

**TOWN OF FAIRFAX
FLOOD MITIGATION PLAN**

Public Review Draft

May 1, 2008

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Section 1: Introduction

1.1 Purpose of the Plan

The Town of Fairfax Flood Mitigation Plan presents a comprehensive strategy to guide community efforts designed to reduce the damage, loss and disruption from future flood events. Hazard mitigation is defined as any sustained action taken to reduce or eliminate long term risk to human life and property. Mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition it can protect critical community facilities, reduce exposure to liability and minimize community disruption.

Following the December 31, 2005 floods that caused extensive damage to Town facilities, businesses, residences and other property, the Town applied for and received a grant from the Federal Emergency Management Agency (FEMA) to develop a Flood Mitigation Plan. This plan has been prepared in compliance with all federal grant and program requirements as outlined in 44 CFR Section 78.5 - Floodplain Management Plan development and includes the following minimum elements as specified:

- A description of the planning process and public involvement;
- A description of the existing flood hazard and identification of the flood risk, including estimates of the number and type of structures at risk, repetitive loss properties, and the extent of flood depth and damage potential;
- The Town of Fairfax floodplain management goals;
- Identification and evaluation of cost-effective and technically feasible mitigation actions considered;
- Presentation of the strategy for reducing flood risks and continued compliance with the National Flood Insurance Program;
- Procedures for ensuring implementation, reviewing progress, and recommending revisions to the plan; and,
- Documentation of formal plan adoption by the Fairfax Town Council.

Adoption of this Flood Mitigation Plan by the Fairfax Town Council and approval by FEMA not only meets requirements of the Planning Grant, but also qualifies the Town of Fairfax to apply for and obtain future pre disaster flood mitigation grants.

The primary purpose of this plan is to identify community policies, actions and tools for implementation over the long-term, which will result in a reduction in risk and potential for future flood losses community-wide. This is accomplished by using a systematic process of learning about the flood hazard that can affect the Town of Fairfax, setting clear goals, identifying and implementing appropriate actions, and keeping the plan current.

An added benefit of the plan development process has been to identify and consolidate various data sources and activities currently underway. The Plan relies primarily on accessing existing, readily available information rather than endeavoring to undertake new scientific studies or modeling efforts.

This Plan is consistent with and supports the objectives of other existing or on-going planning efforts including the Update of the General Plan, Environmental Safety Element, the Local Hazard Mitigation Plan, and the Community Rating System.

1.2 Community Profile

Physical Setting

The Town of Fairfax, one of eleven incorporated cities, is centrally located in Marin County, California, which is a northern county in the San Francisco Bay Area. The Town covers 2.2 square miles of land area and is bordered by the Town of San Anselmo to the east, and on all other sides by unincorporated county lands and preserved open space.

Situated in the Northern California Coastal Range, Fairfax enjoys a Mediterranean climate with mild year round temperatures. Most of the annual rainfall, which averages between thirty and fifty inches per year, occurs during the winter months from November to April. Periods of concentrated heavy rainfall have caused extensive flooding and landslides in the past, but the area is also susceptible to extended periods of drought when less than average rainfall occurs in consecutive years.

The natural beauty of the area creeks, canyons, steep hillsides and meadows make Fairfax an attractive place to live. Proximity to the metropolitan centers of the Bay Area and major recreational destinations such as the Point Reyes National Seashore, contribute to its desirability as a place to settle.

History and Development

The coast and inland valleys of Marin County were home to Miwok Indians for centuries before the arrival of the Spanish into California. The area that is now Fairfax was originally part of the Mexican Land Grant called Canada de Herrera which was first deeded in 1839. The Town gets its name from Lord Charles Snowden Fairfax who arrived in the area from Virginia in the mid-1850's. Ranching, lumber, and country resort recreation were the primary activities until after the turn of the century, when three tracts of land were subdivided: the Fairfax Tract, Ridgeway and Deer Park. Still lightly populated, the area was an attractive setting for Western movies up until around the early 1920's, and also the site of a tuberculosis sanatorium, whose patients produced the locally renowned "Arequipa" pottery.

The Town built up around the Fairfax Tract and the creek. Nine of the sixty-five acre Tract were acquired by the Fairfax Volunteer Firemen in 1920 to be preserved as a Town Park. Although the Park has grown smaller over the years, several important Town buildings still occupy the site, including Town Hall, the Police and Fire Stations, the Pavilion, and the Women's Club. The Town was incorporated in 1931.

Most early residential development occurring between 1907 and 1914 was concentrated on the valley floor. Early and subsequent commercial development has also been limited to the valley floor areas. Residential communities now extend out and up into the steep canyons and hillsides which surround the valley on both the north and south sides.

Over the years, through zoning and land use regulations, development in the Town has preserved important physical features such as ridgelines, hillsides, and natural areas. The Town of Fairfax is, for the most part, built out, with few undeveloped parcels remaining for residential or commercial uses. Any new development will not occur as a result of subdivisions of land, but rather as infilling within undeveloped or underdeveloped sites, or by refilling lots by replacement of one structure with another, potentially larger structure.

Based on projections developed by the Association of Bay Area Governments (ABAG), Fairfax is expected to experience slight growth in the next 10-15 years, with the job market also increasing slightly. By 2020, Fairfax, as determined by ABAG projections, is expected to gain approximately 1100 new residents, 320 new households, and about 190 new jobs. Fairfax is expected to realize a growth rate of about 3.6%.

Demographics/Economics

The Town has a resident population of approximately 7500. The estimated median household income in 2005 was \$64,700, higher than the median household income for California which was \$53,629, but substantially lower than the rest of Marin County. It is estimated that over 52% of Fairfax households fall in the low and very low income categories.

There are 3,264 parcels in Fairfax. Residential parcels are the predominant use, with 3,017 residential parcels providing 3,479 living units. The remaining parcels are split between commercial use, which accounts for 127 parcels, and 120 parcels designated for other uses.

The total assessed value of land and improvements in Fairfax approach the one billion dollar mark. The estimated median house/condo value in 2005 was \$705,700, higher than the median value for California which was \$477,700. Property values remain fairly stable in the area despite the recent housing market declines in the State and elsewhere in the country. Approximately 62% of homes are owner occupied, and the average family household size in Fairfax in 2005 was 2.33.

Institutional Framework

Fairfax is governed by a five member elected Town Council. The Town Manager is the administrative head of the Town organization, and provides coordination of all Town departments through four Department Directors: Police Chief, Public Works Director, Planning and Building Director, and Finance Director. The Town currently has twenty-nine budgeted full time positions. In comparison to other small Marin County communities, Fairfax has one of the lowest employee-population ratios, with nearly 250 residents per employee.

The work of the Town Council, Department Directors and staff is supported by a number of Boards and Commissions which are staffed by volunteers, including the following: Design Review Board, Planning Commission, General Plan Advisory Committee, Parks and Recreation, Volunteer Board, Tree Committee, Open Space Committee, Artist in Residence, Measure F and K Oversight Committees, and Citizens' Disaster Council.

The Town's budgeting structure consists of the general fund, capital projects funds, reserve fund, and other funds which are restricted by law. The general fund is the major fund of the Town and is considered the operating fund. Personnel costs account for approximately 80% of the general fund budget in any given year. In addition to property tax revenues and other taxes levied and collected by the State, the general fund is supplemented by local voter-approved assessments including the following: general purpose per unit tax, pension tax, storm water runoff fee, special municipal per unit tax, bond assessment for capital projects, and a utility user tax. The retail base which generates sales tax is rather limited, with sales tax providing only about seven percent of the general fund budget.

Infrastructure

Roads & Highways:

There are no major highways located in Fairfax. Travel into and out of the area to adjoining towns and the greater metropolitan areas to the east and south, as well as to recreational destinations to the west and north is accomplished through two lane roads. The main travel artery that runs through the valley is Sir Francis Drake Boulevard. There are a total of 33.9 road miles in Fairfax. Many of the canyon roads are winding and narrow, which creates challenges for residents and emergency services personnel during winter storms and severe fire weather.

In the late 1800's the area was served by a railroad that allowed residents to travel to and from the San Francisco area. The former railroad line is now Center Boulevard and several of the intersections are former railroad stops.

Utilities:

Drinking water is provided through the Marin Municipal Water District (MMWD), a public agency which serves ten communities and the unincorporated areas of central and south Marin County. MMWD is responsible for all aspects of water collection, treatment, storage and distribution systems.

Established May 27, 1899, Ross Valley Sanitary District is the oldest sanitary district in Marin County and may be the oldest sanitary district in California. Its boundaries include 26.75 square miles of the Ross Valley watershed, including the Town of Fairfax. The District operates and maintains approximately 180 miles of collection sewer lines and 20 pumping stations which collect, pump, and transport approximately 3 million gallons of sewage per day to Central Marin Sanitation Agency (CMSA)¹ for treatment. Approximately 95% of the District's collection system was installed prior to 1955.

Marin Sanitary Service offers residential waste collection and recycling services to Fairfax customers as well as other Marin County communities and portions of the unincorporated County.

Electricity and natural gas are provided to Fairfax residents and businesses by the Pacific Gas and Electric Company, which serves approximately fifteen million people throughout a 70,000 square mile service area in northern and central California.

Section 2: Planning Process

2.1 Plan Development

The Town of Fairfax Flood Mitigation Plan is the culmination of several planning efforts initiated to address the flood hazard in the Town of Fairfax: the Ross Valley Watershed Flood Protection and Creek Restoration Program (RVWP), the Local Hazard Mitigation Plan (LHMP), and the Update of the General Plan Environmental Safety Element (ESE). This section describes each of those planning efforts and how they have contributed to the development of this Flood Mitigation Plan, and documents the planning process carried out under this Flood Mitigation Assistance Grant.

The Ross Valley Watershed Flood Protection and Creek Restoration Program (RVWP)

This program was initiated in January 2006, in response to the December 31, 2005 floods that impacted many Marin County communities, to create a comprehensive strategy for the entire Ross Valley Watershed. Led by the County of Marin Department of Public Works, the Program is a collaborative effort that includes the City of Larkspur and Towns of Fairfax, Ross and San Anselmo. The County of Marin Flood Control District, Zone 9 Advisory Board provided valuable insight to program budgeting and planning. The Program also included participation by a wide range of partners, technical and financial working groups, and community members. The Financial Working Group, composed of County representatives and City managers, analyzed funding mechanisms. Members of the Technical Working Group included expert technical consultants of civil and hydraulic engineers, geomorphologists, hydrologists, riparian ecologists and fish biologists from the County, Friends of Corte Madera Creek, the Army Corps of Engineers, and outside consultants, as well as community volunteers. They performed detailed forensic analysis of the flooding, including watershed-wide hydraulic mapping. Working with the cities, the technical working group developed strategies for the most effective flood protection solutions that also respect the creek and enhance the environment.

Three community meetings were held during the program development phase of the RVWP. The first meeting held on May 20, 2006, introduced the planning process, provided a technical analysis of the flooding that occurred on December 31, 2005, and presented the solutions framework that would guide future efforts. The second meeting held on October 20, 2006, presented preliminary solutions and a proposed financial plan to fund implementation. The third and final community meeting held on February 10, 2007, presented agreed upon solutions, an integrated finance plan and information about a potential property owner assessment. All three meetings were designed to be interactive and ample time was provided for community questions, answers and other input. Results of the RVWP are documented in Section 3 of this Plan.

Town of Fairfax Local Hazard Mitigation Plan (LHMP) Annex

The Town of Fairfax Local Hazard Mitigation Plan Annex was adopted by the Town Council on June 1, 2005 and approved by the Federal Emergency Management Agency on September 26, 2005. The Plan Annex was developed as part of the regional planning effort coordinated by the Association of Bay Area Governments (ABAG) that resulted in a Multi-jurisdictional Hazard Mitigation Plan for the San Francisco Bay Area. The Town of Fairfax participated in that effort, and produced a Local Annex to that Plan which meets all planning process requirements under the Disaster Mitigation Act of 2000. As part of that process, key Town staff prioritized mitigation actions to be included in the Town Annex from a list of several hundred mitigation strategies developed as part of the regional plan development process. The Town assessed each of the strategies for appropriateness to their community and established a list of very high, high, and moderate priority actions to be pursued. The LHMP Annex also stipulated that the mitigation strategies identified in the Annex were to become an Implementation Appendix to the Town's Environmental Safety Element of the General Plan, and that those mitigation strategies would be evaluated by the General Plan Advisory Committee during the update of the General Plan Environmental Safety Element.

General Plan Environmental Safety Element Update (ESE)

The Town of Fairfax is in the process of updating its General Plan, including various Elements required by California law. One required Element is the Safety Element, which is called the Environmental Safety Element (ESE) in the Town's General Plan. The Environmental Safety Element includes information on natural hazards that can impact the Town, including earthquake, landslide, fire and flood. The General Plan Advisory Committee (GPAC) serves as the citizen advisory committee for the update of the General Plan and its required Elements. As a result of the December 31, 2005 flooding and the subsequent receipt of the Flood Mitigation Planning Grant, the GPAC focused its attention on the flood portion of the ESE Update. The GPAC discussed the flood hazard and causes of flooding, discussed and evaluated the mitigation strategies included in the Fairfax LHMP Annex, and provided review and comment on draft mitigation policies and implementation plans. The GPAC met monthly throughout this process.

Flood Mitigation Assistance Planning Grant (FMAP)

Recognizing the significant flood risk to the Town which was underscored by the December 31, 2005 floods, the Town applied for and received a Flood Mitigation Planning Grant from the Federal Emergency Management Agency in August 2006. Following standard contracting procedures, the Town issued a Request for Proposals in October 2006 and awarded the contract to Natural Hazards Mitigation early in 2007, with a formal contracting Letter of Agreement executed in June 2007. This timing was designed to allow the discussions, deliberations, findings and recommendations of the Ross Valley Watershed Program and the General Plan Advisory Committee to take place without duplication of effort and unnecessary grant expenditures. Although not directly funded by the FMAP Grant, the RVWP and GPAC planning efforts provide a foundation

and must be considered a critical part of the planning process that resulted in this Flood Mitigation Plan.

The Town Manager took the lead responsibility for plan development and outreach and was the primary day to day contact for the planning effort. Town Department Directors served as the Technical Oversight Committee which met at critical points during the planning process to provide input and information sources to the consultant and to review draft documents. Additionally, the Town of Fairfax Disaster Council was appointed as the citizens advisory committee and to ensure that a broad base of interests and cross-jurisdictional issues were addressed. The Disaster Council began the FMAP planning process at its June 21, 2007 meeting and continued to meet approximately every six weeks until conclusion of the plan development and review process. A roster of Disaster Council members is included in the Appendix.

2.2 Public Outreach

The Town of Fairfax is committed to an open and participatory process in all aspects of planning and development that impact the Town and the citizens it serves. Several methods of communication were used to keep the community informed of the plan development process, community workshops and the plan review process. These include:

1. The Town of Fairfax website, where key events were posted on the home page as well as the Town Calendar;
2. The Town Manager Blogspot, where workshop agendas, results, and other documents were posted;
3. Media announcements of upcoming events and notices and articles of interest in the Marin Independent Journal, the Ross Valley Reporter, and the Friends of Corte Madera Creek Newsletter;
4. E-mailings to extensive mailing lists maintained by the Town Manager and the Fairfax Volunteers;
5. Agendas and minutes of the Disaster Council Meetings posted on the website; and,
6. Agendas and minutes of the General Plan Advisory Committee Meetings posted on the website.

Two Community Workshops were held during the plan development process, one at the outset of the FMAP development process, and the second to solicit input on mitigation strategies. The first community workshop was held on July 26, 2007. The purpose of the workshop was to introduce the community to the flood mitigation planning process, to gather data on flood impacts, and to solicit community input on potential solutions to reduce future flood damage. A Community Flood Damage and Action Survey was distributed at the workshop to collect information directly from participants regarding their past flood experiences, mitigation actions and future priorities. The survey was also made available through the Town website so that individuals who could not attend the

workshop were provided the opportunity to participate. The second workshop was held on November 29, 2007 to provide an update to the community on the planning process, present results of the Community Flood Damage and Action Survey, provide preliminary recommendations for mitigation strategies, and to solicit additional input. Copies of workshop announcements, and survey and results are included in the Appendix to this Plan.

During the course of this planning process, the Town of Fairfax held additional community workshops that focused on flood and creek protection issues. On November 10, 2007, a workshop was held to present the results of a study conducted for the Town by Fluvial Geomorphology Consulting to assess biotechnical bank stabilization and riparian and aquatic habitat protection and enhancement as part of the repair of sites damaged in the December 31, 2005 floods. In response to the participants' interest in learning about how to control stream bank erosion and improve fish passage opportunities in the creek, a second workshop was organized by the Friends of the Corte Madera Creek Watershed. The workshop, held on March 1, 2008, included a presentation by the Urban Creeks Council on soil bioengineering and natural solutions to erosion control by biotechnical solutions.

Table 2-1 provides a summary of planning and outreach activities.

2.2 Plan Review and Adoption

Plan review was incorporated into every step of the planning process through Disaster Council Meetings and periodic review of draft sections of the Plan. Following completion of the Administrative Draft, internal review was conducted by the Disaster Council and Town Department Directors. Subsequently, a Public Review Draft was posted for a thirty day public review period, consistent with standard Town plan review procedures. Copies of the Public Review Draft were made available to the public at various Town locations, including Town Hall and the Library. Additionally, the Public Review Draft was posted on the Town web site. Public notices were published in the Marin Independent Journal and the Ross Valley Reporter.

To ensure maximum opportunity for public input, two Public Hearings were held in conjunction with Town Council Meetings. All public input comments were reviewed and revisions to the Plan were made as appropriate. Following review and approval of the Plan by the Federal Emergency Management Agency, the Town of Fairfax Flood Mitigation Plan was formally adopted by the Town Council on (TBD). A copy of the signed resolution is attached to this Plan.

Table 2-1 Summary of Planning & Outreach Activities

Date	Group	Items Discussed
5/20/06	RVWP	Technical analysis of flooding; Solutions framework
10/20/06	RVWP	Preliminary flood solutions; Proposed financial plan
11/30/06	GPAC	General hazard and risks impacting the community
1/25/07	GPAC	Overview of existing Local Hazard Mitigation Plan
2/10/07	RVWP	Recommended priority projects; Property tax assessment
2/22/07	Oversight Team	Introduction to FMAP process; Existing data sources; Priority issues for Town
2/22/07	GPAC	Existing hazard maps and limitations; Identified main causes of flooding
3/22/07	GPAC	Need for better data and documentation of flood history and damage; Flood risk and potential strategies
5/24/07	GPAC	Flood risk to infrastructure; Drainage issues and solutions; Other input from Public Works Director
6/12/07	Disaster Council	Overview of planning process; Role of the Disaster Council; Flood risk and current activities
6/28/07	GPAC	Planning for Community Workshop #1
7/26/07	Community Workshop #1	Overview of planning process for FMA; Community Input on Flood Issues; Community Flood Damage and Action Survey
8/28/07	Disaster Council	Community Workshop #1 Summary; Input on mitigation strategies
10/4/07	Disaster Council	Community Workshop Survey Results; CRS Quick Check Results; Draft Goals/Objectives/Actions
10/25/07	GPAC	Community Workshop & Survey Results; Present first draft of ESE flood policies/actions; Acceptable level of risk
11/10/07	Community Presentation	Summary of Bank Stabilization Recommendations by FGC
11/28/07	GPAC	Review and input to first draft of ESE flood policies/actions
11/29/07	Community Workshop #2	Update on Planning Process; Results of Community Survey; Discussion of mitigation actions & strategies
12/7/07	Disaster Council	Community Workshop #2 Summary Prioritization of mitigation strategies
12/13/07	Oversight Team	Review Priority Flood Mitigation Actions & Implementation Strategies
12/13/07	GPAC	Review revised draft of ESE flood policies/actions
1/25/08	Disaster Council	Review Priority Flood Mitigation Actions & Implementation Strategies
3/1/08	Community Presentation	Urban Creeks Council Presentation on creek bank restoration for private property owners
3/14/08	Disaster Council	Review draft Flood Mitigation Plan
4/18/08	Disaster Council	Plan revisions and schedule for Public Review
5/21/08	Public Hearing #1	Public Review Comments at Town Council Meeting
6/4/08	Public Hearing #2	Adoption of Plan Pending FEMA Review and Approval (tentative)
6/6/08	Disaster Council	TBD

Section 3: Flood Risk Assessment

3.1 Description of the Flood Hazard

The Ross Valley Watershed reaches from the foothills of Mount Tamalpais in the Coast Range to the San Francisco Bay. It is bounded on the west by a steep, forested ridge running northwest from the East Peak of Mt. Tamalpais to Pine Mountain and then north-northeast to White Hill and Loma Alta. The hills separating San Rafael from the Ross Valley form the northeastern boundaries of the watershed. The watershed drains approximately thirty square miles into nearly as many named creeks. San Anselmo and Fairfax creeks rise along the southern and western ridges and drain steep upland areas onto relatively steep and narrow valley flats. These creeks combine as San Anselmo Creek in the Town of Fairfax. San Anselmo Creek then flows southeast through Ross Valley, bounded by a sandstone ridge running southeast. Several intermittent tributaries rise on the grassland and grass-oak woodland-covered hills along the northern and eastern edges of the basin. See Figure 3-1.

It is important to note at the outset that Ross Valley is naturally prone to flooding by its location and geologic and fluvial geomorphic setting. Rainfall can be extremely intense, soils are shallow with limited absorbing capacity, slopes are steep, and the stream channels are incised and narrow offering little in-channel storage. Development in the Ross Valley has created expansive impermeable areas while encroaching onto the banks of the channel, supplanting the natural flood-attenuating capacity of the floodplain. The effects of narrow bridge and culvert openings and poorly designed residential streambank stabilization structures have been superimposed on this naturally flood-prone system, exacerbating the flooding problem. Although the frequency and extent of flooding can be significantly reduced by replacing constricting structures, widening the creek where possible, and building storage, the threat of flooding by very large floods will always remain.

Downtown Fairfax begins to flood when the capacity of the long culvert at the downstream end of Fairfax Creek is exceeded or debris blocks its entrance. Water leaving the creek upstream of the culvert runs through downtown Fairfax and returns to the main channel downstream of Pacheco Avenue, where the channel is deeply incised and is able to convey greater flows. Flood flows are contained in the naturally larger channel until reaching the next downstream constriction at Saunders Avenue in San Anselmo.

(Source: FEMA 1977 FIS)