE PERMIT TO ALLOW A 60 FT MONOPOLE AND A 10 X 20 FT EQUIPMENT SHELTER.
	01/31/2000	LLA BETWEEN TWO LEGAL PARCELS OF RECORD (621 ACRES AND 363 ACRES) TO IMPROVE ACCESS TO EXISTING AGRICULTURAL OPERATIONS. THE RESULTING PARCELS WILL BE 594 AND 390 ACRES RESPECTIVELY
	01/31/2000	LLA BETWEEN THREE LEGAL LOTS OF RECORD (APPROXIMATELY 390, 41 AND 351 ACRES) TO IMPROVE ACCESS TO EXISTING AGRICULTURAL OPERATIONS. THE RESULTING PARCELS WILL BE 424, 123.5 AND 235.1 ACRES RESPECTIVELY)
	02/07/2000	LOT LINE ADJUSTMENT BETWEEN TWO LEGAL LOTS OF RECORD (PARCEL 46 WILL INCREASE IN SIZE FROM 2.47 TO 3.69 ACRES AND PARCEL 47 WILL DECREASE IN SIZE FROM 12.32 TO 11.02 ACRES) AND A USE PERMIT FOR AN UNPAVED APRKING LOT
	02/22/2000	CHANGE OF LEGAL NON-CONFORMING LAND USE TO PERMIT A 2,000 SQUARE-FOOT STORAGE BUILDING.
	03/06/2000	SINGLE FAMILY DWELLING AND DEVELOPMENT OF A DRIVEWAY ON SLOPES GREATER THAN 30%.
	04/24/2000	LOT LINE ADJUSTMENT BETWEEN THREE PARCELS TO IMPROVE ACCESS TO EXISTING AGRICULTURAL OPERATIONS.
	10/23/2000	LOT LINE ADJUSTMENT INVOLVING 3 PARCELS TO ACCOMMODATE AN EXISTING WELL AND FUTURE DEVELOPMENT. NO CHANGE IN ACREAGE OF EACH PARCEL WILL RESULT FROM THE LOT LINE ADJUSTMENT.
	11/06/2000	CONSTRUCTION OF A NEW 3,579 SQ FT ONE-STORY SINGLE FAMILY DWELLING INCLUDING ATTACHED GARAGE AND BASEMENT, RETAINING WALLS, AND 280 CUBIC YARDS OF GRADING
	12/26/2000	A 10 FT ADDITION TO AN EXISTING 60 FT MONOPOLE, TO INCLUDE FOUR 5 FT HIGH PANEL ANTENNAS AND A 300 SQ FT GROUND EQUIPMENT SHELTER.
	03/26/2001	TWO 30,000 GALLON PROPANE STORAGE TANKS AND A GENERAL DEVELOPMENT PLAN FOR A FUTURE EXPANSION WHICH WILL INCLUDE TWO ADDITIONAL 30,000 GALLON PROPANE TANKS.
	04/16/2001	CONSTRUCTION OF A 100 FT MONOPOLE INLCUDING 12 PANEL ANTENNAS AND ASSOCIATED GROUND EQUIPMENT SHELTER.
	07/02/2001	CONSTRUCTION OF A 3,500 SQ FT VETERINARY SURGERY BUILDING WITH A FUTURE 1,050 SQ FT ATTACHED CONVALESCENT STALL AREA.
	07/23/2001	SUBDIVISION OF AN EXISTING PARCEL INTO THREE LOTS OF 2075, 0.9, 0.9 ACRES.
	10/29/2001	LOT LINE ADJUSTMENT BETWEEN FOUR PARCLES, TOTALING 88.43 ACRES, AND USE PERMITS IN ORDER TO PROVIDE SEPARATE PARCELS FOR TWO EXISTING RESIDENCES AND TWO PARCELS FOR THE CULTIVATED FARMLAND.
	12/10/2001	REPLACE OLD 674 SQ FT UNIT WITH NEW 1174 SQ FT CARETAKER'S UNIT.
12/17/2001	RECONFIGURE 3 PARCELS TOTALING 139.76 ACRES.	

Area	Review Date	Project Description
SAN ANTONIO	08/05/1997	LOT LINE ADJUSTMENT TO ALLOW LOT LINE ADJUSTMENT BETWEEN 10 EXISTING PARCELS.
SAN ARDO	10/08/1996	MINOR LOT LINE ADJUSTMENT.
	10/21/1997	LOT LINE ADJUSTMENT TO ALLOW ADJUSTMENT OF LOT LINES BETWEEN FOUR EXISTING PARCELS.
	06/30/1998	LOT LINE ADJUSTMENT.
	07/12/1999	USE PERMIT AND RECLAMATION PLAN FOR SAND AND GRAVEL MINING OPERATION ALONG THE PONCHO RICO CREEK
	03/20/2000	LOT LINE ADJUSTMENT.
	07/02/2001	CONSTRUCTION OF A NEW 100 FT MONOPOLE WITH A 349.5 SQ FT RAISED EQUIPMENT PLATFORM. THE SITE WILL BE SURROUNDED BY A 6 FT HIGH CHAIN LINK FENCE
	07/23/2001	CONSTRUCTION OF A 150 FT MULTI-CARRIER LATTICE TOWER WITH A 70' X 70' FENCED EQUIPMENT AREA THAT HAS THE CAPACITY TO CO-LOCATE SEVERAL TELECOMMUNICATION COMPANIES.
SAN JUAN GRADE	11/19/1996	USE PERMIT TO INSTALL TWO (2) MODULAR BUILDINGS TO EXPAND THE EXISTING CHURCH AND SCHOOL.
SAN LUCAS	04/01/1997	MAJOR USE PERMIT FOR WINERY OPERATION.
	06/03/1997	APPROVE LOT INE ADJUSTMENT FOR FOUR LOTS.
	08/25/1998	MINOR LOT LINE ADJUSTMENT.
	08/25/1998	MINOR LOT LINE ADJUSTMENT.
	10/11/1999	WINERY OPERATION.
	01/03/2000	LOT LINE ADJUSTMENT.
	03/06/2000	MINOR LOT LINE ADJUSTMENT.
SANTA RITA	05/06/1997	REPLACEMENT OF AN EXISTING SNACK BAR/CONCESSION STAND/ANNOUNCERS AREA DESTROYED BY FIRE.
SOLEDAD	06/17/1997	CONSTRUCT WINERY ON 418 ACRE SITE INCLUDING WINE PRODUCTION AND STORAGE FACILITIES OF 194,800 SQ FT. IN A PHASED DEVELOPMENT WHICH WILL INCLUDE A VISITOR CENTER AND WINE TASTING ROOM.
	05/14/2001	LOT LINE ADJUSTMENT BETWEEN TWO LEGAL LOTS OF RECORD.
SOUTH COUNTY-SAN LUCAS	07/09/1996	MINOR LOT LINE ADJUSTMENT.
SPRECKELS	08/20/2001	REMODEL AND EXPANSION OF OF THE EXISTING DISPATCH OFFICE AND CONSTRUCTION OF A NEW 4,326 SQ FT TRUCKERS LOUNGE.
TORO	04/09/1996	MINOR SUBDIVISION TENTATIVE MAP TO ALLOW DIVISION OF A 5.2 ACRE PARCEL INTO TWO PARCELS OF 2.6 ACRES EACH; USE PERMIT FOR DEVELOPMENT IN AREA OF VISUAL SENSITIVITY.
	10/08/1996	REZONING 'F/40D' TO 'LDR/5; GENERAL PLAN AMENDMENT FROM FARMLANDS TO LOW DENSITY RESIDENTIAL; & TENTATIVE MAP OF APPROX 97 ACRE PARCEL INTO 19 RESIDENTIAL LOTS OF APPROX 5 ACRES EACH
	08/05/1997	REVISED STANDARD SUBDIVISION VESTING TENTATIVE MAP TO ALLOW DIVISION OF A 325.74 AC PARCEL INTO 14 PARCELS RANGING IN SIZE FROM 1-8.57 AC WITH A REMAINDER PARCEL OF 285.65 AC.; USE PERMIT TO DEVELOP IN AREA OF VISUAL SENSITIVITY

Area	Review Date	Project Description
TORO	09/09/1997	LOT LINE ADJUSTMENT.
WATSONVILLE	07/22/1997	COASTAL ADMINISTRATIVE PERMIT TO INSTALL A MOBILE HOME ON A PERMANENT FOUNDATION.
	03/24/1998	COASTAL DEVELOPMENT PERMIT FOR A SECOND SINGLE FAMILY DWELLING, TREE REMOVAL (1) AND GRADING.