THE CITY OF
NOVATO
CALIFORNIA

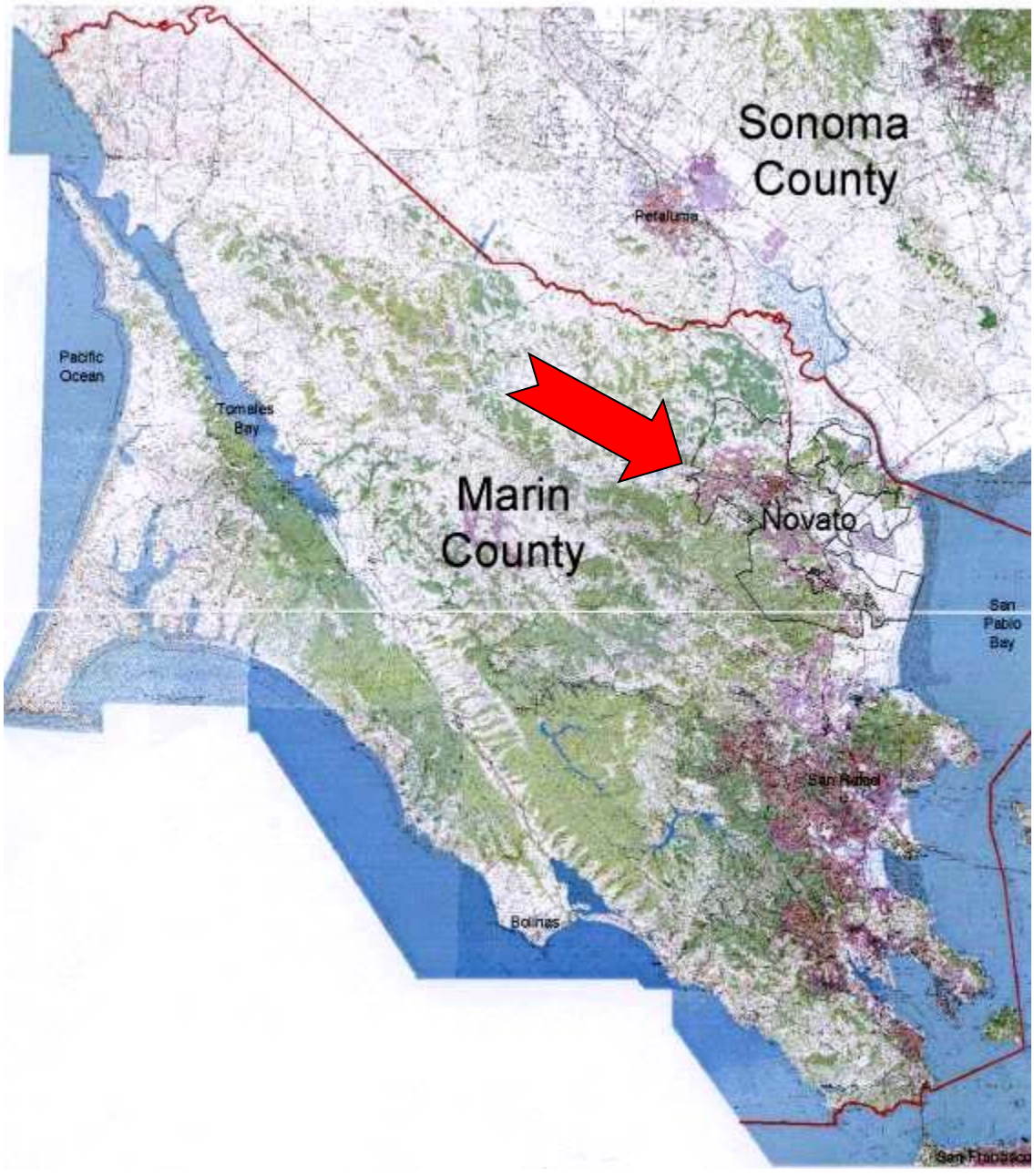
Flood Mitigation Plan

(June 2008)

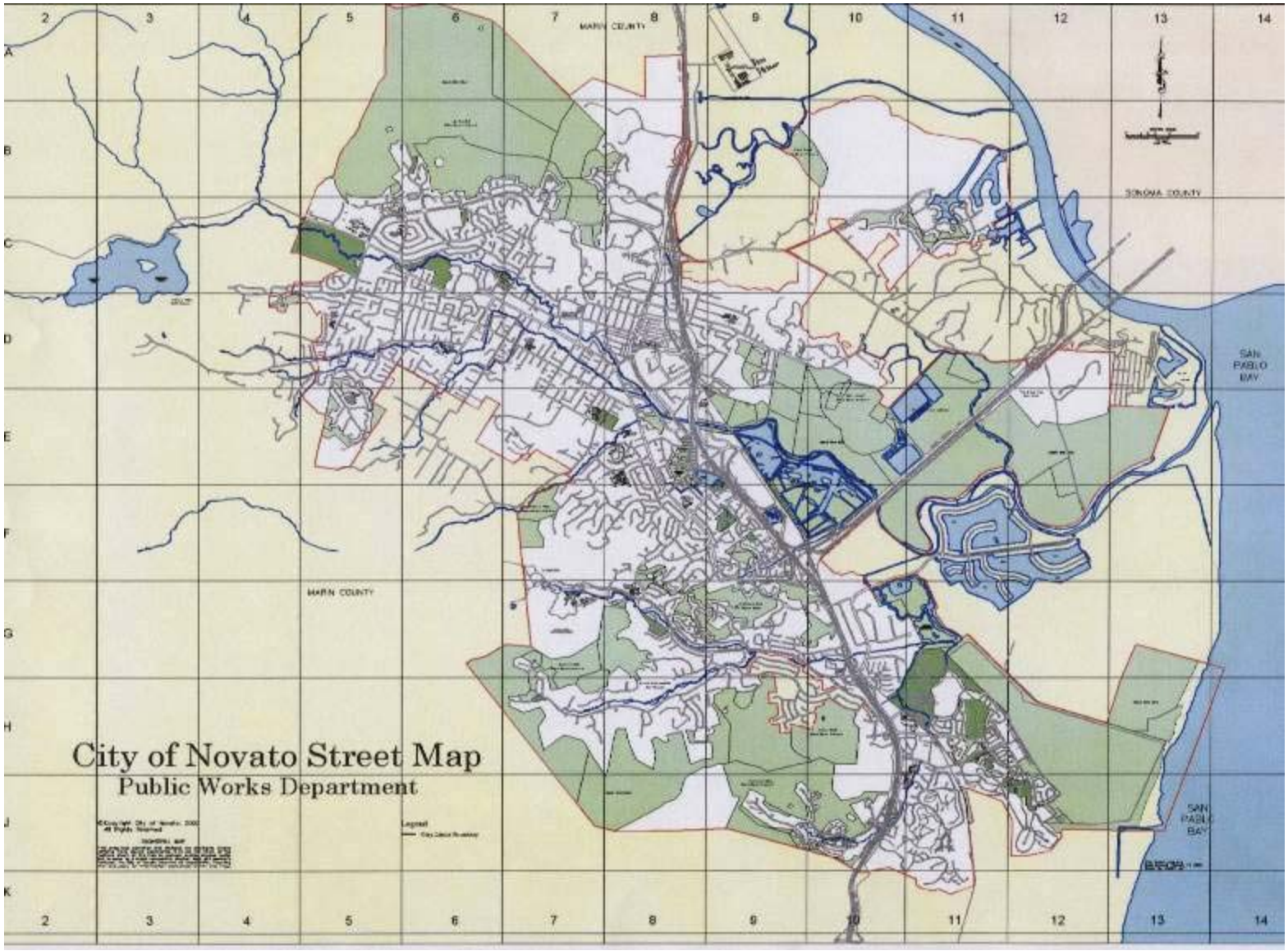
City of Novato Flood Mitigation Plan

Executive Summary

The City of Novato's All Hazard Disaster Mitigation Plan (DMA 2000), which is completed, includes a mitigation strategy to review and update the City of Novato's Flood Hazard Mitigation Plan. These two plans are closely tied together. The City plans to incorporate the two hazard mitigation planning processes together for the information to be efficiently utilized between the two documents avoiding duplication of effort and research and demands on staff time.



In support of the City's hazard mitigation efforts the State of California Office of Emergency Services has made FEMA-FMA non-competitive grant money available to the City to update their Flood Mitigation Plan.



The City has conducted a public outreach program to all citizens in danger of flooding within the City inviting their participation and input into the flood mitigation plan. This outreach had a goal to reach 90% or more of all of the properties. The City utilized public mailings, meetings and public service announcements to accomplish this outreach. The City has identified, as part of this program, locations where the public can obtain flood information, such as the Public library and City departments. The results of the public outreach program are included in this Plan

The City intends to continue working relationships and coordination with Marin County, The Marin County Flood Protection & Water Conservation District, the Marin Municipal Water District, North Marin Water District, Novato Sanitary District, the Marin County Association of Realtors, the Novato Fire Protection District, State and Federal Agencies with authorities and participation programs as well as any other interested stakeholders, including transportation and law enforcement organizations and affected citizens.

The Plan includes an inventory of the flood hazard areas, the identification of structures within those areas and a damage cost estimate or risk loss to those properties in a 100 year flood event. This data will allow the City to accurately assess the cost benefit analysis of flood mitigation strategies. The City formed a Flood Mitigation Planning Committee with the Public Works Department as chair of the Planning the committee. This group will have an ongoing relationship with the public and the stakeholders to formulate and update this plan on an annual basis. The Plan identifies historic and future flooding problems and ongoing flood studies, mapping and research.

The Plan reviews the City's 2003 Elevation Certificate to determine if there has been new construction or substantial improvements within the special flood hazard area. The City will endeavor to update the Elevation Certificates as required. The City will continue its program of sending letters to insurance agents, real estate agents and mortgage lenders making sure they are aware of the elevation certificates. The City conducts on-going reviews of building and codes standards and floodplain ordinances to affirm the most recent practices are reflected.

The City continues to review and update its GIS mapping system including the floodplain areas, and exploring additional uses for the system to support flood mitigation. The City has updated its Master Plan Storm Water Questionnaire and update where appropriate as part of the planning process. The process has also included reviewing drainage system maintenance and capital improvement reviews for update. It is the intent of this Plan to include a methodology to identify and update the City's hotspot areas that flood during storms and to look for improvements for the City's surface water drainage systems.

The City intends to use this plan to identify work for drainage projects. The City used this planning process to explore a number of mitigation strategies including one for a flood warning plan.

Project Accomplishments and Results Statement

City of Novato Flood Hazard Mitigation Plan

FEMA-DR-FMA04-CA, OES #PL04

FIPS #041-52582

Richard Scott – August 28, 2008

A description of the project positive achievements and/or accomplishments based on the originally established project goals.

Purpose

The City of Novato's All Hazard Disaster Mitigation Plan (DMA 2000), adopted by the City (Resolution No. 92-07), includes a mitigation strategy to review and update the City of Novato's Local Flood Hazard Mitigation Plan. These two plans are closely tied together. The City plans to incorporate the two hazard mitigation planning processes together for the information to be efficiently utilized between the two documents avoiding duplication of effort and research and demands on staff time.

The Local Flood Hazard Mitigation Plan specifically qualifies the City for flood protection programs that directly help homeowners due to flood problems and issues caused by flooding, i.e. Elevation/Acquisition/Relocation. Based upon Federal disaster declarations for the 2005/06 Winter Storms and 2006 Spring Storms, the State invited the County of Marin to submit grant applications for up to $10 million to pay for up to 75% of the costs for elevating homes in Special Flood Hazard Areas.

In support of the City's hazard mitigation efforts the State of California Office of Emergency Services (OES) has made a non-competitive grant available to the City. The Grant is funded through the Federal Emergency Management Agency Flood Mitigation Assistance Program (FEMA FMA) to update their Flood Mitigation Plan (Local Flood Hazard Mitigation Plan). This program provides assistance to repetitive loss communities for activities that will reduce the risk of flood damage to repetitive loss structures insurable under the National Flood Insurance Program (NFIP). The Novato City Council adopted resolution No. 19-06 accepting the Flood Mitigation Planning Grant (FMA04-PL04) in the amount of $66,666.00 on March 28, 2006.

In addition to addressing DMA 2000 requirements, the Plan also satisfies several requirements under the Community Rating System (CRS), in which the City of Novato is a participant. The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood losses;

2. Facilitate accurate insurance rating; and

3. Promote the awareness of flood insurance.

Flood insurance premium rates are discounted in increments of 5%. Novato insured's have received as much as 15% in premium discounts as a result of our activities. The CRS classes for local communities are based on 18 creditable activities, organized under four categories:

1. Public Information,

2. Mapping and Regulations,

3. Flood Damage Reduction, and

4. Flood Preparedness.

CRS activities covered under this Plan include revisions to our Local Flood Hazard Mitigation Plan, last updated in March 1996, and our Repetitive Loss Plan last updated in December 2000. This information is currently being submitted under the City of Novato's annual CRS recertification.

The Plan

City staff, working with Dimensions Unlimited, Inc., has conducted a public outreach program to all citizens in danger of flooding within the City, inviting their participation and input into the flood mitigation plan. This outreach had a goal to reach 90% or more of all of the properties. The City utilized public mailings, meetings and public service announcements to accomplish this outreach. The City has identified, as part of this program, locations where the public can obtain flood information, such as the Public library and City departments. The results of the public outreach program are included in this Plan

The Plan includes an inventory of the flood hazard areas, the identification of structures within those areas and a damage cost estimate or risk loss to those properties in a 100-year flood event. This data will allow the City to accurately assess the cost benefit analysis of flood mitigation strategies. The City formed a Flood Mitigation Planning Committee with the Public Works Department as chair of the Planning committee. This group will have an ongoing relationship with the public and the stakeholders to formulate and update this plan on an annual basis. The Plan identifies historic and future flooding problems and ongoing flood studies, projects, mapping and research.

The Plan reviews existing and new construction to determine if there has been new construction or substantial improvements within the Special Flood Hazard Area (SFHA). The City will endeavor to update the Elevation Certificates as required. The City will continue its program of sending letters to insurance agents, real estate agents and mortgage lenders making sure they are aware of the elevation certificates. The City will conduct on-going reviews of building and codes standards and floodplain ordinances to affirm the most recent practices are reflected.

The City has updated its Master Plan Storm Water Questionnaire and update where appropriate as part of the planning process. The process has also included reviewing drainage system maintenance and capital improvement reviews for update. It is the intent of this Plan to include a methodology to identify and update the City's hotspot areas that flood during storms and to look for improvements for the City's surface water drainage systems.

An activity currently underway, in support of the above, is the Marin County Watershed Stewardship Plan. This is a new, comprehensive look at flooding throughout Marin County, including Novato, how to control it and improve the health of our creeks.

Novato Advance – Wednesday, August 20, 2008

OPINION

Stewardship plan may be flood control solution for Novato

COUNTY CONNECTION

Supervisor Judy Arnold

We all are aware of the flooding that has occurred through the years in Novato. I especially remember the flooding on McKeon Court on New Year's 2006 and last year's flooding on the streets off of Novato Boulevard behind the Novato Fair Shopping Center.

Vineyard Creek flooding of McKeon Court and surrounding areas will be remedied thanks to a partnership between Marin County and the city this year to help resolve some of the flooding issues in this area.

The flooding that impacts the streets off of Novato Boulevard is more problematic and can only be solved with a comprehensive and innovative solution.

On May 13, 2008 the Board of Supervisors authorized a watershed program approach to flood management and creek restoration.

One of the first projects to be developed was a Watershed Stewardship Plan that will incoeporate the experience gained from the recent Ross Valley Watershed Program.

The Marin County Department of Public Works, led by Novato resident and member of the Novato Fire Protection District, Farhad Mansourian, will initiate a program that will produce watershed descriptions, watershed health evaluations and support the development of multiple-benefit projects. The descriptions will be used to develop conceptual work plans for each watershed.

This first phase is underway and funded by the California Department of Water Resources.

The watershed descriptions will characterize the physical setting, land use, history, biology, water quality, water management, social and economic conditions, hydrology, geomorphology, flood protection, resource management and restoration efforts based on a review of existing studies and reports.

This is a new, comprehensive look at flooding in Novato and how to control it as well as improve the health of our creeks.

The goal of the Stewardship Plan is to develop watershed work plans that integrate improvements to watershed health, water quality and habitat with solutions for flood protection.

The plan includes all of the watersheds in Marin that contain established flood zones plus areas where the county is facilitating creek and fish passage restoration programs. They are:

Novato Creek (and its major tributary creeks), Las Gallinas Creek (Santa Venetia, San Rafael Meadows and San Rafael), Miller Creek (Lucas Valley), Corte Madera Creek (Ross Valley), Richardson Bay (Mill Valley, Marin City, Bel Aire, Sausalito and Tiburon), Easkoot Creek (Stinson Beach), San Geronimo Creek (and tributaries in San Geronimo Valley), Inverness (Inverness and Inverness Park).

I am particularly excited about the partnerships that this Stewardship Plan envisions that include the city of Novato, North Marin Water District, Novato Sanitary District, the Flood Zone 1 Advisory Board, Friends of Novato Creek, local business and environmental representatives, State and Federal regulatory agencies and other public and private entities.

Soon the Novato City Council will vote to take part in this Stewardship Plan that, if the council approves, will include extensive community outreach and a public education process that will be initiated this winter to support the development of the plan.

A new Web site, www.marinwatersheds.org, will be launched at the end of the month to provide up-to-date information on the Stewardship Plan and public outreach efforts

The city and county are already working together on a critical flood control project on Vineyard Creek at Center Road and McKeon Court. The Stewardship Plan seems like a natural progression for the next stage in dealing with Novato's floods. After all, Novato is the largest watershed in the Marin County.

I believe it is critically important that all of the stakeholders work towards completion of the Stewardship Plan in order to improve our chances of securing state and federal funds.

The Ross Valley watershed effort has demonstrated there is significant state and federal interest in our watershed enhancement efforts so I am looking forward to embarking on this exciting project with my Novato City Council colleagues.

New Green Businesses

Congratulations to Novato's new certified green businesses: ENVIRON International, Corp. and Marin Community Foundation.

One project (hotspot) currently under construction is the Vineyard Creek Channel Enhancement Project. The project is being constructed in conjunction with the Marin County Flood Control and Water Conservation District to replace an existing box culvert with a free standing bridge and other channel improvements. The work will address flooding issues in the vicinity of Wilmac Avenue and McKeon Court as a result of winter storms in 2005/06.

Marin Independent Journal – Friday, August 22, 2008

NOVATO

Flood protection

Workers with Maggiora & Ghilotti Inc. are removing an old concrete box culvert and installing a new precast concrete bridge as part of a storm drain and sewer replacement project on Center Road near Wilmac Avenue in Novato. The $600,000 project is part of a flood protection effort of the Marin County Department of Public Works and Marin County Flood Control District in cooperation with the city of Novato. Work is expected to wind up before the Oct. 15 permit deadline, officials said.

IJ photos/Frankie Frost

The City intends to use this plan to identify work for drainage projects, including projects eligible for state and federal grants. The City used this planning process to explore a number of mitigation strategies including one for a flood-warning plan.

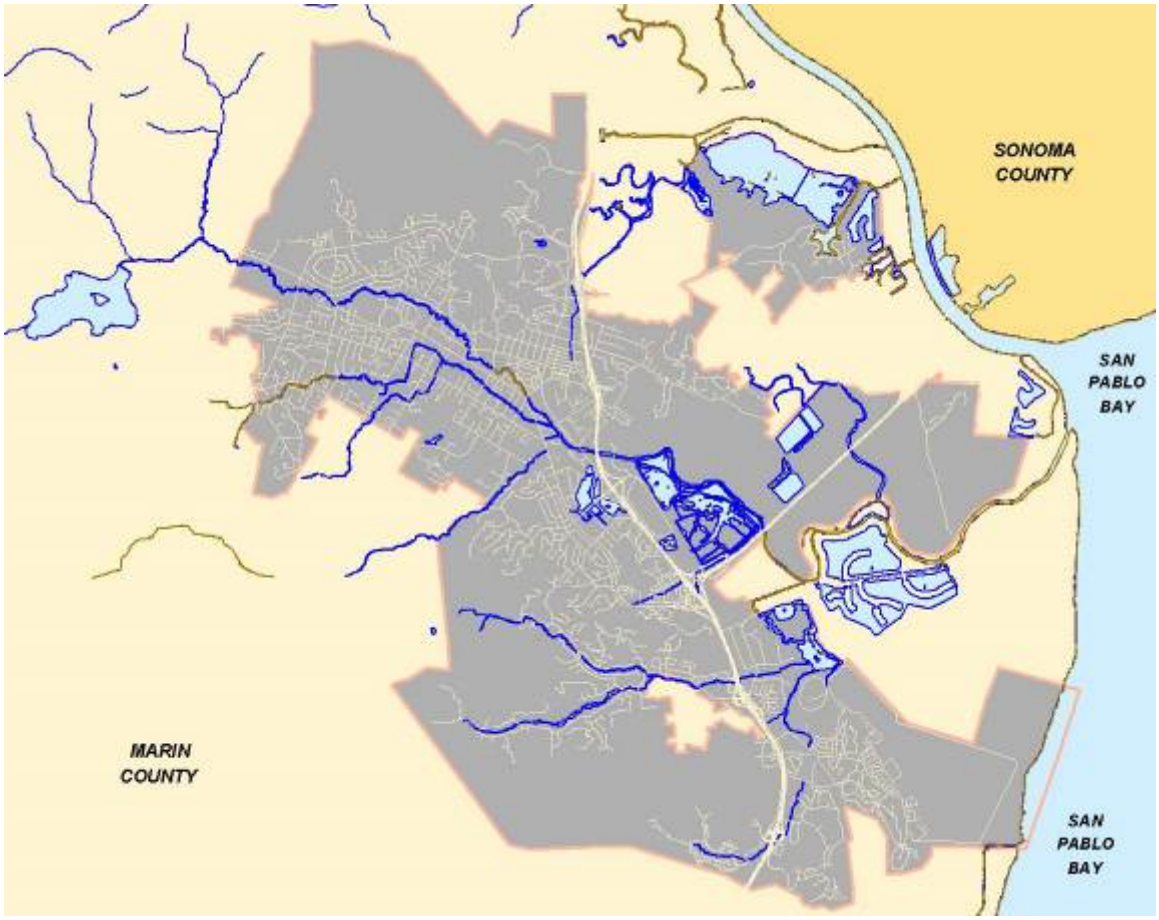
The City continues to review and update its GIS mapping system including the floodplain areas, and exploring additional uses for the system to support flood mitigation. A recent enhancement to our GIS now includes the ability to select and buffer urban streams and watercourses. The process is described in the following pages.

GIS Water Features

August 26, 2008

Recent enhancements to Novato's GIS now include the ability to select and buffer urban streams and watercourses. The primary purpose for buffering is for the purpose of notifying adjacent stream property owners in conjunction with activities covered under the Marin County Stormwater Pollution Prevention Program (MCSTOPPP), Marin County Watershed Program (Watershed Stewardship Plan), Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP), and Community Rating System (CRS). Additional information for active layers within the buffer may also be queried such as, situs address points, creek outfalls, owner, and parcel information.

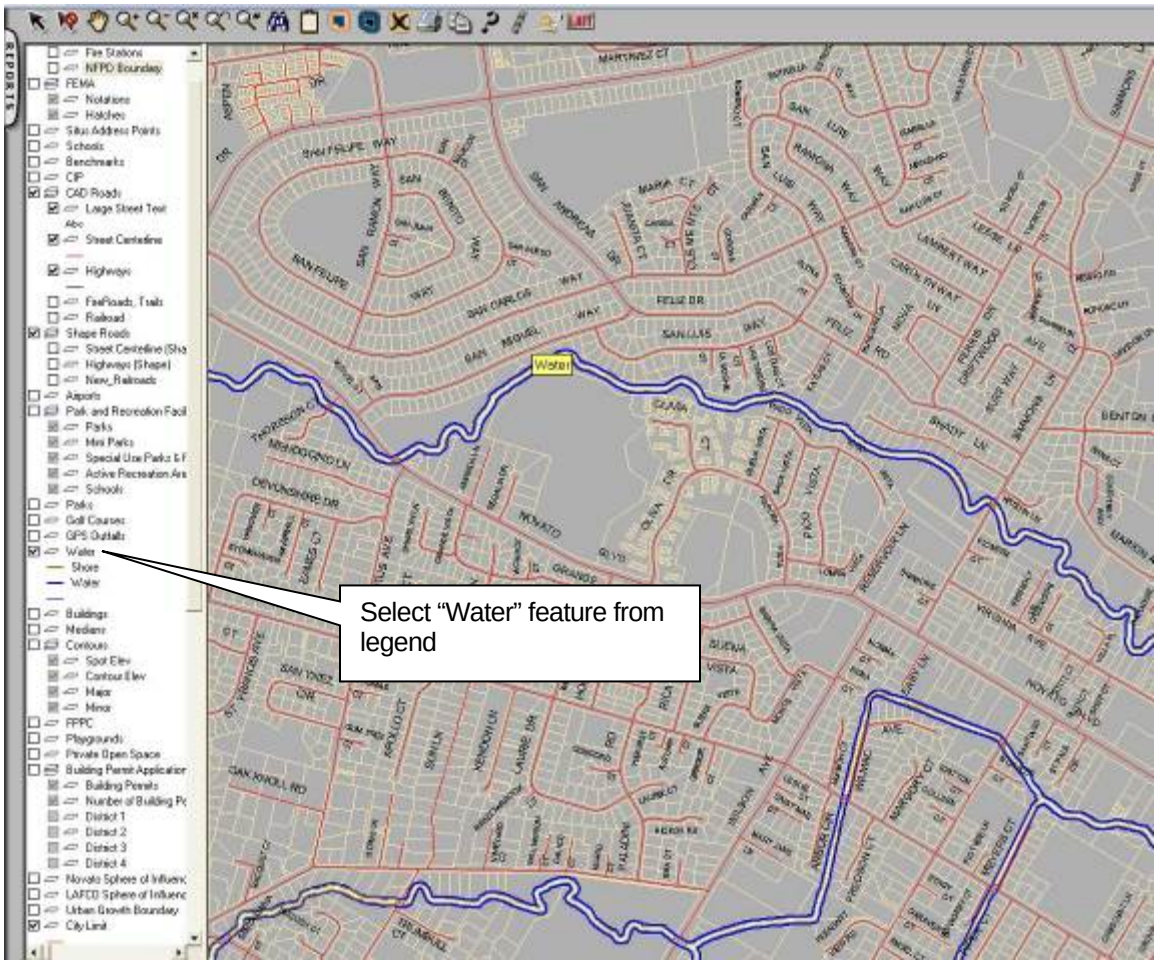
Urban Streams and Watercourses Within the Greater Novato Area (Water Layer)



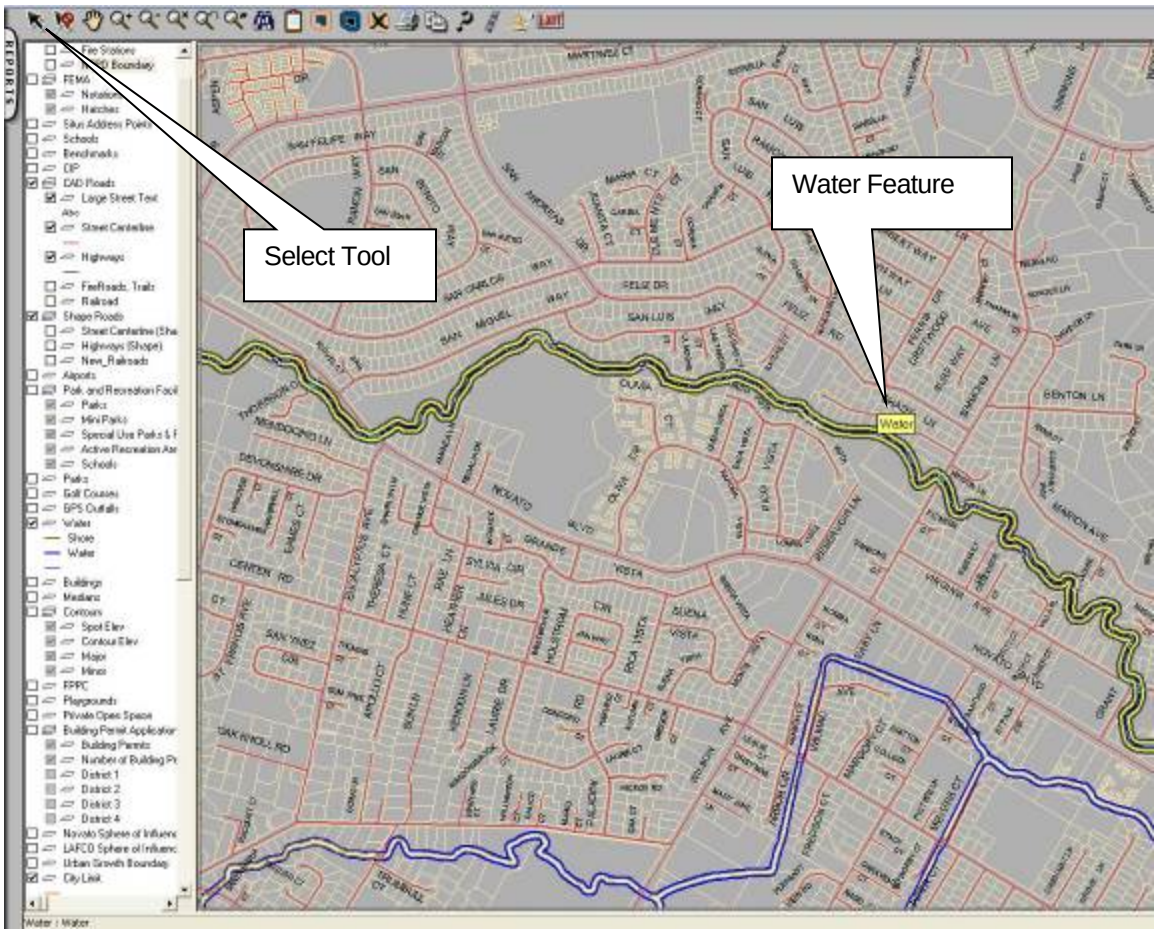
The following illustrates a typical process for selecting and buffering a stream (Novato Creek) for the generation of mailing labels or CSV report to include adjacent property owners and occupants.

It is important when querying information through use of Water features to plan ahead and develop a strategy in order to control output and desired results. Until we can restructure water objects, I recommend limiting selection set to a window or screen size, as in this example, and perform multiple queries. Our eventual goal will be to isolate each water feature by type (stream - Novato Creek, Warner Creek, etc. or water body - Stafford Lake, San Pablo Bay, etc.)

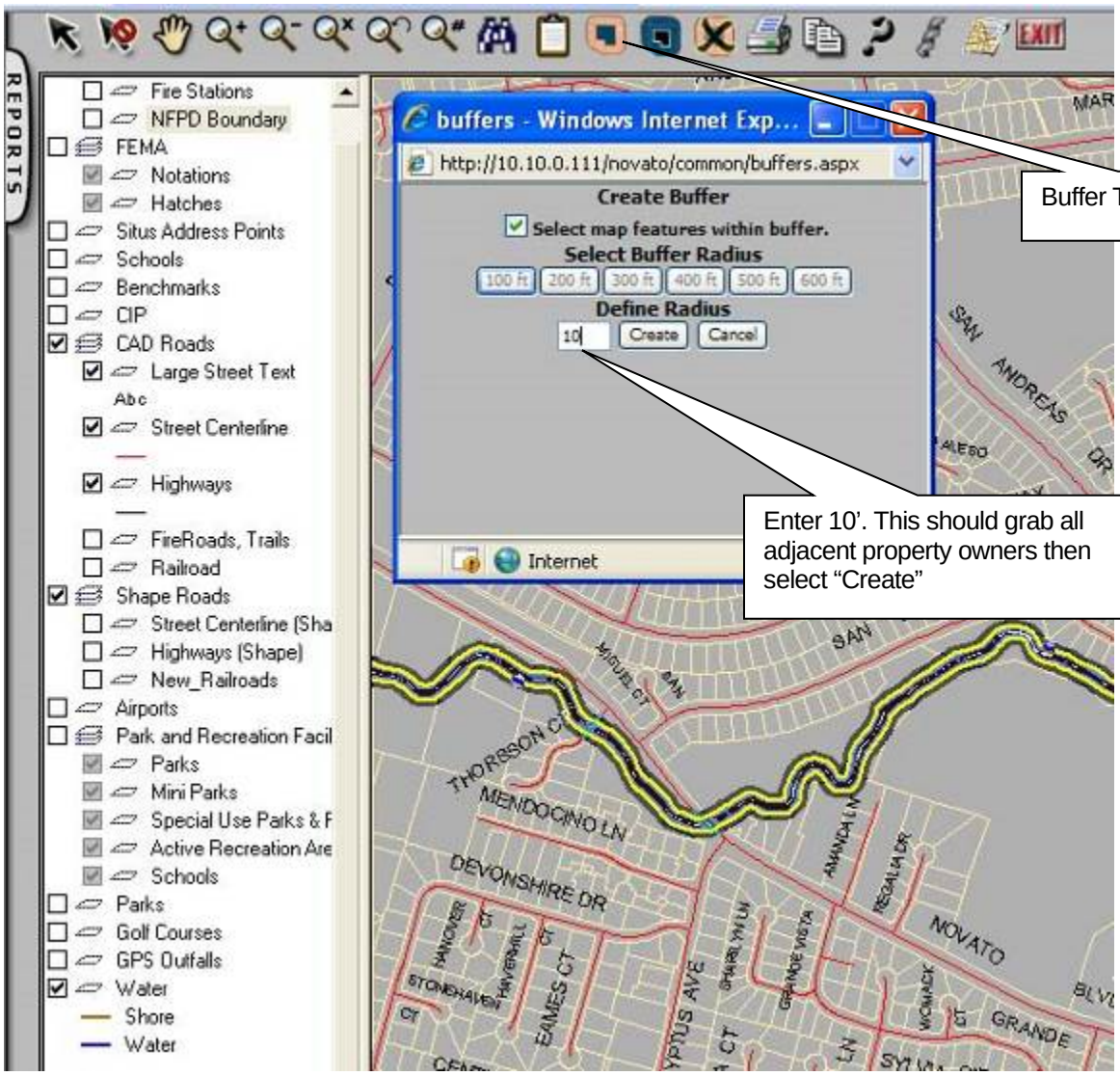
Assuming you are ready and zoomed-in to a stream for selection, activate "Water" feature in legend and all selectable water features will be displayed in blue.



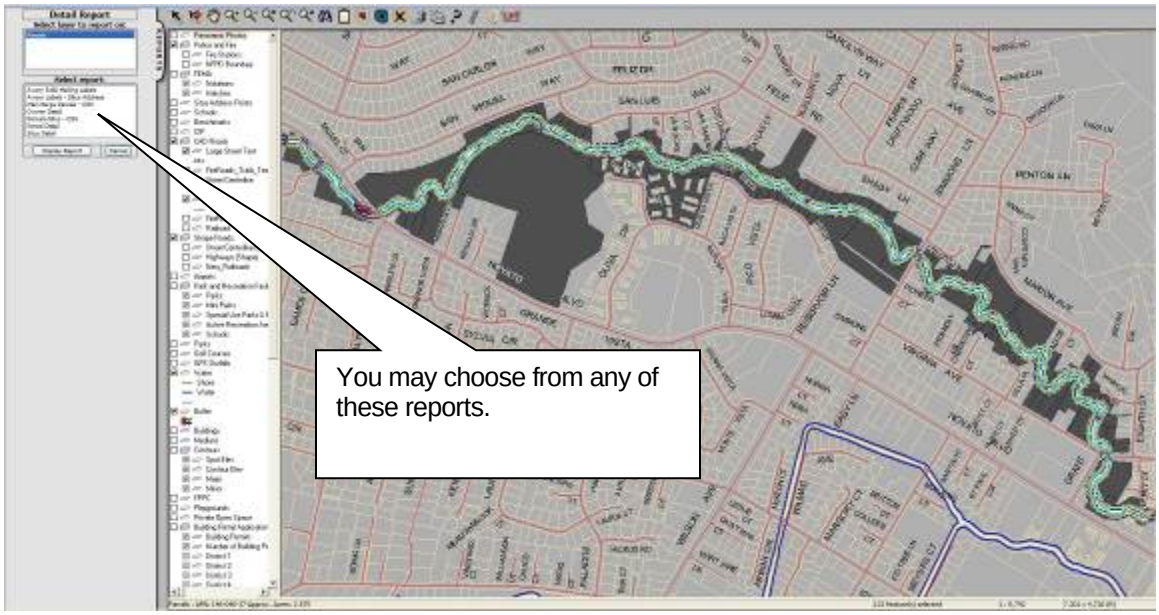
Using the "Select Tool", pick the Water feature



Next select the “Buffer Tool” and you will be prompted with the “Create Buffer” window. Since we only want adjacent property owners, I suggest you enter 10 (10 feet) in the “Define Radius” box and pick “Create”.



The buffer/query results will be displayed on the screen. Since only the Parcel layer was active, only reports available for information associated with Parcels are available.



For the example above, Avery 5160 Mailing Labels report was selected.

124-069-03
STANDISH ROBERT C & DEBORAH L
5 LA NOCHE CT
NOVATO, CA 94945

124-069-25
NOVATO CITY OF

NOVATO, CA 94947

124-069-26
BLACKSTONE ELIZABETH A
4 LA NOCHE CT
NOVATO, CA 94945

124-099-01
NOVATO CITY OF

NOVATO, CA 94947

124-099-02
RICCIARDI RALPH J TR & RICCI
82 SAN MIGUEL WAY
NOVATO, CA 94945

124-099-03
LOPSEN RICHARD A TR
84 SAN MIGUEL WAY
NOVATO, CA 94945

124-080-03
MERTEL JEFFREY E & MERTEL KATH
110 SAN LUIS WAY
NOVATO, CA 94945

124-080-27
NOVATO CITY OF

NOVATO, CA 94947

124-102-10
CURRENT RESIDENT
2200 NOVATO BLVD
NOVATO, CA94947

124-102-13
NOVATO CITY OF

NOVATO, CA 94947

132-031-07
THORSSON JOHN W TR & THORSSO
2311 NOVATO BLVD
NOVATO, CA 94947

132-062-04
PAGE MARY T
2166 NOVATO BLVD
NOVATO, CA 94947

132-062-11
CURRENT RESIDENT
2192 NOVATO BLVD
NOVATO, CA94947

132-062-11
WILHELM ROGER & WILHELM PATRIC
80 WILD HORSE VALLEY DR
NOVATO, CA 94947

132-062-14
PAPPAS WARREN V & PAPPAS NANCY
2194 NOVATO BLVD
NOVATO, CA 94947

132-066-01
NOVATO CITY OF

NOVATO, CA 94947

132-091-01
WONG LARRY Y W TR
2184 NOVATO BLVD
NOVATO, CA 94947

132-091-12
NOVATO CITY OF

NOVATO, CA 94947

132-091-24
NOVATO CITY OF

NOVATO, CA 94947

132-091-32
WARD PHILIP E ETAL & WARD SHAR
11 AMANDA LN
NOVATO, CA 94947

132-104-01
CASTRO SANDIA
310 PICO VISTA
NOVATO, CA 94947

132-104-02
BOECK HELMUT K BOECK NORMAN
300 PICO VISTA
NOVATO, CA 94947

132-104-03
BERKIN LAWRENCE R & BERKIN TAT
119 NURSERY WAY
SOUTH SAN FRANCISCO, CA 940800291

132-104-03
CURRENT RESIDENT
290 PICO VISTA
NOVATO, CA94947

132-104-04
BOYD NATHAN & SEVERIETTI-BOYD
272 PICO VIS
NOVATO, CA 94947

132-104-04
CURRENT RESIDENT
272 PICO VISTA
NOVATO, CA94947

132-104-05
CURRENT RESIDENT
268 PICO VISTA
NOVATO, CA94947

132-104-05
LIBERATI JACK L LIBERATI MICHELL
28 PLATA CT
NOVATO, CA 94947

132-104-06
O CONNELL CATHERINE M & O CONN
244 PICO VISTA
NOVATO, CA 94947

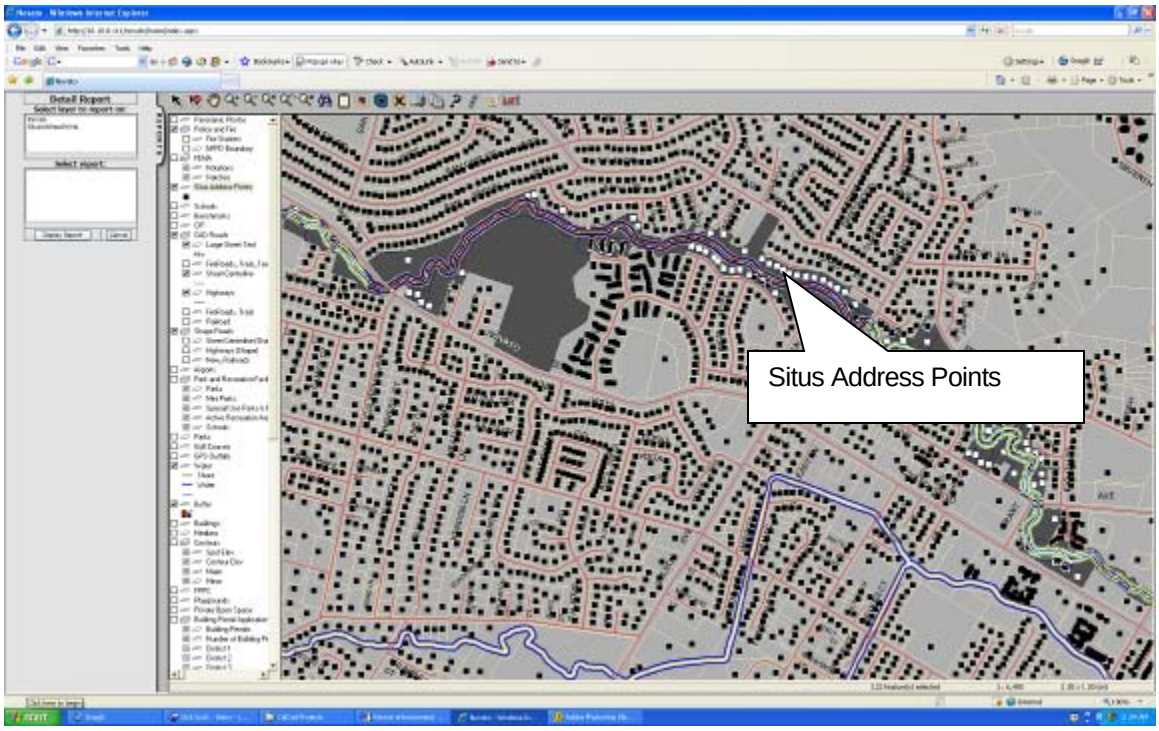
132-104-07
CURRENT RESIDENT
230 PICO VISTA
NOVATO, CA94947

NOTE:

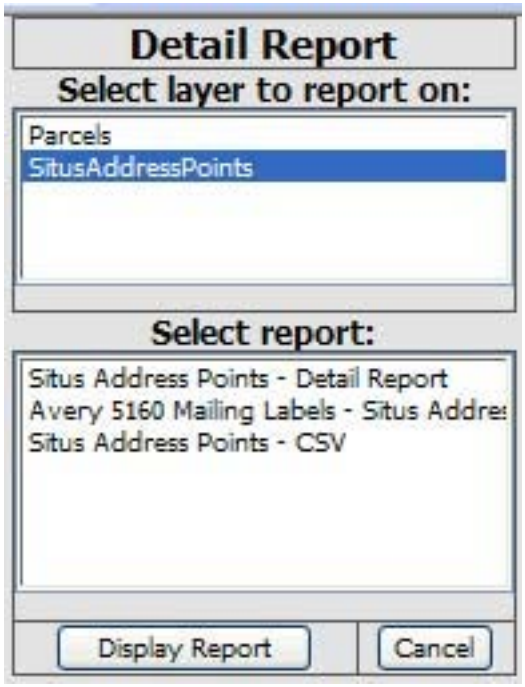
In this example, address labels for both owners and occupants are generated.

When an owner is “absentee” (resides at another location other than the map or site address) a label is produced for the absentee owner and a label is produced for the “Current Resident” at the site address.

If layer "Situs Address Points" layer were active, you will be presented with two options for reports, Parcels and Situs Address Points.



Reports available under Situs Address Points.



NOTE:

Situs address point labels are generated and include only mailing labels for the selected "site" addresses within the buffer, etc.
(Owner/occupied residences or current renter, but not absentee owners.)

Notice to all Novato Residents

Regarding the Special Flood Hazard Area

The Special Flood Hazard Area (SFHA) is the area subject to inundation by a l00-year flood, as shown on the current Flood Insurance Rate Map (FIRM) compiled by the Federal Emergency Management Agency (FEMA). This notice is designed to make you more aware of local flood hazards, the need to keep flood insurance in force, and other topics related to flood preparedness. Please take a few minutes to review all of the items presented and determine what actions you may need to take in order to protect yourself.

Flooding may be a real hazard in your area of town. Properties upstream of the confluence of Novato, Warner and Arroyo Avichi Creeks are most susceptible to inundation during the 100-year flood event. Heavy rains in 1980, 1982, 1983, 1986, 1989, and 1998 caused flooding and damage to buildings within these areas.

What You Can Do:

- Rake up and bag leaves as often as possible before storms. Leaves clogging storm drains are the primary source of most flood occurrences. Do not dump or throw anything into drainage ditches or streams—it is a violation of the City Code. Even grass clippings and branches can accumulate and plug channels and outfall structures. Blocked drainage ways simply cannot carry water, and when it rains the water has to go somewhere. Every piece of litter contributes to flooding.

- Clean drains around your home, including roof gutters, downspouts, drain inlets, pipes. drainage ditches and driveway culverts.

- Do not construct driveway ramps in street gutters.

- Always check with the Community Development Department or Engineering Division (899-8989) before you build on, alter, re-grade, or fill on your property. Permit(s) may be required to ensure that projects do not cause problems on other properties.

- If you do not have flood Insurance, talk to your insurance agent. Homeowner's insurance policies do not cover damage from floods.

- Get at least three quotes on flood insurance.

During A Flood Watch:

- Listen to the radio for news; bring outdoor belongings indoors. If time permits, move valuable possessions to the upper floors or to safe ground. Be prepared to evacuate and. if advised to evacuate, do so immediately.

- Report local flooding or severe runoff to your Maintenance or Police Department (Call 897-4347).

During A Flood - Flood Safety:

- Listen to the radio for news; if told to evacuate, do so immediately. The Novato emergency radio station is 530 AM. Do not walk through flowing water. If you are in a car do not drive through a flooded area.

The above information is presented in an effort to remind all residents that flooding is a real hazard during the winter rainy season. Additional information regarding flood hazards in Novato, and possible flood-proofing measures for structures, may be found at the Marin County Library, and on the City's website. Should you have any specific questions regarding the FIRM, please call the Public Works Department at 899-8246. Information can also be found in the lobby of the Novato Police Department.

Section I - Planning Process

Part 1 - Process Organization

Planning Process Documentation

Part 1 includes a description of the planning process and public involvement, inclusion of community departments and activities implemented. The commitment to conduct this project and the Flood Mitigation Planning effort is the outcome of the City of Novato's pro-mitigation community posture (city government and citizens' positive support to the mitigation effort).

The following City Staff from the Community Development Department were involved in the preparation of this draft addendum to the Flood Hazard Mitigation Plan including repetitive losses.

Glenn Young, Publics Works Director/ City Engineer

David Harlan, Principal Civil Engineer/ CRS Coordinator

Ron Averiette, Chief Building Official

Dick Scott, GIS Coordinator

Alan Lazure, Principal Planner

Frank Wright, Engineer II

Janice Rogala, Professional Planning Consultant

Jon Ho, Engineering Intern

Jurisdictional Participation

The following jurisdictions were the main participants in the Flood Mitigation Planning Processes: (See Part 3 of this plan for specific information on each jurisdiction.)

- County of Marin
- Marin County Flood Control and Water Conservation District
- Marin Municipal Water District
- North Marin Water District
- Novato Sanitary District
- Marin Association of Realtors
- Novato Fire Protection District

Process Description

The Flood Mitigation Planning Process consisted of the following:

1. Form a Flood Hazard Mitigation Planning Committee and hire a qualified contractor to facilitate and work with the committee to develop the plan elements.

2. Apply for and accept Flood Mitigation Planning Grants for financial assistance (see Resolution 20-06)

3. Develop and implement a citizen and community involvement strategy.

4. Perform and document a flood hazard analysis and vulnerability assessment.

5. Identify Flood Hazard Mitigation Strategies and formulate the goals and objectives to implement them.

6. Conduct outreach to the public and regional stakeholders for their input.

7. Complete a flood hazard capabilities assessment and continuity of government evaluation with the emphasis on public involvement. Incorporate Repetitive Loss Data and up-to-date Community Rating System data.

8. Identify and assess the City's hazard mitigation activities and hazard mitigation documents.

9. Develop a draft Flood Hazard Mitigation Plan and introduce to the public and stakeholders for comment.

10. Adopt the Flood Hazard Mitigation Plan.

11. Implement monitoring and updating requirements for the plan to be completed annually.

Existing Information

- FEMA Robert T. Stafford Act 93-288
- FEMA Flood Insurance Study – City of Novato, California
- FEMA Flood Insurance Study – Marin County, California
- State of California waterways, hydrologic and geological data
- Novato City Council Ordinance 1154 – Special Flood Hazard Area Standards
- Flood Control Levee Inspection, Monitoring & Maintenance Manual – Hamilton Field Phase 1
- Novato City Code Chapter 5-12: Construction and Repair of Dams
    - √ 5-31: Flood Damage Prevention Requirements

- √ 19-11.056(f): F Combining Floodway regulation
- √ 19-35 – Establishes a 50' set back from the top of stream banks
- √ 19.08 – Concerning the establishment of open space
- √ Resolution No. 106-95: Approves the Repetitive Loss Plan for Flood Control
- √ Resolution No. 130-00: Approves Revisions the Adopted Repetitive Loss Plan
- √ Ordinance No 1329 and No. 1331 - Adopts Storm Water Management and Discharge Control Program. Pursuant to the National Pollutant Discharge Elimination System Program (NPDES).

- City of Novato Repetitive Loss Plan

CITY COUNCIL OF THE CITY OF NOVATO

RESOLUTION NO. 20-06

AUTHORIZATION TO ACCEPT AWARD OF A $66,666.00 FLOOD MITIGATION ASSISTANCE PLANNING GRANT (FMA04-PL04) FOR THE UPDATING OF THE MARCH 1996, CITY OF NOVATO LOCAL FLOOD HAZARD MITIGATION PLAN CONSISTENT WITH THE ROBERT T. STAFFORD DISASTER RELIEF AND EMERGENCY ASSISTANCE ACT PL 93-288 AS AMENDED BY PL 100-707 AND 44 CFR PART 78.5

WHEREAS, the State of California Office of Emergency Services identified unexpended FEMA Flood Mitigation Disaster Planning funds from the 2004 Flood Mitigation Assistance (FMD) program year; and

WHEREAS, the Flood Mitigation Assistance (FMA) program provides assistance and grants to states and repetitive loss communities for activities that will reduce the risk of flood damage to repetitive loss structures insurable under the National Flood Insurance Program (NFIP). The FMA program provides grants up to 75% for both planning and projects on an annual basis; and

WHEREAS, City staff has prepared and submitted a comprehensive FMA04 subgrant planning application addressing the City of Novato's proactive hazard mitigation history including the passage of bond measures in excess of 4 million dollars to mitigate flood risks and sees the grant opportunity as a way to identify feasible mitigation practices with the public's support; and

WHEREAS, the city of Novato has received notification from the Governor's Office of Emergency Services (OES) that the Federal Emergency Management Agency (FEMA) has approved the FMA04 application and awarded funding in the amount of $66,666 ($16,666,50 – Non-Federal Share and $49,999.50 – Federal Share).

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Novato accepts the Flood Mitigation Assistance Planning Grant (FMA04-PL04) requesting funding for the updating of the March 1996, City of Novato Local Flood Hazard Mitigation Plan.

BE IT FURTHER RESOLVED that the City of Novato authorizes and directs the City Manager or his designee, on behalf of the City of Novato and in its name, to execute and deliver such documents, and to do such acts as may be necessary or appropriate to implement said grant and complete the project, including, but not limited to, negotiations, execution and submittal of documents, applications, agreements, amendments, reports, and payment requests.

* * * * * *

I HEREBY CERTIFY that the foregoing resolution was duly and regularly adopted by the City Council of the City of Novato, Marin County, California, at a meeting thereof, held on the 28th day of March, 2006, by the following vote, to wit:

AYES:	Councilmembers	Arnold, Eklund, Leland, MacLeamy, Dillon-Knutson
NOES:	Councilmembers	None
ABSTAIN:	Councilmembers	None
ABSENT:	Councilmembers	None

Shirley Gramms

City Clerk of the City of Novato

Part 2 - Public Outreach

Flood Mitigation Planning Committee

The City of Novato's Flood Mitigation Plan is an extension of the City of Novato's Community Rating System (CRS) Program and the City of Novato's Multi-Hazard Disaster Mitigation Plan. In 2005 The City of Novato applied for and received a Flood Mitigation Grant to develop a flood mitigation plan.

The City formed a Flood Mitigation Planning Committee, hired a contractor to work with the Planning Committee, and held their first meeting on April 17, 2006. The following are the minutes of that meeting:

Committee Membership

Principal Members

Glenn Young, Public Works Director , gyoung@ci.novato.ca.us
Dave Harlan, Principal Civil Engineer , dharlan@ci.novato.ca.us
Frank Wright, Engineer II , fwright@ci.novato.ca.us
Dick Scott, GIS Coordinator , dscott@ci.novato.ca.us

Adjunct Members

Patrice Valdivieso, Management Analyst I
Janice Rogala, Contractor, Dimensions Unlimited, Inc.
Tracy Clay, Sr. Civil Engineer, Marin County Flood Control & Water District:
Pat Balderama, Assistant Engineer, Marin County Flood Control & Water Conservation District:

Agendas and Meetings

Planning Committee Meeting Agenda and Minutes - April 17, 2006

City of Novato
Flood Planning Grant
Agenda

April 17, 2006

Sign In and Introductions

Review of Current Plan Status
- CRS Program

Review of Planning Project
- Goals and Objectives
- Specific Tasks

Progress Reports

Mitigation Strategy Discussion
- Review Projects for funding

Liability Concerns
Flood Control District Responsibilities

Project Timeline

Grant Management
Quarterly Reports
Project Reimbursement procedures

City of Novato
Flood Mitigation Planning Committee
Minutes for April 17, 2006

Present:

Dick Scott	GIS Coordinator
Mark Hakes	Public Works
Glenn Young	Public Works
David Harlan	Public Works
Frank Wright	Public Works
Janice Rogala	Consultant

The Committee reviewed the CRS program and decided that copies of select CRS Manuals for Jan to review would be important to understand the extent of the Program. Dick will have copies made and Jan will pick up when ready.

Goals and Objectives of the programs were discussed and presented.

1. Review recent and past flood for planning and mitigation opportunities
2. Determine what the Marin County Flood Control District Program entailed as related to the City of Novato/ planned projects for City of Novato
3. Determine extent of Public Involvement
4. Assure the Plan compliments and addresses the needs of the CRS Program
5. Include Citizens and interested agencies in the planning effort
6. Identify the cities at risk flood population and repetitive damage citizens
7. Develop a program for citizen participation

It was determined that additional information would be needed from the Marin County Flood Control District to determine which projects they are responsible for and what the City my do to alleviate flooding.

Discussion was held on liability concerns for taking on projects that were not the responsibility of the City. Dick Scott wanted to further explore those concerns.

Discussion was held on the grant and its quarterly report requirement and Dick and Jan are to collaborate on submission of those reports.

Discussion was held on Public Works mitigation strategies in the DMA 2000 all hazards mitigation project.

It was determined that we would meet again when we could arrange for participation from the Marin County Flood Control District.

Meeting was adjourned

Contractor Update and Report – July 19, 2006

Memorandum Report
From: Jan Rogala, Contractor
Date: July 19, 2006

To: Dick Scott, Project Manager City of Novato

Subj**: Status Report: Local Flood Mitigation Plan Update.**

Item for the meeting will be clarification of projects identified in Novato and budget. Discussed the minutes from November 15, 2005, and reviewed the actions taken in the Marin Flood Control District May Meeting.

1. Project Initiation Meeting

   - The project initiation meeting has been held and goals and tasks reviewed
   - The City is in the process of forming the Flood Mitigation Planning Group that will meet quarterly
   - A contact has been established with the Marin County Flood Control District: (see attached information of meeting minutes and notes)
     - √ Robert McCord of the FEMA Hazard Mitigation Division and a Novato resident are interested in participating on the planning group
     - √ Discussion is taking place for the public involvement element
     - √ Project Manager is identifying the City's staff involvement.

2. Identification of ongoing and past mitigation activities is underway.

   - Information is needed on the January and April 2006 recent floods and future mitigation projects planned by the Marin County Flood Control District

3. Identify Flood Hazard Events Profiles

   - We have the attached list of repetitive damage addresses from FEMA and need to verify if more properties could potentially be or have been damaged
   - We have flood maps from DMA 2000 plan
   - We have current CRS Status

4. The City of Novato is finishing the final review of the Disaster Mitigation Act 2000 draft before it is submitted to City Council for approval and then to FEMA for review. The DMA 2000 Hazard Mitigation Plan is 90% complete.

   - The current DMA 2000 Disaster Mitigation Plan draft will include the existing Local Flood Hazard Mitigation Plan as it now stands.
   - The Flood Mitigation Strategy in the DMA 2000 Plan is to update the Local Flood Hazard Mitigation Plan by September 2007. Pursuant to FMA grant awarded to the City of Novato in October 2005.

Summary: We are on schedule with our tasks. With your concurrence I recommend we schedule a meeting with the Marin County Flood Control Engineer Pat Balderama and Tracy Clay and our FEMA representative.

Planning Committee Meeting Agenda & Minutes – September 26, 2006

City of Novato
Flood Mitigation Planning Committee
Agenda For September 26, 2006. 2:00 PM

Introduction of Members

Old Business:

Approval of Minutes from Kickoff Meeting
Introduction and Review of Novato Flood Mitigation Planning Project

New Business:

Current Status of the Flood Mitigation Planning Project
Report on damage from January/April 2006 Storm
Report from Marin County Flood Control District on future projects in the City of Novato.
Report from Marin County Flood Control District on Grant activities initiated by MCFCD for the City of Novato.
Plan Committee input on goals and objectives
Plan Committee input on Future meeting dates

Other Business As Identified

THE CITY OF
NOVATO
CALIFORNIA

City of Novato
Flood Mitigation Planning Committee
Minutes
September 26, 2006

Present from public works department:

Dick Scott	GIS Coordinator, Engineering Division
David Harlan	Principal Civil Engineer
Frank Wright	Engineer II
Patrice Valdivieso	Management Analyst I

Present from other agencies:

Janice Rogala	Contractor, Dimensions Unlimited, Inc.

Marin County Flood Control And Water Control District:

Tracy Clay, Sr. Civil Engineer
Pat Balderama, Assistant Engineer

Meeting commenced at 2:00 p.m. With introduction of members and attendees.

Old business:

1. Minutes of the kickoff meeting held on July 19, 2006 were unanimously approved.

2. The Novato flood mitigation planning project was introduced and reviewed. Dick Scott discussed monies that became available for a planning grant in 2004. He discussed document approval, preliminary meetings held by Novato (April 2005 start up) and Novato Sanitary District's participation in multi-jurisdiction hazard mitigation plan effort. Further discussion included local flood issues and Novato's participation in the CRS (community rating system) program, discount flood insurance, and update to CRS. Local flood hazard mitigation plan adopted in 1995 was discussed with respect to incorporating it into Novato's multi-jurisdiction all hazard mitigation plan.

   Jan Rogala discussed her past work with Novato on the 2005 hazard mitigation plan and work to update hazard analysis of CRS program, looking at hazardous areas in the city of Novato, and the need for dialogue, programs and funding sources. She commented that it was logical to team with Marin Flood Control.

   Tracy Clay brought up multi-jurisdiction and flood mitigation assistance and the goal to reduce insurance by using funds the state has available to elevate homes. It was noted that a disaster mitigation grant is for multi-hazard use. Frank Wright commented that while the Novato Sanitary District and City of Novato were multi-jurisdiction, the fire, water and school districts had chosen not to participate. Jan Rogala and Dick Scott commented that Tracy's plan was similar to Novato's multi-jurisdiction all hazard mitigation plan and that FMA plan strategies involved different monies than multi-jurisdiction mitigation plan.

3. Discussion followed about the grant elevation program and Dick Scott commented that it was possible to do complimentary work with Tracy's work at Marin County Flood Control, similar to the Ross Valley Collective Group common grant that was given as an example. Jan Rogala stressed it was necessary to know one's funding and long terms plans in order to know how to establish support.

   Tracy Clay commented that an extensive capital improvement program for flood improvement in Novato existed and funding could be used as matching funds for grants and that public input was key. Jan Rogala suggested holding a side meeting to go over capital projects and those covered in all-hazard and/or FMA. Dick commented that a report to identify projects would be useful and that Jan kept track of federal grants and projects in Novato.

4. Dick Scott commented on repetitive losses in Novato such as the Nave area and said that many homeowners have raised their homes. Jan Rogala commented on the CRS Program and actions such as the raising of homes, purchase, installation and relocation of floodwalls. Technical assistance could be requested of the state but she did not suggest listing technical studies.

   Discussion followed about home elevation program where homeowner would pay 25% of the cost with the city or county managing the program. Such a program included public investment, and inventory/risk analysis, etc. And must be reviewed for potential litigation actions. After a project was identified, Novato could petition Marin County to do it. Collaboration between Novato and Marin was discussed with specific reference to Novato creek flood control eight-phase project and consideration of a special property tax. Pat Baldarama commented that their budget was presently $1m per year. Tracy Clay commented

that a $250,000/year revenue stream existed for capital projects and the balance was for operations and maintenance.

5. Dredging of Novato Creek (four year intervals) was discussed and the replacement of the pump station pump every six years. Vegetation management for the creek required a special tax of $90/per parcel over a 4-year period with a reduction to $9/per parcel for maintenance alone.

6. The county pilot project being done for the rest of the cities in the county was discussed, with phase 1 being Novato. It was approved by the Marin County Board of Supervisors in the summer of 2006, would serve as a prototype for the entire county, and would be done watershed by watershed. Additional staff would be required in all watersheds and Mill Valley required a lot of work. Ross Valley is now part of the Marin County watershed. Dick Scott asked how the effort could be supported with only a few staff. Tracy Clay said that capital projects worth $15m had been identified for Novato, while only $1m was available. Pat Balderama commented that most of the problems identified were at Vineyard Creek (Wilmac Avenue, Center Road, McKeon Court), Nave Gardens, George Street, Los Alondras, and West Court. Tracy Clay commented that there was not enough money to retrofit pump stations (Adele and Parkhaven). The type of work performed included reservoirs, culverts, channels, pump stations and levees. Dave Harlan commented that private development projects had no mechanism to charge a fair share toward these projects.

   The Novato storm drain master plan update project was discussed. Dick Scott reported on going through it and incorporating it into Novato standards so consultant Fred Isla could complete his part in CAD. All outfalls had been GPS'd and provided to Marin County's consultant Kleinfelder to look for potential sources of contamination.

   Tracy discussed advisory board composition of five registered voters with minimum service commitment of one year. Each zone had an advisory board appointed by the board of supervisors who attended public meetings. She explained that the advisory board staff (served) for district and county staff. A project was developed by county staff that would then take it to the advisory board, who in turn makes a recommendation to the board of supervisors. The board includes Dietrich Stroeh and Bill Long and meets a minimum of twice a year. Tracy invited the group to next meeting at the water district on Wednesday, October 4 at 7:30 p.m. And will extend invitations to Glenn Young and Jan Rogala. Jan commented that the Marin County Department of Public Works and Novato City Manager were in discussion about collaboration and cooperation over shared responsibilities such as Vineyard Creek. Jan will call Tracy to follow up. Tracy commented that if grants are pursued her office can help obtain funding. Comment: Novato Creek watershed and Novato are in Zone One.

7. Discussion continued regarding obtaining a list of potential citizens who may be interested in participating in the planning group, and Tracy suggested a link to Novato's website and mapping information streams that Dick Scott could get from Pat Baldarama and Lance at Marin County. Pat will send Dick Scott a copy of the CIP budget and Tracy will provide Dick with "white papers" that show district organization and topics.

   The storm water master plan hydrology was discussed and the identification of detention basins and sites. Dave Harlan was asked about timing of water flows down Novato Creek and upcoming requirements. Dave responded that information was limited to impact on neighbors and said that a map showing MCFC project locations would be useful. Dick Scott said he would identify an occasional culvert or crossing (example McClay Road, Redwood Blvd.) Discussion followed about various flood year requirement numbers, such as a 25-year flood requirement in Novato and county 100 year flood requirement with 50-year requirement for bridges. Dave Harlan inquired about relationship of watershed size and watershed budget.

Goals and objectives included Pat Baldarama checking existing pedestrian bridges and road crossings over creeks for adequate flood flow.

Tracy Clay will provide Dick Scott with the 2005 New Year's Eve storm emergency repair information for Verizon and review Wilson Creek residences, levee break by railroad track and the Pacheco Pond levee break. Tracy will also provide November mailing list to all people on the report as well as adjacent properties. Note: see New Year's Eve storm and repeat losses in the FEMA database.

8. Next quarterly meeting will be held on Wednesday, December 13 at 2:00 p.m. At the City of Novato offices.

9. No other business was reported.

Meeting adjourned at 3:30 p.m.

Flood Zone One Advisory Board Meetings

FLOOD ZONE ONE ADVISORY BOARD MEETING

THURSDAY MAY 25, 2006, AT 6:30 P.M.
NORTH MARIN WATER DISTRICT
999 RUSH CREEK PLACE
NOVATO

AGENDA

6:30 – 6:35	**1. Approval of Meeting Minutes for November 17, 2005.** Action Item
6:35 – 7:00	**2. Flood Control Zone 1 Budget (Tracy Clay)** Budget Presentation - FY 06/07
7:00 – 7:20	**3. Novato Flood Control Project, Phase VIII (Pat Balderama)** Project Update
7:20 – 7:25	**4. Lynwood & Cheda Pump Stations (Pat Balderama)** Project Update
7:25 – 7:30	**5. Signage on Novato Creek Levees (Pat Balderama)** Update
7:30 – 7:40	**6. Zone Master Plan (Farhad Mansourian & Tracy Clay)** Discuss Pending Projects and Financing Options
7:30 – 7:40	**7. Open Time for Public Expression on Non-Agenda Items** Updates on Non-Agenda Items




American sign language interpreters and assistive listening devices may be requested by calling (415) 499-6172 (TDD) or (415) 499-6528 (voice) at least 72 hours in advance.
Copies of documents are available in accessible formats upon request.

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MINUTES OF FLOOD CONTROL ZONE 1
ADVISORY BOARD MEETING OF MAY 25, 2006
NORTH MARIN WATER DISTRICT OFFICE
999 RUSH CREEK PLACE, NOVATO

The meeting was called to order at 6:30 p.m. by Chair Bill Long.

Board Members Present:	Bill Long, Chair Ray Wrysinski, Vice-Chair Mark Byers Deit Stroeh Terry Molloy
Board Member Absent:	None
Staff Present:	Tracy Clay (TC) Pat R. Balderama (PRB)

Item 1. Approval of Minutes

M/S Stroeh/Molloy - Adopt the minutes as presented, for the November 17, 2005 meeting.
Approved 4–0. BM Byers arrived at 6:33 PM and was unable to vote on the motion.

Item 2. Flood Control Zone 1 Budget

TC made an informational presentation explaining the various items on the budget. A question and answer on staffing cost and line items followed. BMs Long and Wrysinski requested a copy of the budget spreadsheet for FY 2004-05 for comparison purposes.

M/S Stroeh/Molloy - Recommend approval of the budget by the Board of Supervisors.
Approved 5-0.

Item 3. Novato Flood Control Project, Phase VIII

PRB informed the AB that bids for the Novato Flood Control Project Phase VIII was to be opened on June 1st and the contract will be awarded to the lowest bidder on June 6th. He also said that all regulatory permits have been secured. He mentioned that the fence work along the backyards, which is a separate contract, started a week ago and is expected to be done by the end of June. Likewise, he mentioned that archaeological augering to determine whether further excavation is necessary, was started two weeks ago by the consultant, Holman & Associates.

Item 4. Lynwood & Cheda Pump Stations

PRB told the AB that the bid amount for the rehabilitation of the pump stations was $2,239,000. However, due to the shortage of funds the project was not awarded and put on hold. He said that this project will be included in the Zone master plan list of projects. PRB also said that the existing pumps are still functional but will require maintenance service from time to time.

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Item 5. Signage on Novato Creek Levees

PRB informed the AB that County Counsel recommended that installation of signs on the levees be put on hold until the damage claims against the Flood Control District are resolved.

Item 6. Zone Master Plan

TC handed out a laundry list of projects for Zone 1 with brief project description and estimated cost for each project. The handout also included a 10-year cash flow analysis. Discussion followed on funding options and the consensus was for a special tax measure. AB agreed that a $45/year tax over 10 years may be preferable to $90/year over five years.

M/S Stroeh/Molloy - Request staff to initiate a follow-up poll to determine voter preferences on tax amount and duration.
Approved 5-0.

Item 7. Open Time

Staff informed the AB that in conjunction with the December 31, 2005 flooding in Vineyard Creek at Wilmac Avenue and McKeon Court, the engineering firm of White & Prescott was hired to do a hydrologic/hydraulic study on the cause of the flooding occurrence and to recommend possible short-term solutions to the flooding problem. The AB was informed that a public meeting was recently held to discuss the improvements suggested in the White & Prescott report. TC also informed the AB that another firm, Kamman Hydrology, has been contracted to determine creek flow capacity and recommend possible long-term flood prevention improvements. TC said that she will keep the AB informed on future public meetings on this matter.

The meeting was adjourned at 9:36 PM until the next meeting.

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FLOOD ZONE ONE ADVISORY BOARD MEETING

WEDNESDAY OCTOBER 4, 2006, AT 6:30 P.M.
NORTH MARIN WATER DISTRICT
999 RUSH CREEK PLACE
NOVATO

AGENDA

6:30 – 6:35	**1. Approval of Meeting Minutes for May 25, 2006.** Action Item
6:35 – 6:45	**2. Novato Flood Control Project, Phase VIII (Pat Balderama)** Project Update – Information Only
6:45 – 7:00	**3. Vineyard Creek Project (Tracy Clay)** Project Update – Action Item
7:00 – 7:15	**4. Rush Creek Tidegates (Pat Balderama)** Project Update – Action Item
7:30 – 7:45	**5. Zone Master Plan (Tracy Clay)** Pending Projects and Financing Options - Discussion
7:45 – 8:00	**7. Open Time for Public Expression on Non-Agenda Items** Updates on Non-Agenda Items




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MINUTES OF FLOOD CONTROL ZONE 1
ADVISORY BOARD MEETING OF OCTOBER 4, 2006
NORTH MARIN WATER DISTRICT OFFICE
999 RUSH CREEK PLACE, NOVATO

The meeting was called to order at 6:35 p.m. by Chair Bill Long.

Board Members Present:	Bill Long, Chair Ray Wrysinski, Vice-Chair Mark Byers Deit Stroeh
Board Member Absent:	Terry Molloy
Staff Present:	Bob Beaumont (BB) Tracy Clay (TC) Pat R. Balderama (PRB)

Item 1. Approval of Minutes
M/S Stroeh/Byers Adopt the minutes as presented, for the May 25, 2006 meeting.
Approved 4-0

Item 2. Novato Flood Control Project, Phase VIII
PRB informed the AB that the project has been completed. The next step will be the installation of erosion control measures on disturbed banks which will be completed in about a week. Mitigation planting will follow under a separate contractor. The creekside property owners in the audience were asked if there was any project deficiency and none was raised except for a minor adjustment to a fence and reimbursement for a gate structure.

PRB announced that a ribbon cutting ceremony will be held in conjunction with the completion of the project. The ceremony was to be held at Lee Gerner Park on Monday October 23, 2006, 2:30 PM.

Item 3. Vineyard Creek Project
TC went over the various recommendations from the hydrologic/hydraulic reports. She mentioned that the biggest component to alleviate the flooding in the area would be the enlargement of the box culvert on Center Road. To that end, MCFC &WCD would like to work with the City of Novato on a culvert design and cost sharing agreement to finance the project. The City of Novato has expressed willingness for a collaborative effort to address the matter. Preliminary cost for the project was estimated to be approximately $500, 000. Both agencies would be exploring grants and other funding mechanism to finance the project.

TC mentioned that in the meantime, FC would be providing free sandbags to the residents in preparation for the winter and that sandbags would be placed at low spots along the creek. Also, other measures have been done or are being done to Vineyard Creek such as laying back the creek banks, revegetation of said banks and installation of erosion control facilities.

TC informed the AB that the City of Novato will be making improvements to the drainage system at the end of McKeon Court. Currently the City is working on obtaining permits from jurisdictional agencies. BM Wrysinski inquired whether the sewer crossing needs to be lowered as part of the Vineyard Creek Project, as noted in the White & Prescott report. TC responded that the hydraulic modeling done by

Kamman Hydrology & Engineering indicated that it has minimal impact on the water surface elevation. On the other hand, it acts as grade control and provides stability to the creek banks. In addition, Novato Sanitary District has indicated that lowering the sewer line will have regional effect and very costly.

Veronica Valero asked about long term maintenance, monitoring and permitting issues. BM Stroeh answered that FC staff will be working on a maintenance protocol with resource agencies as part of an overall watershed approach.

M/S Stroeh/Byers Recommend that FC staff work with the City of Novato on a joint project for the enhancement of the Center Road box culvert.
Approved 4-0.

Item 4. Rush Creek Tidegates
PRB informed the AB that Mosquito Abatement District (MAD) reported failures at two gated culverts (owned by FCZ # 1) serving Rush Creek Marsh. Likewise, Barbara Salzman of the Marin Audubon Society (MAS) has expressed concern about the habitat management of the marsh. PRB explained that Rush Creek Marsh acts as a detention basin for runoff starting at downtown Novato and is also managed by Mosquito Abatement District for habitat and vector control. PRB said that he responded to Mosquito Abatement District and Marin Audubon Society that the zone is willing to replace the culverts but that securing permits will take time before they can be fixed. Bob Beaumont added that FC will be working and cooperating with other agencies on having a united front in obtaining permits.

PRB told the AB that there are multiple pipes serving Rush Creek Marsh which will require repair or replacement from time to time as they are deteriorating. FC staff will be working on the immediate need of replacing the two culverts but would like to pursue an overall and more permanent fix to the gate system. FC staff requested the AB for endorsement of this plan. BM Stroeh suggested including more than one consultant in the request for proposal.

M/S Wrysinski/Stroeh Recommend that FC staff request consultant proposals for design of a permanent fix to the Rush Creek tidegate system.
Approved 4-0.

Item 5. Zone Master Plan
TC informed the AB that Zone 1 does not have enough funds to finance all the capital projects in the zone. She discussed financing options such as cost-sharing with other agencies, government grants and bond measures. She said that further discussion is needed and being explored for several scenarios on an election strategy. Also MCFC & WCD is starting to embark on a watershed approach to flooding in the county.

BB remarked that he is skeptical on the taxation approach but more hopeful on the watershed and grants programs. BM Stroeh added that the watershed approach is critical to the funding of all FC projects. BM Long suggested leveraging community money for grants.

Item 6. Open Time
The AB is feeling a little disconnect with the issues of the zone and would like to have more meetings if possible or at the least an update in lieu of meetings.

The meeting was adjourned at 8:38 PM until the next meeting.

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FLOOD ZONE ONE ADVISORY BOARD MEETING

THURSDAY FEBRUARY 15, 2007, AT 6:30 P.M.
NORTH MARIN WATER DISTRICT
999 RUSH CREEK PLACE
NOVATO

(This meeting Hall is Handicap Accessible)
This Board may elect to take formal action on any of the items listed below.
The times indicated on this agenda are approximate.

AGENDA

6:30 – 6:35	**1.**	**Approval of Meeting Minutes for October 4, 2006.** Action Item.
6:35 – 7:00	**2.**	**Watershed Management Program (Liz Lewis)** Presentation
7:00 – 7:20	**3.**	**Vineyard Creek Flood Control Improvements (Reuel Brady)** Project Update
7:20 – 7:25	**4.**	**Novato Flood Control Project, Phase VIII (Pat Balderama)** Project Update
7:25 – 7:30	**5.**	**Open Time for Public Expression on Non-Agenda Items** Updates on Non-Agenda Items




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MINUTES OF FLOOD CONTROL ZONE 1
ADVISORY BOARD MEETING OF FEBRUARY 15, 2007
NORTH MARIN WATER DISTRICT OFFICE
999 RUSH CREEK PLACE, NOVATO

The meeting was called to order at 6:33 p.m. by Chair Bill Long.

Board Members Present:	Bill Long, Chair Ray Wrysinski, Vice-Chair Mark Byers Deit Stroeh Terry Molloy
Board Member Absent:	None
Staff Present:	Bob Beaumont (BB) Tracy Clay (TC) Liz Lewis (LL) Reuel Brady (RB) Pat R. Balderama (PRB)

Item 1. Approval of Minutes

M/S Stroeh/Byers Adopt the minutes as presented, for the October 4, 2006 meeting.
Approved 4-0. BM Molloy arrived at 6:36 PM and was unable to vote on the motion.

Item 2. Watershed Management Program

LL gave a presentation on the Countywide Watershed Management Program which incorporates flood control, habitat enhancement and protection of endangered species. LL said that the District is now actively working on the Ross Valley Watershed Program. A mail ballot will be sent to the Ross Valley residents this May for a vote on a Storm Water User Fee to fund the program. The lessons learned in the Ross Valley program will inform decisions in other watersheds and become the model for future work. LL reported that most funding sources in California now require some type of integrated watershed management plan. LL added that the District is working with the City of Novato, North Marin Water District and other stakeholders within Zone 1 to define collaborative watershed wide project opportunities. Discussion ensued.

Item 3. Vineyard Creek Flood Control Improvements

RB gave a brief overview of the Vineyard Creek project elements and reported on project status. He reported that Winzler & Kelley was recently awarded a contract for design of the project. Creek monitoring stations will be installed the following week. Additional calibration and verification of the hydraulic model is underway. Project design will begin immediately and environmental compliance and permit acquisition will start once preliminary design is complete. Additional erosion control measures will be installed in the summer of 2007, while the majority of the major creek modifications are scheduled for summer of 2008.

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BM Wrysinski raised concern that the Vineyard Creek hydraulic model did not include overland flows that jumped the banks of Novato Creek during extreme events. Staff requested he meet with the modeler to express his concerns directly.

Molloy left at 8:00 PM.

Item 4. Novato Flood Control Project, Phase VIII

PRB told the AB that the project is essentially complete except for the revegetation of the banks which is currently underway.

Item 5. Open Time

There were no items discussed in open time.

The meeting was adjourned at 8:07 PM until the next meeting.

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FLOOD ZONE ONE ADVISORY BOARD MEETING

THURSDAY JULY 26, 2007, AT 6:30 P.M.
NORTH MARIN WATER DISTRICT
999 RUSH CREEK PLACE
NOVATO

(This meeting Hall is Handicap Accessible)
This Board may elect to take formal action on any of the items listed below.
The times indicated on this agenda are approximate.

AGENDA

6:30 – 6:35	1.	Approval of Meeting Minutes for February 15, 2007.
6:35 – 6:40	2.	Open Time for Public Expression on Non-Agenda Items
6:40 – 6:55	3.	Review and Motion to Recommend Approval of Zone Budget for Fiscal Year 2007/2008 (Tracy J. Clay)
6:55 – 7:10	4.	Watershed Management Program (Liz Lewis)
7:10 – 7:40	5.	Vineyard Creek Flood Control Improvements (Tracy J. Clay & Reuel Brady)
7:40 – 7:55	6.	Novato Creek Bank Stabilization Guidelines (Liz Lewis & Questa)
7:55 – 8:05	7.	Novato Flood Control Project, Phase VIII (Liz Lewis)
8:05 – 8:25	8.	Summer Maintenance (Liz Lewis & Tracy J. Clay)
8:25 – 8:40	9.	Novato Maintenance Dredge Project (Tracy J. Clay & Reuel Brady)
8:40 – 8:55	10.	Rush Creek /Cemetery Marsh Culvert Improvements (Tracy J. Clay & Reuel Brady)
8:55 – 9:00	11.	Schedule Next Meeting (Tracy J. Clay)




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Marin County Flood Control and Water Conservation District

DRAFT MINUTES OF
THE FLOOD CONTROL ZONE ONE ADVISORY BOARD MEETING
HELD THURSDAY, JULY 26, 2007,
999 RUSH CREEK PLACE

Board Members Present

Bill Long, Chair
Ray Wrysinski
Dietrich Stroeh
Mark Byers
Terry Molloy

County Staff Present

Bob Beaumont
Tracy Clay
Reuel Brady
Liz Lewis

Board Members Absent

None

Other

David Harlan, City of Novato
Rick Jorgensen, Winzler & Kelly
Syd Temple, Questa Engineering
Susan Stompe, Marin Conservation League

The following minutes are a summary, created by Staff, of the meeting of the Flood Control Zone 1 Advisory Board.

ITEM 1. Approval of Minutes: February 15, 2007

Meeting began at 6:30 pm with a brief welcome by BL the chair.

M/S BL/TM: Approval of minutes of the February 15, 2007 Advisory Board meeting, as written with no amendments.
Ayes: *All*
Nay: *None*
Abstain: *None*

ITEM 2. Open Time for Items Not on the Agenda

No items were discussed.

ITEM 3. Review and Motion to Recommend Approval of Zone Budget for FY 2007/2008

Staff presented the FY 2007/2008 budget. Clarification was provided on the following points:

- Funding for approximately 3 staff positions is included in budget.
- David Harlan, City of Novato representative reported that the City is committed to paying half of the construction cost of Center Road Bridge up to $500,000. Flood Control staff indicated the current construct estimate is $900,000.

BL requested that staff present funding options with time tables to complete projects at the next Advisory Board meeting.

M/S DS/TM: To recommend approval of the zone budget for FY 2007/2008.
Ayes: *All*
Nay: *None*
Abstain: *None*

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Marin County Flood Control and Water Conservation District

ITEM 4. Watershed Management Program

The Watershed Management Program will integrate flood control, stormwater management and habitat restoration for each of Marin County's primary watersheds. The Program was approved by the Board of Supervisors on July 18, 2006 in response to the December 31, 2005 floods to guide flood control, watershed protection and enhancement actions. The Department of Public Works will initiate preparation of a watershed stewardship plan to identify issues and needs within the designated watersheds this August. The primary planning watersheds include Novato, Miller Creek, Las Gallinas, San Rafael, Ross Valley, Richardson Bay and portions of West Marin. The program will provide numerous opportunities for stakeholder input and participation. Novato watershed stakeholders are the Friends of Novato Creek, Sanitary and Water Districts, Coastal Conservancy, Regional Board, Fish and Game, North Bay Watershed Association and others. The program is currently funded by a state grant and the County General Fund.

Staff requested that the Advisory Board commit two members to a stakeholder committee that would be forming in September. DS & TM volunteered to serve.

ITEM 7. Novato Flood Control Project, Phase VIII

Board moved item 7 ahead of items 5 & 6 due to PowerPoint setup delay.

Staff presented an update of the revegetation contract for Novato Flood Control Project, Phase VIII. A revegetation plan and maintenance program was part of our permit requirements. To obtain the correct variety of plants in a timely manner, a local nursery was contracted to grow 2,000 plants. The same approach is planned for the Vineyard Creek project. A change order was made to the revegetation contract to include hand watering of plants. The plants have taken root and are thriving.

ITEM 6. Novato Creek Bank Stabilization Guidelines

Board moved item 6 ahead of item 5 in order to allow more time for residents to arrive who expressed an interest in item 5.

Questa Engineering presented Novato Creek Bank Stabilizations Guideline procedures. The goal of the guidelines is to help the homeowner find a sustainable solution to bank erosion on their property. Board members were supportive of guidelines, but recommended that staff investigate measures to implement the guidelines on a reach wide scale as opposed to parcel by parcel and seek to develop a partnership with the Marin Conservation Corps to implement biotechnical bank stabilization measures wherever feasible. This project was funded by a Regional Water Quality Control Board program that uses fines from waste discharges to pay for watershed improvement activities.

ITEM 5. Vineyard Creek Flood Control Improvements

Winzler & Kelly Consulting Engineers presented conceptual plans for Vineyard Creek Flood Control Improvement Project. The design capacity of this project is sized to pass the 50 year storm which is consistent with Novato Creek design criteria. Reach A, the most upstream, will include retaining walls, bank widening, bank sloping, revegetation and replacement of the Center Road culvert. The culvert is planned to be replaced with a bridge to eliminate a mid creek wall from the double box culvert option. Reaches B and C, middle and downstream, improvements will include retaining walls, benching and planting. Rock will be used to stabilize the toe of the low flow channel, provide erosion control and bank stability in areas subject to undercutting. The existing sewer line that crosses the creek just west Rena Court will not be moved. In Reach C low flow benches will increase effective width to reduce frequency of debris jams and to enhance habitat while maintaining effective sediment transport.

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Marin County Flood Control and Water Conservation District

The planting and minor bank stabilization that was scheduled for this year has been delayed to coordinate restoration with the major bank stabilization and final improvement access. All improvements are scheduled to be built next summer in 2008.

ITEM 8. Summer Maintenance

Creek maintenance began in May with Marin Conservation Corps and will proceed until November. The goals of the creek maintenance work is to maintain channel flows by reducing obstructions, to enhance habitat where possible, and to provide erosion control where needed.

Two pumps and a motor at the Lynwood Station and one pump and motor at the Farm Pump (Nunes) are scheduled for maintenance this summer. A contract with Pump Repair Service, Inc. has been awarded for this work.

ITEM 9. Novato Maintenance Dredge Project

Staff reported that original sediment disposal site at the Hamilton Wetlands Restoration Project was appearing doubtful for 2008 due to local opposition to proposed haul route. Staff is currently reviewing other disposal options, most promising is Sonoma Central Landfill. Current project estimate is $1.5 million and work is progressing on schedule for construction in 2008.

DS asked is it possible to find a permanent site we can use every three to four years. Staff indicated work is on-going with the State Coastal Conservancy on the Todd Road Alternative. District has made it clear that it is willing to partner with whoever builds the road so that the Bel Marin Key V Project can be that long term spoils site. The Bel Marin Keys V area is forecasted to last for many dredge episodes.

ITEM 10. Rush Creek/Cemetery Marsh Culvert Improvements

Recently a contract was awarded to Maggiora and Ghilotti out of San Rafael to replace two culverts and tide gates that control flows at the Cemetery Marsh. Due to gate failure, the Cemetery Marsh was transitioning into a salt water marsh. Once the gates are repaired and winter rains flush the marsh, it is expected to recover back to a freshwater marsh. The first working day is July 30th and the last working day is August 24th. Staff anticipates the contractor will finish on time.

ITEM 11. Schedule Next Meeting

The next Advisory Board meeting will be scheduled in February, 2008.

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Site Map
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City Council Members

Mayor
Jeanne MacLeamy
Term expires: November 2007

Mayor Pro Tem
Pat Eklund
Term expires: November 2009

Council Member
Ernie Gray
Term expires: November 2007

Council Member
Carole D. Knutson
Term expires: November 2007

Council Member
Jim Leland
Term expires: November 2009

City Council Candidate Filings

Marin County Board of Supervisors Candidate Filings

Novato City Council Reorganization

City Council Meetings

City Council Meeting Video Streaming - Available as of 1/29/07

Please check individual agendas for meeting location.

Upcoming Meetings:

February 26, 2007

Council Meeting Schedule (pdf file)

City Council Agendas

City Council Minutes

City Council Policy Manual

Novato Municipal Code

Novato Redevelopment Agency

Novato Public Finance Authority

City Council Meetings are broadcast live on Channel 27 in Novato (Comcast) and rebroadcast at 7 PM on Wednesdays, Noon on Thursdays, and 7 PM on Saturdays during the week following a

meeting. The meetings are also eplayed on Fridays at 7 PM on Horizon Cable Channel 70 in Novato during the week following a meeting. As of January 29, 2007, Council Meetings are broadcast live via the web and are archived for on-demand viewing here.

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Contact Us

Let Us Know What You Think

The City of Novato uses the following e-mail addresses for members of the public to contact us:

city@ci.novato.ca.us
Use this address to ask general questions and comments about the City of Novato, as well as comments about the City's Web site. We will do our best to answer all questions about Novato.

novatocouncil@ci.novato.ca.us
Use this address for e-mail to members of the Novato City Council.

admin@ci.novato.ca.us
Use this address for questions or comments to the City Manager, City Clerk, Novato Redevelopment Agency, economic development, about the City budget, business license issues or cable television.

cd@ci.novato.ca.us
Use this address for questions or comments about land use, planning, zoning or building permit issues.

prcs@ci.novato.ca.us
Use this address for questions or comments about any of our parks, recreation and community services programs.

police@ci.novato.ca.us
Use this address to send questions or comments to the Novato Police Department.

Do not use this email address to report a crime. If you have a crime to report, please call the Novato Police Department at 415-897-4361 for non-emergencies; and 9-1-1 for emergencies.

The Police Department does not send or trade patches, pins or other items.

pw@ci.novato.ca.us
Use this address for questions or comments about engineering,

street or park maintenance issues.

To report a street light outage, use this link to contact the City's street light maintenance company, Republic Electric.

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Public Meeting
10:00 A.M.
2nd Flood Atherton Room
75 Rowland Way, #200
Novato, California 94945

May 22, 2007

Agenda

Explanation of Plan, Process and Opportunities

- The City's Flood Plan history – Previous plan and now the update
- Discussion of publics ability to provide input and recommendations

Description of Flood Risk Areas in the City of Novato

- Flood Maps – Presentation of GIS Flood Maps
- Special Flood Hazard Areas-definition and location
- Description of what a flood hazard area Is
- Repetitive Loss Properties, the insurance risks and potential mitigation

Marin County Flood Control and Water Conservation District

- What is the Flood Control District and its responsibilities for the City of Novato?
- Current projects within the City Novato
- Future projects planned for the City Novato

Community Rating System

- Novato's Program and how it benefits the public
- CRS Program public information on reduction of flood hazards
- Federal Flood Insurance Program, availability, how to apply

Hazard Mitigation Grant Opportunities

- Flood home elevation program

Public Comments and Stakeholder comments and recommendations

THE CITY OF
NOVATO
CALIFORNIA

April 25, 2007

75 Rowland Way #200
Novato, CA 94945-5054
415/899-8900
FAX 415/899-8213
www.ci.novato.ca.us

Mr. Edward Segal
Marin County Association of Realtors
40 Mitchell Drive
San Rafael, California 94903

Dear Mr. Segal:

I would like to thank your staff for assisting us in locating the appropriate forum for distributing this notice. We appreciate your participation.

The City of Novato is currently involved in writing and updating its Local Flood Hazard Mitigation Plan. The City of Novato is dedicated to involving the public and interested stakeholders in the formulation of this plan.

You and your interested members are cordially invited to attend a Local Flood Hazard Mitigation Planning Committee meeting on:

Tuesday, May 22, 2007
10:00 A.M. to 12 Noon
Atherton Conference Room,
2nd floor Public Works Department
75 Rowland Way # 200
Novato, California 94945

We are inviting your comments and input into the City of Novato Local Flood Hazard Mitigation Plan.

If you have any questions please contact Richard Scott at 415 899-8960 or by email at dscott@ci.novato.ca.us

Sincerely,

Glenn Young, Public Works Director

Richard Scott

By: Richard Scott, GIS Coordinator
Chairperson
Local Flood Hazard Mitigation Committee

Public Participation Methodology

City of Novato Public Outreach

Stakeholders – List and Participation

City Council Report: On January 23, 2006 the Novato City Council met with and were presented a petition from residents that were affected by Warner Creek flooding. The Police Chief gave a response report to the Council and the residents and reported on the City's intent to hire an Emergency Response person. Members from the Chamber leadership training program reported on their special mailer to citizens that will carry tips on 72 hour survival after a disaster. The mailer is planned to go to 22,500 households across Novato.

Outreach Projects (Activity 330)

- Copy of Notice placed in Novato Visions newsletter Winter/Spring 2004
- Copy of Notice placed in Novato's Fall Activity Guide
- Emails documenting placement of notice in Novato's Activity Guide
- Example of Notice sent to Residents in SFHA (Special Flood Hazard Area)(
- Mailing list of properties in SFHA
- Copy of Letter sent to owners of repetitive loss properties
- Mailing list of repetitive loss properties
- Email to Dick Scott on GIS update
- Example of outreach project from ISO
- Copy of Activities Guide Notice

Results and Recommendations from Community & Stakeholders

The following is a synopsis of recommendations from the community and stakeholders:

- Continue in the Community Rating System (CRS) Program and encourage flood insurance
- Sponsor housing elevation program if cost beneficial
- Stabilize creek banks near homes that are falling, as needed
- Continue publicizing the National Flood Insurance Program (NFIP)

Part 3 - Coordination with Other Agencies

The City's planning process includes coordination with multiple agencies with interest in Flood Mitigation Projects and Programs throughout the area.

Governor's Office of Emergency Services (State of California)

The State of Office of Emergency Service (OES) coordinates with local agencies for flood hazard mitigation. OES is the approving agency for the City of Novato Local Flood Hazard Mitigation Plan (FHMP). The City has received comments from OES on a draft FHMP (see attached letter on page 38) and will continue to coordinate with OES for annual evaluations and updates.

County of Marin

Marin County is located just across the Golden Gate Bridge from San Francisco within the vibrant Bay Area. Marin is a very desirable place to live and work and approximately 85% of the land has been preserved as parks, open space, tidelands and protected agricultural land. Almost all of the 250,000 residents live within small historic cities and towns located along Highway 101 in the eastern portion of the county. The county is made up of diverse natural features ranging from ocean and bay coastlines and beaches to redwood forests and rolling grass-covered hills.

Marin's economy is characterized by jobs in business and financial services, computer software, computer animation, and retail trade. Most of these businesses are small firms or individuals. Marin's population is growing slowly and the county is generally considered a well-educated, affluent community.

Marin County Flood Control & Water Conservation District

The Marin County Flood Control and Water Conservation District is a political subdivision of the State of California and is a separate and distinct agency from the County of Marin. It was established in 1953 by an act of the State Legislature known as the Marin County Flood Control and Water Conservation District Act, which can be found in Chapter 68 of the Appendix to the California Water Code. The boundaries of the District are the same as the boundaries of the County of Marin. The governing Board of the District is the Board of Supervisors of the County of Marin who sit as the Board of Supervisors of the District. Staffing of the District is provided by the County Department of Public Works. The staff charges time spent on flood control work to the appropriate Flood Control Zone within the District and; therefore, the Zones pay the salaries.

Within the Flood Control District several Flood Control Zones have been created in areas with specific flooding problems. These Zones do not cover the entire District and are, for the most part, concentrated in the eastern urbanized corridor of Marin County. The vast majority of the land area of the County is not covered by any Flood Control Zone. The Zones can perform many functions, including the construction, operation and maintenance of levees, pumping stations, culverts and drainage ways, the cleaning and maintenance of creeks, and, as of July 1, 1007, is the administering agency for the Marin County Stormwater Pollution Prevention Program (MCSTOPPP). All actions bu the Zones are authorized by the Board of Supervisors of the Flood Control District.

Each Zone has an Advisory Board appointed by the Board of Supervisors. This Board serves without remuneration and advises the Board of Supervisors in all matters relating to the Zone but most specifically about spending policy and project priority. The Advisory Board members' terms are reviewed every four years but they do not have a specific term of office. They must by resident electors of the Zone in which they serve. The Advisory Boards do not have ultimate authority and can only make recommendations to the Board of Supervisors o the District. However, for all practical purposes, the Board of Supervisors has in the past, in virtually every case, ratified the recommendations of the Advisory Boards.

District funds come from the General Fund of the County. These funds can be used only for administrative purposes and cannot be used to build or maintain flood control facilities. Flood control projects are funded by the residents of the area protected via their local Flood Control Zone. Prior to Ptop.13, Zone funds came from a tax voted on by (and levied only upon) the residents of the Zone. Post Prop. 13 Zone funds come from a pool of funds handed out by the State.

There are at the present time, six active and two dormant Flood Control Zones within the District. The Zones vary greatly in size and financial resources as well as in degree of problems within each Zone. In numerical order the Zones are:

Flood Control Zone #1 – Novato Area

This is a relatively large Zone located in the northern part of Marin County. It encompasses the entire watershed tributary to Novato and Rush Creeks including all of the City of Novato and a sizable amount of unincorporated area around the City. The main goal for many years has been to construct a major flood control project to alleviate flooding in downtown Novato. The final phase of this project is scheduled for construction was scheduled for the Summer of 2005. Additional activities in Zone 1 consist of periodic maintenance dredging in the lower reaches of Novato Creek, Warner Creel, and

Arroyo Avichi, and an annual debris clearance program, which for the first time in 1983, utilized the services of the Marin Conservation Corps (MCC).

Flood Control Zone #2 – Mill Valley Area

This is a large Zone located in Southern Marin which encompasses the entire watershed tributary to Richardson Bay including all the City of Mill Valley, the communities of Marin City, Tam Valley and Alto and an additional sizable amount of unincorporated area. In the early 1960s the Zone was the local sponsor for a major Army Corps of Engineers flood control project on Coyote Creek in Tam Valley. In addition to maintaining the Coyote Creek Project the Zone has constructed, operates and maintains four pumping stations and carries out an annual creek cleaning program utilizing the services of the MCC.

Flood Control Zone #4 – Bel Aire Area

This is a relatively small Zone located on the Tiburon Peninsula encompassing portions of the City of Tiburon as well as part of the unincorporated area of Bel Aire. Presently, the Zone is maintaining existing facilities including two pump stations and also does an annual cleaning of drainage ways utilizing the services of the MCC.

Flood Control Zone #5 – Stinson Beach

This is another relatively small Zone which encompasses the watershed of Eskoot Creek which runs through the community of Stinson Beach. The main function of Zone 5 is the annual maintenance of portions of Eskoot Creek by the MCC.

Flood Control Zone #6 – San Rafael Meadows

This is a very small Zone located just west of Highway 101 across from the County Civic Center. This area was annexed to the City of San Rafael in 1978 and maintenance operations were turned over to the City. It was the intention of the City and people in the area to keep the Zone in existence to function as a potential capital project funding mechanism for future construction works. However, Proposition 13 seriously crippled the Zone's fund raising powers and so it has been relatively inactive for some years.

Flood Control Zone #7 – Santa Venetia

This is a small Zone located east of the Marin County Civic Center on the Point San Pedro Peninsula. Zone 7 is faced with a number of serious on-going problems including areas that have experienced considerable subsidence resulting in some of it being below the high tide level. Accordingly, much of the Zone is affected bu both storm water runoff and unusually high tides. Santa Venetia is protected bu a levee and the Zone has constructed and operates five major pumping stations as well as several other flood control facilities. In addition, the Zone carries out an annual drainage way cleaning program using the MCC and, during the winter, the MCC also do a 'Storm Patrol" through Zone 7 before and after major storms.

Flood Control Zone #9 – Ross Valley

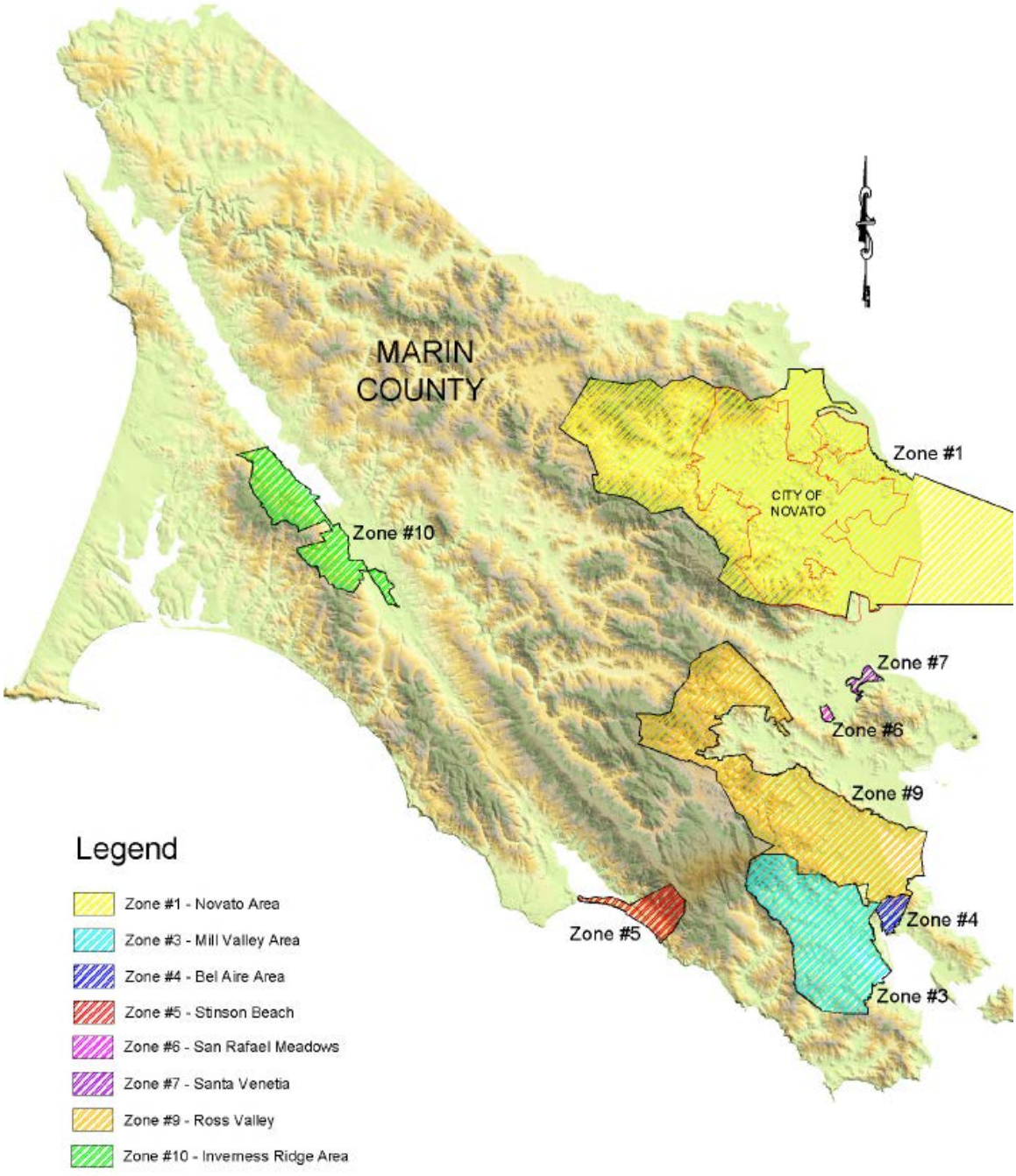
This is a very large Zone encompassing the watershed drained by Corte Madera Creek and includes the towns of Corte Madera, Fairfax, San Anselmo, Ross and Larkspur as well as the unincorporated communities of Kentfield and Greenbrae. Zone 9 was established in 1966 to act as a sponsoring

agency for a major U.S. Army Corps of Engineers Flood Control project on Corte Madera Creek. The project was approximately 80 percent completed by 1971 but was stopped due to environmental concerns. Since then the Zone and Corps have been evaluating various alternatives for completing the project. Consensus on how to proceed was recently reached and the Corps is beginning preliminary design. The MCC carries out an annual cleaning of the Project and do some fire suppression mowing just upstream of the Bon Aire Road Bridge.

Flood Control Zone #10 – Inverness Ridge Area

Located along the west shore of Tomales Bay and east flank of the Inverness Ridge, Zone 10 was formed after the disastrous January 1982 storm that severely devastated the area. After dealing with the aftermath of that storm, the Zone has been relatively dormant but is being kept intact to be ready for the next 1982. Some creek clearance is done by the MCC and/or County forces on an as needed bases.

Marin County Flood Control Zones



Marin Municipal Water District

Reservoirs

Our district is very fortunate in being able to provide 75 percent of the water you use from our own reservoirs here in Marin.

Mt. Tam Reservoirs

On Mt. Tamalpais, several watersheds drain into Lagunitas Creek and its tributaries, which in turn flow into one of five Mt. Tam reservoirs. Net runoff into Mt. Tam reservoirs has been as high as 213,000 acre-feet in 1982-83 to as low as 3000 acre-feet in 1976-77.

The two oldest reservoirs are: Lagunitas, constructed in 1872, and Phoenix, constructed in 1905, which were a part of the system originally purchased in 1912 from Marin Water and Power Company. In 1918 Alpine was constructed. It was enlarged twice--in 1924 and in 1941. Bon Tempe was built in 1948. The final reservoir on Mt. Tamalpais, Kent, was built in 1953 and enlarged in 1982. The capacity of these five reservoirs corresponds to the average annual runoff from rainfall that flows into them.

West Marin Reservoirs

One of the ways we've met growing water needs over the years has been to extend our storage system into west Marin. MMWD's west Marin reservoirs, Nicasio and Soulajule, were built in 1960 and 1979, respectively. These two reservoirs now comprise more than 40 percent of our storage capacity and provide 15 percent of our annual consumption.

Because of potential environmental damage and natural limitations, MMWD will not build any more reservoirs on Mt. Tam or in west Marin. It is also extremely unlikely that the state government, which has final authority over reservoir construction in California, would give MMWD permission to build more reservoirs.

MMWD's reservoirs

Reservoir	Capacity (AF*)	% of Total Capacity	Surface Area When Full (Acres)	Year Built
Lagunitas	350	0.4	23	1872
Phoenix	411	0.5	20	1905
Alpine	8,891	11.2	219	1918**
Bon Tempe	4,017	5.1	130	1948
Kent	32,895	41.3	450	1953***
Nicasio	22,430	28.2	869	1960
Soulajule	10,572	13.3	310	1979
Total	79,566	100	2,021	

*One acre foot is 325,851 gallons
**Enlarged in 1924 and 1941
***Enlarged in 1982

Watershed Lands

Watershed Management

Most of the water delivered to our customers comes from rainfall runoff flowing to our reservoirs from Marin's natural lands. We manage over 21,000 acres of land in District ownership, including 18,500 in the Mt. Tamalpais Watershed and 2,750 acres adjacent to the Nicasio and Soulajule reservoirs in west Marin. An additional 35,000 acres of privately owned watershed land drains into these two reservoirs.

Protecting Our Source of Water

The Mt. Tamalpais Watershed is one of Marin's most valuable natural resources, providing and protecting the major source of domestic water for our customers. Besides this primary purpose, the watershed is held in trust as a natural wildland of great biological diversity, as scenic open space and as an area for passive daytime recreation for Marin and much of the Bay. We believe that the best way to insure water quality is to keep the lands in a natural condition, which means limiting use by people to activities that have the least impact on the watershed. Within certain constraints, permitted activities include hiking, biking, horseback riding, fishing and picnicking. Camping, swimming and boating are prohibited.

North Marin Water District

North Marin Water District serves a suburban population of 61,000 people situated in and about the City of Novato which is located in a warm inland coastal valley of Marin County, California and several small improvement districts in the West Marin area near the coast.

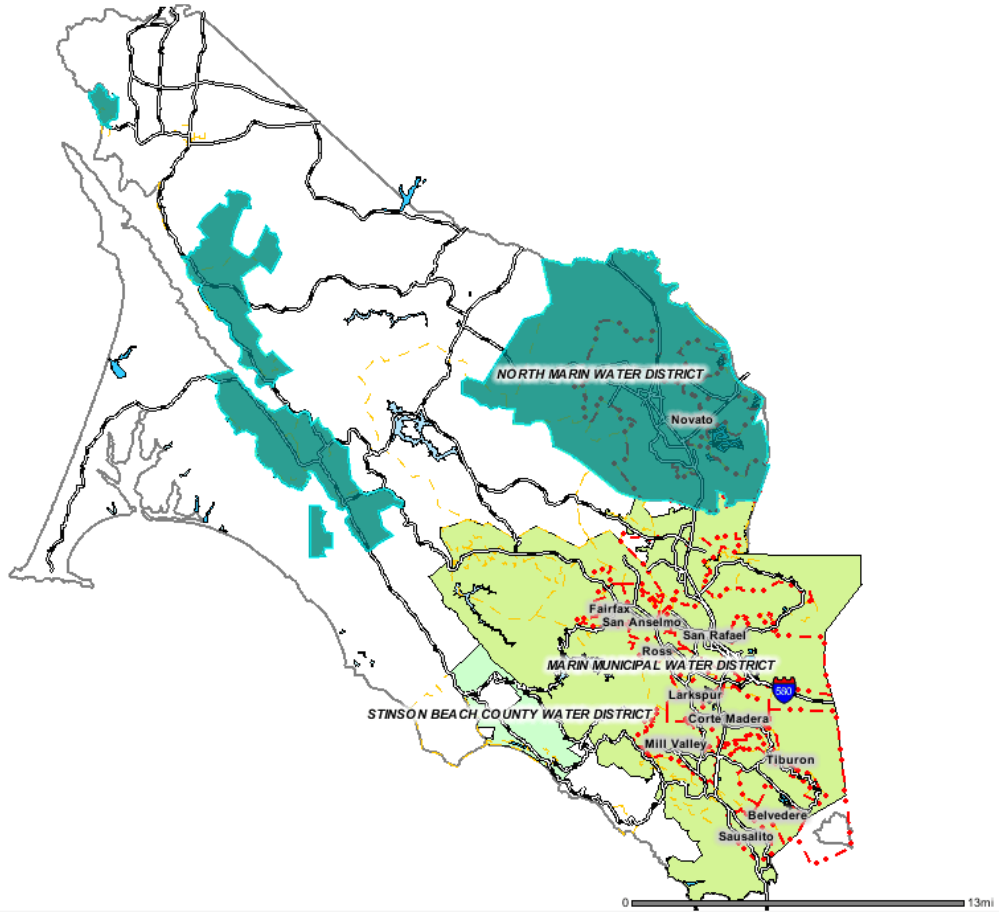
Organization: North Marin Water District is an independent special district governed by a five member Board of Directors elected at large for four-year terms.

Authority: Formed by voter approval in April 1948 pursuant to provisions of the County Water District Law (refer Water Code - Division 12). A "voter-run" district.

Territory: 100 square miles.

Current Service Functions:

Water Service: Novato (note: Novato Sanitary District provides sewer service in Novato).West Marin (Point Reyes Station, Olema, Bear Valley, Inverness Park, Paradise Ranch Estates)



Novato Sanitary District

Novato Sanitary District provides waste water collection, treatment, and disposal services for the community of Novato, California. In addition, the District is responsible for refuse disposal, recycling, and green-waste collection through its franchise collector, Novato Disposal Service.

As a special district, Novato Sanitary District is an independent local agency with a publicly elected board of five directors. The District currently serves about 60,000 residents.

The District maintains 200 miles of sewer collection system, two wastewater treatment facilities, and an irrigation system for 820 acres of pastureland. The District also administers the solid waste disposal franchise for the Novato area that includes garbage collection, curbside recycling, and household hazardous waste collection.

Novato Sanitary District has been serving the public since its inception on October 5, 1925. The Board of Directors employs a fulltime staff of 26. The Board of Directors meets the 2nd and 4th Monday of each month at the Administration Building at 500 Davidson Avenue, Novato.

Marin Association of Realtors

The Marin Association of REALTORS® works to ensure the business success of our members. We provide political advocacy, education, and ethics/dispute resolution services to nearly 1,700 REALTORS® who work in 300 real estate offices across the county. The Association, which was founded in 1920, is headquartered in San Rafael.

2007 Executive Committee

President:
Valerie Castellana

Immediate Past President:
Kathy Schlegel

President-Elect:
Katie Beacock

Treasurer:
Levi Swift

Secretary:
John Zeiter

Committees

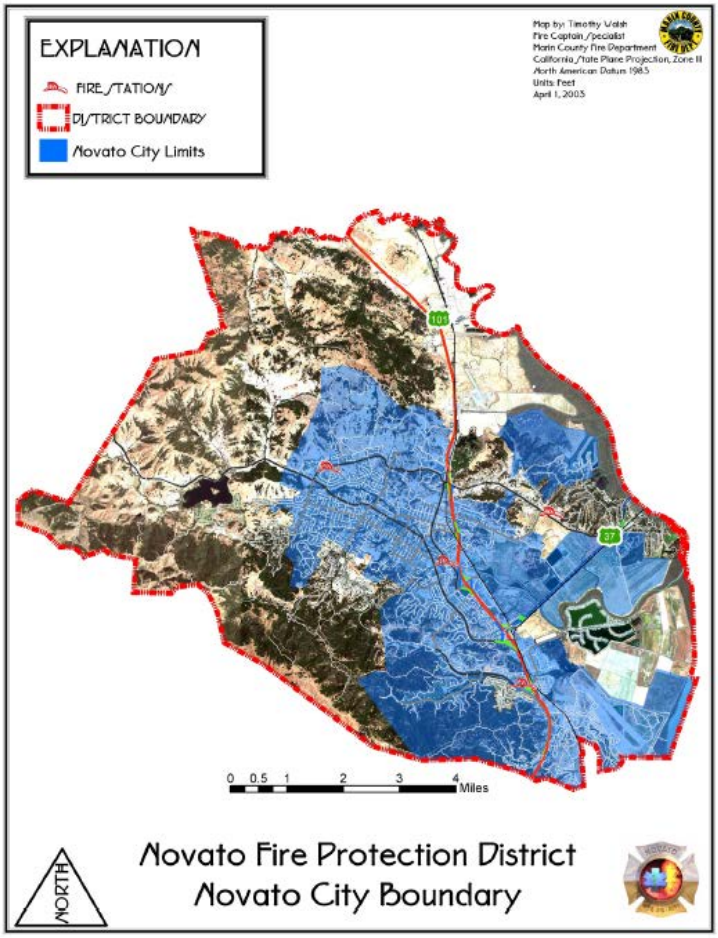
MAR committees include Community Service, Education, Governmental Affairs, Marketing/Membership, Technology, Ethics & Dispute Resolution and Budget & Finance.

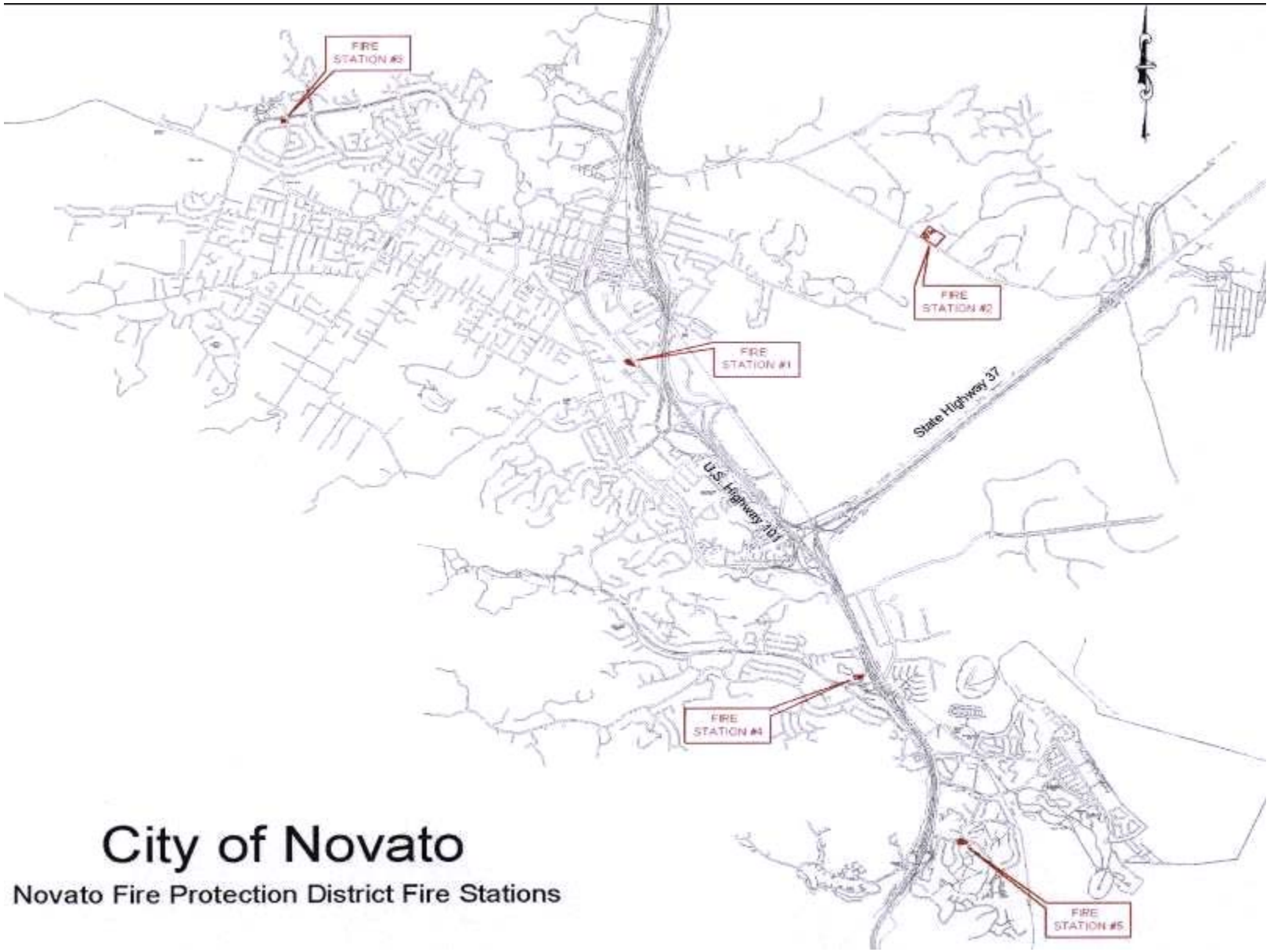
City of Novato Fire Protection District

The Novato Fire Protection District is an independent special fire district formed by the Marin County Board of Supervisors on July 6, 1926. The formation was requested by the residents living in a 71 square mile area around the community of Novato.

The District is governed by a five-person Board of Directors elected by the citizens for four-year terms. The Fire District's legal authority and responsibilities are contained in the State of California Health and Safety Code under "Fire Protection District Law of 1987."

The Novato Fire Protection District is located in the northernmost section of Marin County. The Fire District encompasses approximately 71 square miles and serves a population of 59,500. The District protects approximately 43,000 acres. It is bounded on the north by San Antonio Creek and Sonoma County, by Pacheco Grade and the community of Marinwood to the south, by the Petaluma River and San Pablo Bay to the east, and westerly to a point approximately three miles past Stafford Lake. The City of Novato, a general-purpose governmental entity, lies within and is served by the District.




FIRE STATION #3
FIRE STATION #2
FIRE STATION #1
State Highway 37
U.S. Highway 101
FIRE STATION #4
FIRE STATION #5
City of Novato
Novato Fire Protection District Fire Stations

THE CITY OF
NOVATO
CALIFORNIA

75 Rowland Way #200
Novato, CA 94945-5054
415/899-8900
FAX 415/899-8213
www.ci.novato.ca.us

July 24, 2008

Robert M. Mead
Senior Emergency Services Coordinator
Governor's Office of Emergency Services
Hazard Mitigation
3650 Schriever Avenue
Mather, CA 95655

Subject: FEMA-FMA04-CA, OES #PL04
City of Novato Flood Mitigation Planning Grant Project Closeout

Dear Mr. Mead

I am transmitting two copies of the City of Novato Local Flood Hazard Mitigation Plan together with Resolution No. 63-08 of the City Council of the City of Novato adopting the plan on July 22, 2008. I understand OES will forward the plan to FEMA for review. As part of that review I am also including LHMP Crosswalk forms with each copy.

I understand you will be providing the city with the necessary documents to close out the project and prepare final reimbursement. If you have any questions or need additional information please contact Richard Scott, GIS Coordinator. He can be reached at 415 899-8960 or by email at dscott@ci.novato.ca.us.

Sincerely,

Glenn Young, Public Works Director

Enclosures

cc Jan Rogala, Dimensions Unlimited, Inc.
Tracy Hein, Emergency Services Manager
David Harlan, CRS Coordinator

Section II - Risk Assessment

Part 4 - Hazard Assessment

The Flood Mitigation Plan Hazard Assessment is a description of the existing flood hazards and identification of the flood risks, including estimates of the number and types of structures at risk, repetitive loss properties and the extent of flood depth as well as damage potential.

The magnitude of the flood is measured in terms of its "peak" discharge, which is the maximum volume of water (in cubic feet) passing a point on the channel. Floods are usually referred to in terms of their frequency of occurrence, which is related to the discharge; for example the "100 year flood" for a particular channel is the size flood selected by a government agency for planning purposes (usually a 50-year or 100- year) is referred to as the "selected or regulatory flood."

Flooding is a natural occurrence, however once it occurs; personnel will be needed to assist in rescuing any person trapped by flood waters, securing utilities, and controlling traffic. These actions can overtax the city resulting in requiring mutual aid from outside agencies.

ABAG (Association of Bay Area Governments) Flood Hazard Recommendations

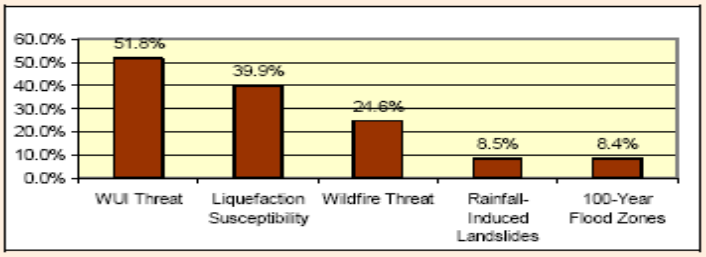
The Bay Area is growing in hazard areas.

From 2000 to 2005, Bay Area added 307,938 people and 116,960 new households. Urban land(1) totaled 1,075,200 acres in 2000. The region added 63,700 acres of new or significantly denser urban development from 2000 to 2005. The Bay Area is projected to continue to grow, adding 1,655,400 more people, 599,240 new households, and 1,603,640 new jobs by 2030 (Source: ABAG's **Projections 2005**).

This growth continues to place increasing pressure on the region to expand urban development, both by increasing the density of areas of existing urban and inner suburban housing, and by the conversion of agricultural and grazing lands to suburban development.

As shown on the following graph, during the period from 2000 to 2005, we continued to build in hazardous areas – in spite of numerous regulations.

Figure: Land Use Change in Hazard Areas – 2000-2005



For example, while **22.3%** of the region's land is subject to liquefaction, **39.9%** of the land newly developed or redeveloped from 2000-2005 is in these areas. In addition, while **18.5%** of the region's land is in a wildland-urban-interface fire threat area, amazingly, **51.8%** of the land newly developed or redeveloped from 2000-2005 is in these areas.

(1) Urban land is non-agricultural developed land, that is, residential, commercial, industrial, infrastructure, military, and public/institutional uses.

Local Regulations Applying to Flooding –

Local government regulations mitigating flooding hazards include –

1) Establishing and enforce requirements for new development so that site-specific designs and source-control techniques are used to manage peak stormwater runoff flows and impacts from increased runoff volumes.
2) Incorporating FEMA guidelines, regulatory standards (such as ASCE 24), and other suggested activities into local government plans and procedures for managing flood hazards.
3) Providing an institutional mechanism to ensure that development proposals adjacent to floodways and in floodplains are referred to flood control districts and wastewater agencies for review and comment (consistent with the NPDES program).
4) Establishing and enforce regulations concerning new construction (and major improvements to existing structures) within flood zones in order to be in compliance with federal requirements and, thus, be a participant in the Community Rating System of the ***National Flood Insurance Program.***

LHMP Policy Number

LAND-c-1

LAND-c-2

LAND-c-3

LAND-c-4

Flood Area

Location

The City of Novato covers 28 Square miles. The highest point in Novato is Mt. Burdell at 1,558 feet. The elevation in downtown Novato is 18 feet. Novato's sphere of influence contains seven county-maintained open space preserves with more than 2,600 acres of open space including 1,600 acres surrounding Mount Burdell in Northern Novato. These areas also include Olompali State Park North of Novato. The City of Novato has twenty-seven parks, including three major City Parks. The North Marin Water District also maintains an open space preserve near Loma Verda. The Novato area contains a network of rivers, streams, creeks, lakes, and other water bodies that are prone to flooding, including:

The Petaluma River

The Petaluma River originates approximately 20 miles north of the City of Petaluma and forms the northeast border of the Novato area. Petroleum and gravel products are transported from Petaluma to San Pablo Bay via the river. Marshlands along the Petaluma River have been considered for nomination as a federal estuarine sanctuary.

San Pablo Bay

San Pablo Bay borders the eastern edge of the area. This shoreline extends for approximately seven miles. San Pablo Bay is a navigable waterway that provides access to San Francisco Bay and the Pacific Ocean.

Most of the bay front lands are in agricultural, conservation or open space uses, and floods frequently. These areas are reclaimed marshlands which had been near high tide level when drained. Since reclamation, long-term settlement of these areas has left them below mean sea level and they require pumping to drain.

Novato Creek

Novato Creek flows from west to east and bisects the area. The watershed of Novato Creek encompasses the majority of the area, and its drainage basin encompasses 44 square miles. Numerous streams flow into Novato Creek, including Warner Creek, with a 5.1-square-mile drainage; Arroyo Avichi, with a 1.6-square-mile drainage; and Arroyo San Jose, with a 5.7-square mile drainage. In addition to these major waterways, numerous local drainage channels and storm drains discharge into Novato Creek and its tributaries. Pacheco Creek flows through the southern part of Novato.

Novato Creek has a long history of flooding and is the main flood hazard to the community. According to the most recent Flood Insurance Study, flooding is caused by steep slopes in the upper reaches of streams and short duration storms of high intensity. Several inadequate bridges and culverts add to the flood problem. The main flood problem occurs in the lower reaches of Novato and Warner Creeks, and consists primarily of ponding behind the levees of these channels, whose capacities are inadequate to carry off large flows. Downstream of U. S. Highway 101, Novato Creek has little to no bed gradient and is influenced by tidal action from San Pablo Bay. (See Stafford Lake for more details)

Rush Creek

Rush Creek flows eastward from Highway 101 to the Petaluma River, north of the City limits.

Stafford Lake

Stafford Lake is a reservoir and headwater for Novato Creek approximately 11 miles upstream from San Pablo Bay. The reservoir, which was established in 1951, stores water for domestic use and reduces flooding along Novato Creek. The reservoir has a storage capacity of 4,430 acre-feet and a water surface area of 245 acres. The North Marin Water District (NMWD) supplies about 95 percent of Novato with potable water. The Marin Municipal Water District (MMWD) supplies an area including Hamilton Field. NMWD receives most of its water from the Russian River, via the North Marin Aqueduct. NMWD has an agreement with the Sonoma County Water Agency that provides an annual entitlement of 12,360 acre-feet (4 billion gallons) of Russian River water. NMWD also receives a small amount of its supply from Stafford Lake, a reservoir on Novato Creek west of the City.

MMWD receives its water from reservoirs on Lagunitas Creek in central Marin County, two other reservoirs, and from the Russian River. The water supply is adequate to meet the demand under General Plan build out. Water distribution facilities are developed on a site-by-site basis, financed by the developer through agreements with the water agency.

Dam failure resulting from earthquakes is another potential source of flooding. Lake Stafford Dam, an earth embankment constructed in 1951, is 71 feet high and creates Stafford Lake. Located upstream of Novato, the dam is designed to withstand an earthquake with a magnitude of 8.25 Richter on the San Andreas Fault, with a design epicenter located 10 miles from the dam. This dam is under the jurisdiction of the California Division of Dam Safety. The inundation zone is the hypothetical event of a sudden failure of the dam is on file with the North Marin Water District and is included in the City of Novato Local Hazard Mitigation Plan.

Stafford Lake was created with the construction of Stafford Dam on Novato Creek in 1951. It was created to provide a drinking water source of supply for the growing Novato community.

Stafford Lake has also developed into a recreation destination for many in the community. It provides opportunities for fishing and is stocked with Florida-strain large mouth bass. Because it is a drinking water source access for fishing is restricted within 1500 feet of the dam and intake tower.

No swimming or boating is allowed at the lake as a protective measure.

Beneficial Uses

Water Supply - provides 20% of the Novato area's water supply

Recreation - fishing from shoreline only; Marin County Regional Park, Indian Valley Golf Course (open to public); hiking, etc.

Cattle Grazing - in areas fenced off from lake shoreline

Flood Control - incidental, some flood control occurs within the notched overflow when the lake is spilling

Novato Creek Dam

- Dam Name: Novato Creek Dam
- Lake Name: Stafford Lake
- Owner: North Marin Water District
- Phone (415) 897-4133
- Capacity 4230 Acre Feet
- Height of Dam: 71 Feet (Rock & Earth Fill)

The Novato Creek Dam (also known as Stafford Dam) Analysis of Recorded Earthquake Ground Motion and Evaluation of Seismic Stability was prepared for the North Marin Water District by Woodward-Clyde Consultants in 1992. The study confirmed the following information contained in the City of Novato General Plan:

The Stafford Dam was designed to withstand a magnitude 8.25 Richter earthquake on the San Andreas Fault.

Stafford Treatment Plant

About 20% of Novato's water supply originates from Stafford Lake. Stafford Treatment Plant is typically operated in the late spring through early fall to supplement the North Marin Water District's purchased water supply. The amount of Stafford water used during the year depends on the storage levels attained with the previous winter's rainfall.

Full treatment of Stafford water is required because it is surface water. Water is drawn through the intake tower and before it enters the plant coagulation basin, chlorine and aluminum sulfate are added. Chlorine kills any bacteria, viruses or other potential disease-causing organisms. The aluminum sulfate binds with the dirt and clay particles in the raw lake water so they can be settled and filtered out. After settling, water is filtered through special filters that are made of anthracite coal, garnet and sand. These filters remove all the dirt and the aluminum floc that binds it. As water is passed through each filter instruments continuously monitor the turbidity of the water. The California State Health Department requires that Stafford Treatment Plant produce water with no more than 0.5 turbidity units. It is typical that Stafford water has less than 0.1 turbidity units.

After filtration, excess chlorine, if any, is removed and a small amount of sodium hydroxide is added to raise the pH in order to minimize corrosion of pipes.

Periodically activated carbon may be added prior to filtration to control taste and odors that develop when the lake is experiencing an algae bloom.

Novato Water Service Area

	(Year ending June 30, 2005)	
§	Service Area (Square Miles)	75
§	Active Connections	19,738
§	Dwelling Units	22,801
§	Estimated Population	59,000
§	Average Household Size (People)	2.6
§	Miles of Pipeline	288
§	Number of Hydrants	2,413
§	Number of Main Valves	3,830
§	FY 2005 Annual Water Production (Acre-Feet):	
	Stafford Lake & Treatment Plant	734
	Russian River Aqueduct	9,326

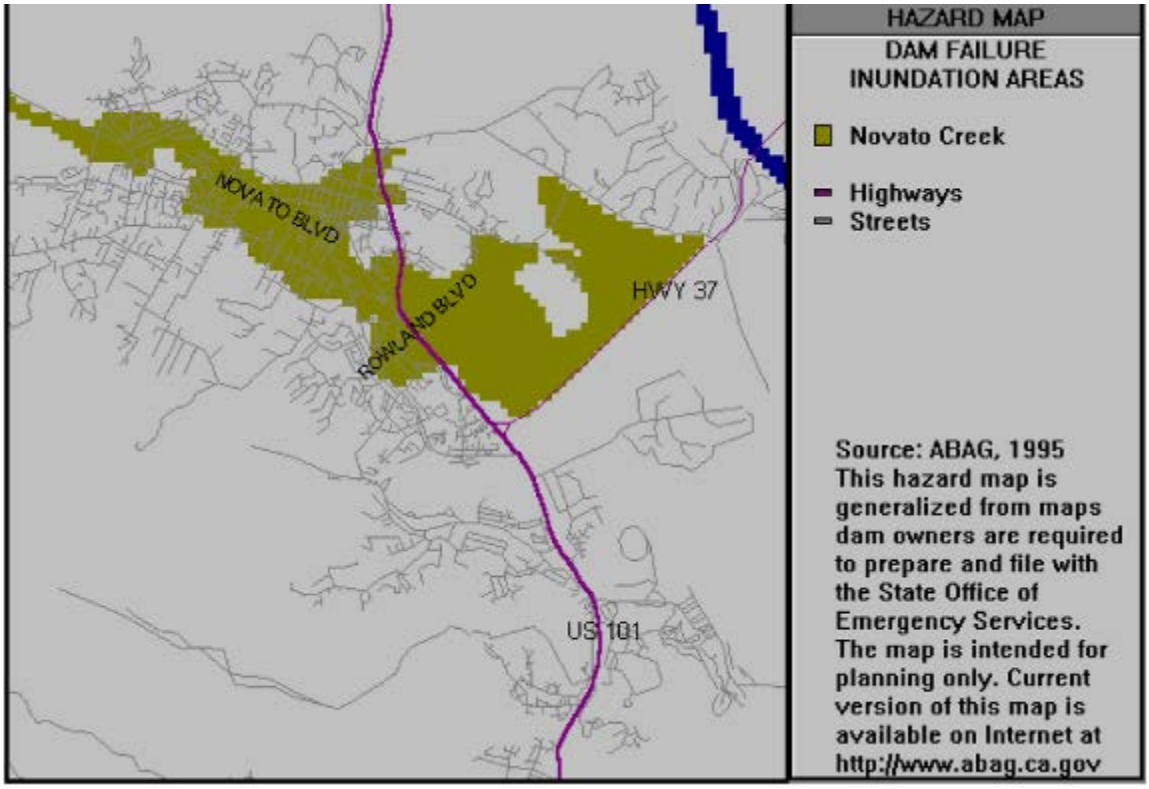
Novato Creek Dam Failure

The dam failure evacuation area extends approximately 4 1/2 miles, passing Through the City of Novato & ending in the agricultural area between the City of Novato and San Pablo Bay.

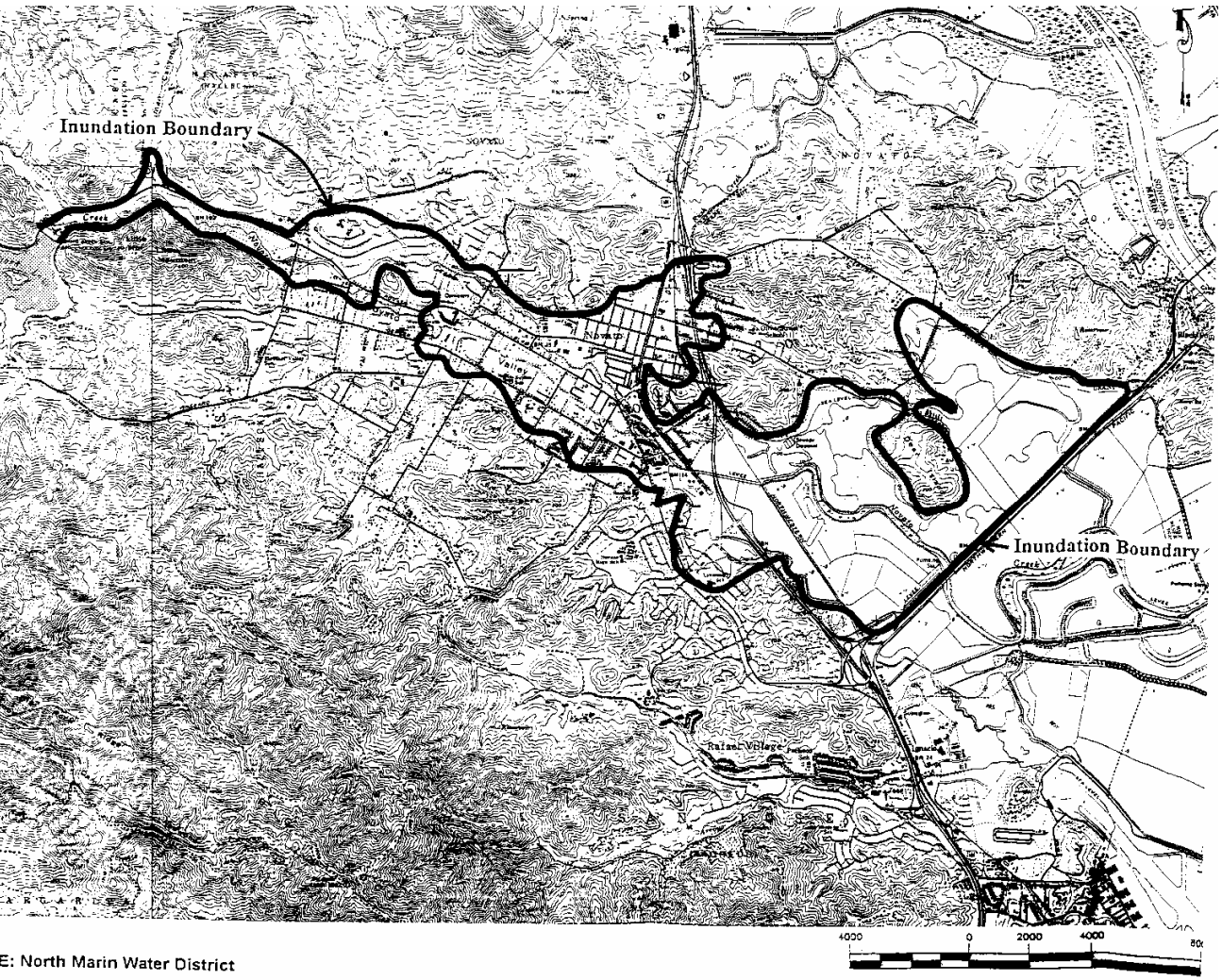
The threat to the City of Novato is severe. The most critical zone is the San Marin residential area in the vicinity of Miwok Park , which will be flooded very shortly after dam failure. The flood waters will reach the first built up area at San Marin Drive/Sutro Avenue 11 minutes after dam failure. 32 minutes after dam failure, the flood waters will begin to inundate the business district & city government buildings, & will reach U.S. Highway 101 approximately 50 minutes after dam failure.

As a result of the near failure of the Lower San Fernando Valley Dam, the Dam Safety Act was passed into law. This new law required dam owners to create maps showing areas that would be flooded if the dam failed. The California Office of Emergency Services (OES) approves the maps and distributes them to local governments, who in turn adopt emergency procedures for the evacuation and control of areas in the event of a dam failure.

This map shows the swath of inundation in the event that the dam at Novato Creek were to fail.



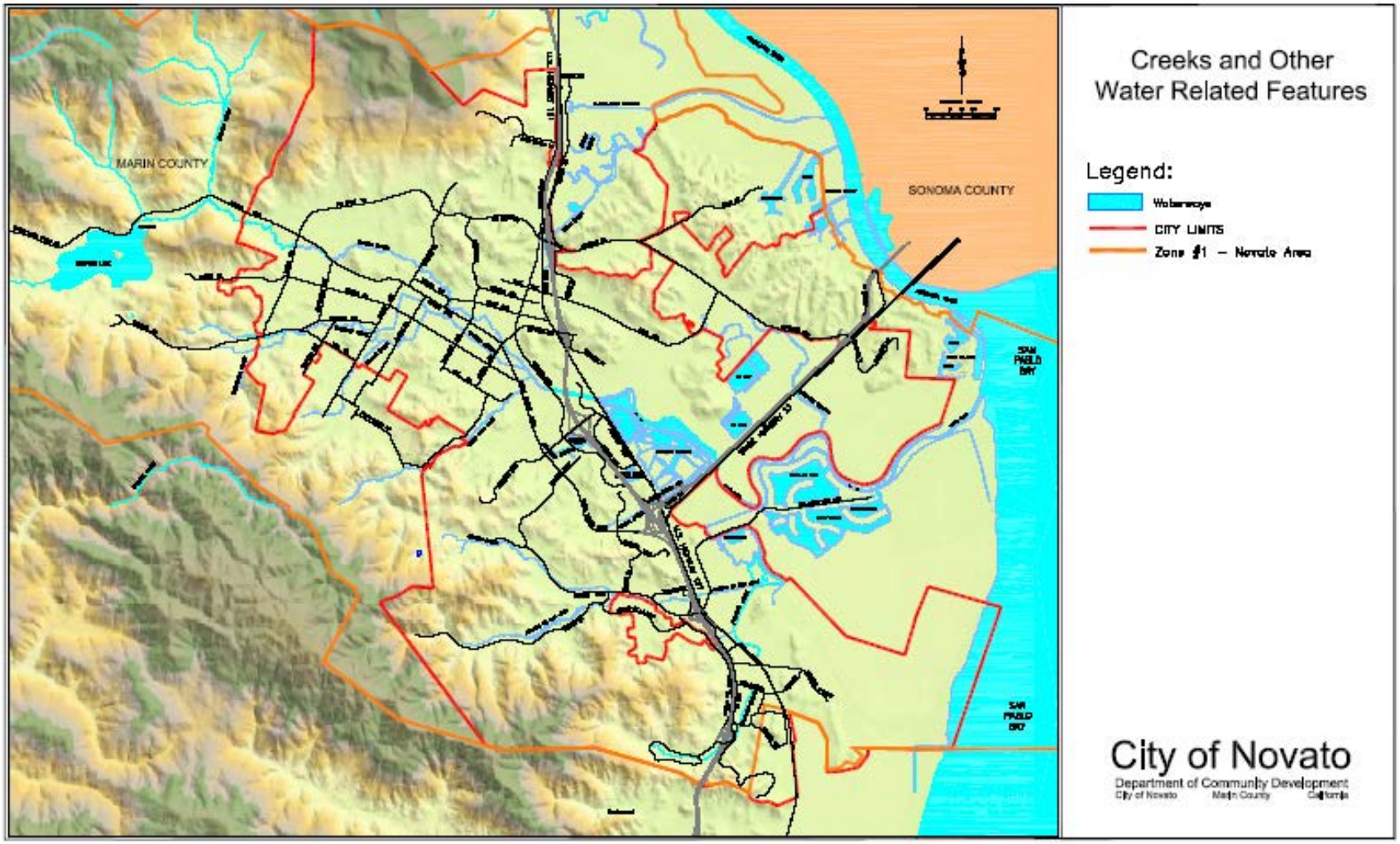
Detailed map on following page



E: North Marin Water District

1 inch = 4000 ft.

Novato Creek Inundation Map, City of Novato General Plan


MARIN COUNTY
SONOMA COUNTY
SAN PABLO BAY
SAN PABLO BAY
Creeks and Other
Water Related Features
Legend:
Waterways
CITY LIMITS
Zone #1 – Novato Area
City of Novato
Department of Community Development
City of Novato Marin County California

Extent

The City of Novato has a number of creeks and tributaries that are susceptible to flooding during heavy rains, posing a threat to safety and property. Over 5,000 acres within Novato are designated as being in a Special Flood Hazard Area (SFHA). Properties upstream of the Confluence of Novato, Warner and Arroyo Avichi Creeks are most susceptible to inundation during the 100 year flood event: Heavy rains in 1980, 1982,1983,1986, 1989, 1998, and 2005-06 caused flooding and damage to buildings within these areas. Other areas with high flood danger include Ignacio, Arroyo San Jose, and Vineyard Creeks, as well as the Bahia area.

Property need not be located in the SFHA to sustain flood damages. When drainage course or storm drains become clogged, they will backup and overflow causing property damage to even upland structures. (City of Novato Public Works Department)

Flooding in City of Novato has the potential to result in damage to life and property. Rapid storm water and debris runoff can create flood conditions. *From the Multi Functional Hazard Plan*

A flood may be defined as a temporary rise in stream flow that results in water overtopping its banks and inundating areas adjacent to the channel. The size and frequency of occurrence of a flood depends on a complex combination of conditions, including the amount, intensity, and distribution of rainfall, and previous moisture conditions. Drainage pattern floods are generally classified either as slow-rise or flash floods. Slow rise floods in City of Novato may be preceded by a warning period of hours or days. Evacuation and sandbagging for slow-rise floods may have often lessened damage. Conversely, flash floods are most difficult to prepare for due to extremely limited, if any, advance warning and preparation time. The area subject to inundation is referred to as the "Flood-Plain." The flood-plain is divided into two hazard areas: 1- The "Floodway," which is the portion that carries the deep fast moving water (usually defined as the area needed to contain a 100-year storm) and 2- The flood fringe area which is the remainder of the flood-plain, subject to shallow slow moving water.

Historical Occurrences

December 31, 2005

Over a 24 hour period ending the afternoon of December 31, 2005, 4.45 inches of rain fell in Novato. Wind speeds reached 60 miles per hour and blew down trees and toppled power lines leaving 13,285 Marin County residents without power. The rain caused mudslides that blocked roads and damaged homes in North Marin areas. In Novato, a slide on Pacheco Creek Drive required the evacuation of three homes.

Flooding occurred in several locations around Novato Creek routing about 100 residents of a mobile home park from their homes after 3-4 feet of water inundated the area. The storm also caused breaches in Novato levees: 1 50-70 foot breach behind Novato Community Hospital at 100 Rowland Way and another breach at Davidson Drive. A shelter was opened at Todd Center in Novato. Some residents had to be evacuated by rescue boat.

The storm closed numerous local roads. Flooding shut down Highway 101 at the Sonoma County line, the northbound Highway 101 exit to Mill Valley and Stinson Beach, and Sausalito/Marin City southbound off-ramp to High 101. At 1 p.m., all roads connecting Point Reyes Station, Inverness and Bolinas to eastern Marin remained impassable. Several routes to West Marin were cleared by evening.

Related Report from Public Works Department

STORM RELATED ACTIVITIES

During the week the Public Works staff was busy with activities related to the intense storm events that occurred. The most significant damage was incurred by homes on Pacheco Creek Drive where a debris flow from an upslope fire road in County Open Space removed part of one house and forced the temporary evacuation of four houses. Staff responding to the emergency arranged for North Bay Construction to perform immediate debris removal and cleanup which was completed on January 4, 2005. The County Open Space District has arranged for a geotechnical engineer to examine the situation and develop both short term and long term stabilization options. The Open Space personnel have placed plastic sheeting and diversion piping to divert rain water from the debris origin and path. Staff has engaged another geotechnical engineer for a peer review of the County's consultant proposal. Staff has contacted Republic Electric to replace a light pole that was removed by the debris flow. Staff will keep the homeowners informed of any repair proposals that the consultants develop.

The current in Novato Creek eroded two areas near the intersection of Novato Boulevard and Diablo Avenue. An area behind the telephone building and an area along Novato Boulevard were repaired through the placement of rock riprap by Maggiora-Ghilotti under contract with the Flood Control District. Further upstream, an oak tree was lost at the Mary Page property and other properties experienced erosion.

A levee breech off Rowland Way in the vicinity of Novato Community Hospital was repaired by Maggiora-Ghilotti under contract with the Flood Control District. Although a large amount of water flowed into the area near Slade Park, no evacuations or flooding of homes was experienced. Another levee breech occurred near Pacheco Creek and part of the Roblar mobile home park was flooded. Although there was a good amount of water, the level did not submerge any of the homes.

Other areas where flood waters were notable were on McKeon Court and Rena Court off Warner Creek, the Nave Gardens subdivision off the Novato and Arroyo Avichi Creeks, Commercial Boulevard and Digital Drive off Arroyo de San Jose, and San Marin Drive between Simmons Lane and Estado Way off Novato Creek.

DATE: January 4, 2006

TO: Dan Keen, City Manager

FROM: Glenn Young, Interim Public Works Director

SUBJECT: PUBLIC WORKS DEPARTMENT WEEKLY REPORT

Average Rain Fall

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average temp. (°F)	48.6	52.2	54.5	57.7	61.3	65.6	68.0	68.2	67.0	62.5	54.4	48.5
High temperature (°F)	56.6	61.5	64.8	69.4	73.8	79.2	82.5	82.5	81.0	75.3	64.1	56.8
Low temperature (°F)	40.5	42.9	44.2	45.9	48.7	52.0	53.5	53.8	52.9	49.6	44.6	40.2
Precipitation (in)	7.5	7.3	5.3	1.9	0.8	0.2	0.0	0.1	0.4	1.8	5.3	5.5

Normal climate around Novato, California

Based on data reported by main weather stations National Weather Service

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Days with precip.	10	9	9	5	3	1	0	0	1	3	7	9
Wind speed (mph)	7.1	7.3	8.4	8.6	9.0	9.6	8.9	8.4	7.4	6.4	6.0	6.4
Morning humidity (%)	91	89	86	83	82	78	77	78	77	79	87	88
Afternoon humidity (%)	70	61	53	44	38	32	30	29	31	37	57	67
Sunshine (%)	48	65	74	82	90	94	97	96	93	86	66	49
Days clear of clouds	7	8	10	12	17	22	27	26	24	19	10	8
Partly cloudy days	6	7	9	10	9	6	3	4	4	6	8	6
Cloudy days	19	13	12	8	5	2	1	1	2	6	12	17
Snowfall (in)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The Previous 1996 Flood Plan described the following:

"Novato Creek has a long history of flooding and is the main flood hazard to the community. According to the most recent Flood Insurance Study (FIS), flooding is caused by steep slopes in the upper reaches of streams and short duration storms of high intensity. Several inadequate bridges and culverts add to the flood problem. The main flood problem occurs in the lower reaches of Novato and Warner Creeks, and consists primarily of ponding behind the levees of these channels, whose capacities are inadequate to carry off large flows. Down stream of U.S. Highway 101, Novato Creek has little/no bed gradient and is influenced by tidal action from San Pablo Bay.

Warner Creek and Arroyo Avichi rise and overflow their banks at the confluence with Novato Creek. Localized flooding occurs periodically along Wilson Creek, Vineyard Creek, Ignacio Creek, Arroyo San Jose and Pacheco Creek."

"The City has implemented a Local Drainage Master Plan to accommodate the 25 year storm flow, as a result of a Storm Drainage Improvement Bond Measure approved in 1989. The previously mentioned 1985 Bond Measure for Flood Control is being implemented by the Marin County Flood Control and Water Conservation District. These improvements include a detention pond and pump station at Deer Island on the lower portion of Novato Creek and channel improvements to Novato Creek, Warner Creek, and Arroyo Avichi."

Probability of Future Events

Given the history of flooding in the area, the reality is that future flooding events **will** occur and **will** affect the City of Novato to varying degrees.

May 24, 2007 THURSDAY WWW.MARINIJ.COM

Marin flood a sign of global warming?

Climate change also seen as possible cause for die-off of seabirds on coast

By Mark Prado
IJ reporter

SAN FRANCISCO — A devastating flood sweeps through the Ross Valley on New Year's Eve 2005. Dead tufted and horned puffins turn up on beaches near Point Reyes earlier this year.

Both could be signs that Marin is beginning to feel the impacts of global warming, experts said Wednesday at a National Oceanic and Atmospheric Administration briefing on climate change.

Marin and the Bay Area already have heard global warming could force the bay to rise by three feet by the end of the century; experts have said that would flood coastal communities including Hamilton Field, Highway 37 and parts of the Tamalpais Valley.

"What causes floods in that particular area of Marin is the rain rates. It's not so much the total amount, but how fast it falls."

— David Reynolds, senior meteorologist with the National Weather Service

But there may already be impacts of climate change, including the Dec. 31, 2005, flood that devastated the Ross Valley.

"As the atmosphere warms, it can hold more moisture and you can get higher rain rates," said David Reynolds, senior meteorologist with the National Weather Service. "The whole western Pacific Ocean has been warmer since the mid-1990s and that has provided the fuel for the tropical (storms) that feed this moisture into the atmosphere and ends up hitting the California coast. We are seeing more of those occur. The New Year's Eve flood of 2005 was one of those types of events."

As the rain clouds — from an unusually wet, tropical "Pineapple Express" storm in the Pacific — traveled west Dec. 31, 2005, they rapidly climbed the steep western slopes of 2,571-foot Mount Tamalpais. As clouds rose they became cooler, and cold air can't hold water as well as warm air. The rain let loose and

Researchers, page A7

Thursday, May 24, 2007 • A7

RESEARCH: Marin flood seen as sign of global warming

From page A1

wreaked havoc as flooding swept through the Ross Valley.

"What causes floods in that particular area of Marin is the rain rates," Reynolds said. "It's not so much the total amount, but how fast it falls."

Off the Marin coast, wind patterns appear to be changing, upsetting a key environmental process that provides food at the bottom of the food chain, experts said at the briefing. Scientists fear it could be because of climate change and may be the cause of the dead tufted and horned puffins seen on West Marin beaches at the beginning of the year.

"This year we have seen a die-off of seabirds," said Maria Brown, superintendent of the Gulf of the Farallones National Marine Sanctuary. "We have seen them washing ashore because of the lack of food."

Researchers theorize weather patterns — too much wind or too little wind — are having an affect on the "upwelling" process that nurtures krill: tiny, pinkish, shrimp-like crustaceans. Krill are a key food for many sea creatures.

"Our whole marine food web is dependent on upwelling," Brown said.

The fertilizing nutrients necessary for krill begin in the cold depths of the ocean. Those nutrients eventually must come near the surface and bask in sunlight for photosynthesis to occur which, in turn, generates conditions in which krill flourish.

To get to the surface, nutrients ride funnels of water that are created by winds. Too much or too little wind can upset the process. Upwelling is still occurring, not in the spring and summer as was typical, but in the summer and fall.

"These changes are happening on a relatively rapid scale and they are not giving wildlife the opportunity to adapt the way it traditionally would," Brown said. "What we are seeing is rapid climate change, coupled with habitat loss, pollution and other ecological stresses that potentially could lead to the greatest species extinction of our time."

Blue whales seemingly disappeared from the sanctuary last year as well, and experts worry warmer waters could upset coho salmon populations and other fish populations, which are used to colder water.

Sanctuary crews are set to sail Thursday to survey the ocean off of Marin and the impact of global warming.

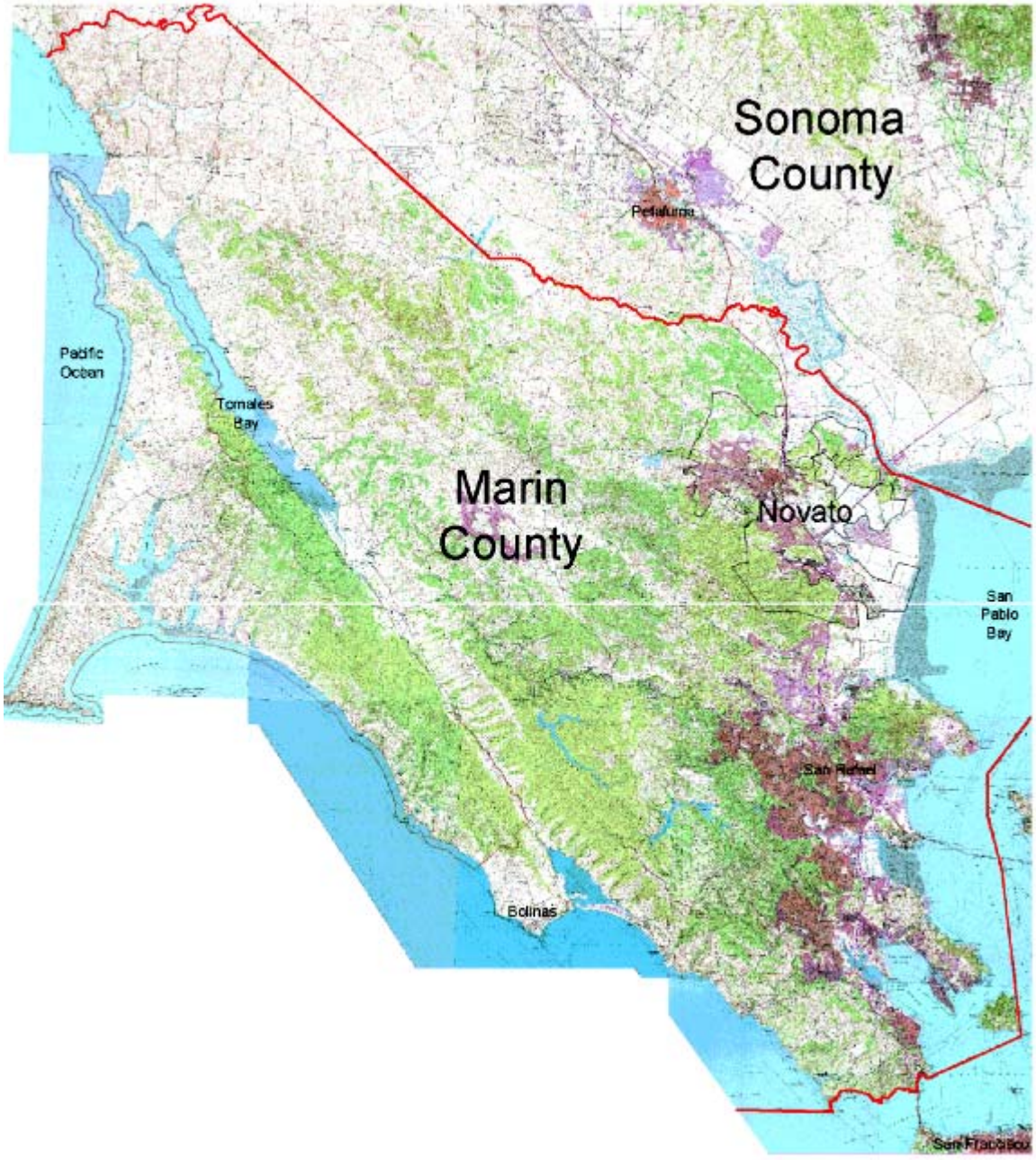
"The experts agree this is man-caused due to greenhouse gases," the weather service's Reynolds said. "It's not the natural variability of the climate.

"It's something we need to be concerned about."

Contact Mark Prado via e-mail at mprado@marinij.com

Maps

Marin County Flood Control Zone

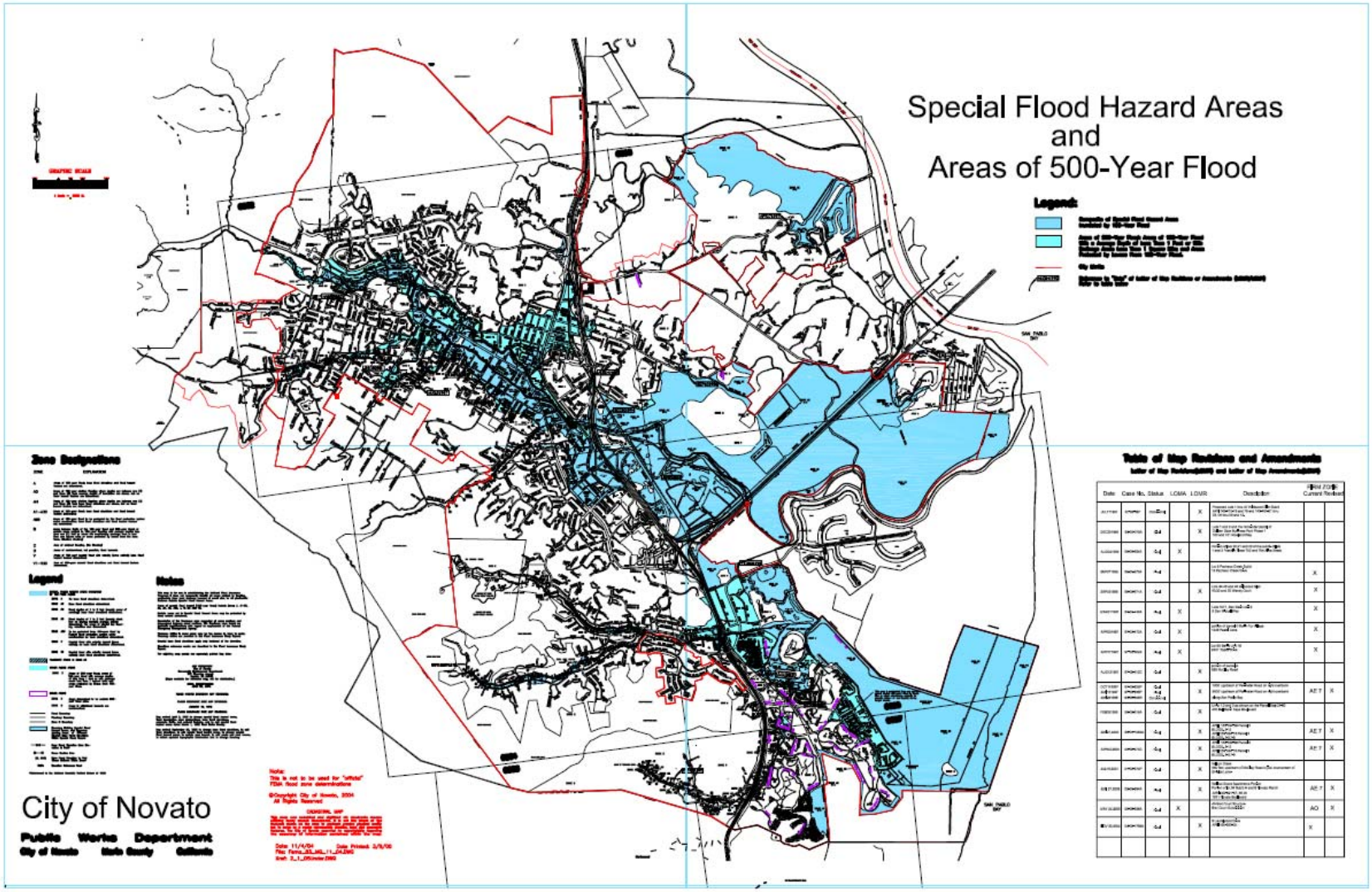


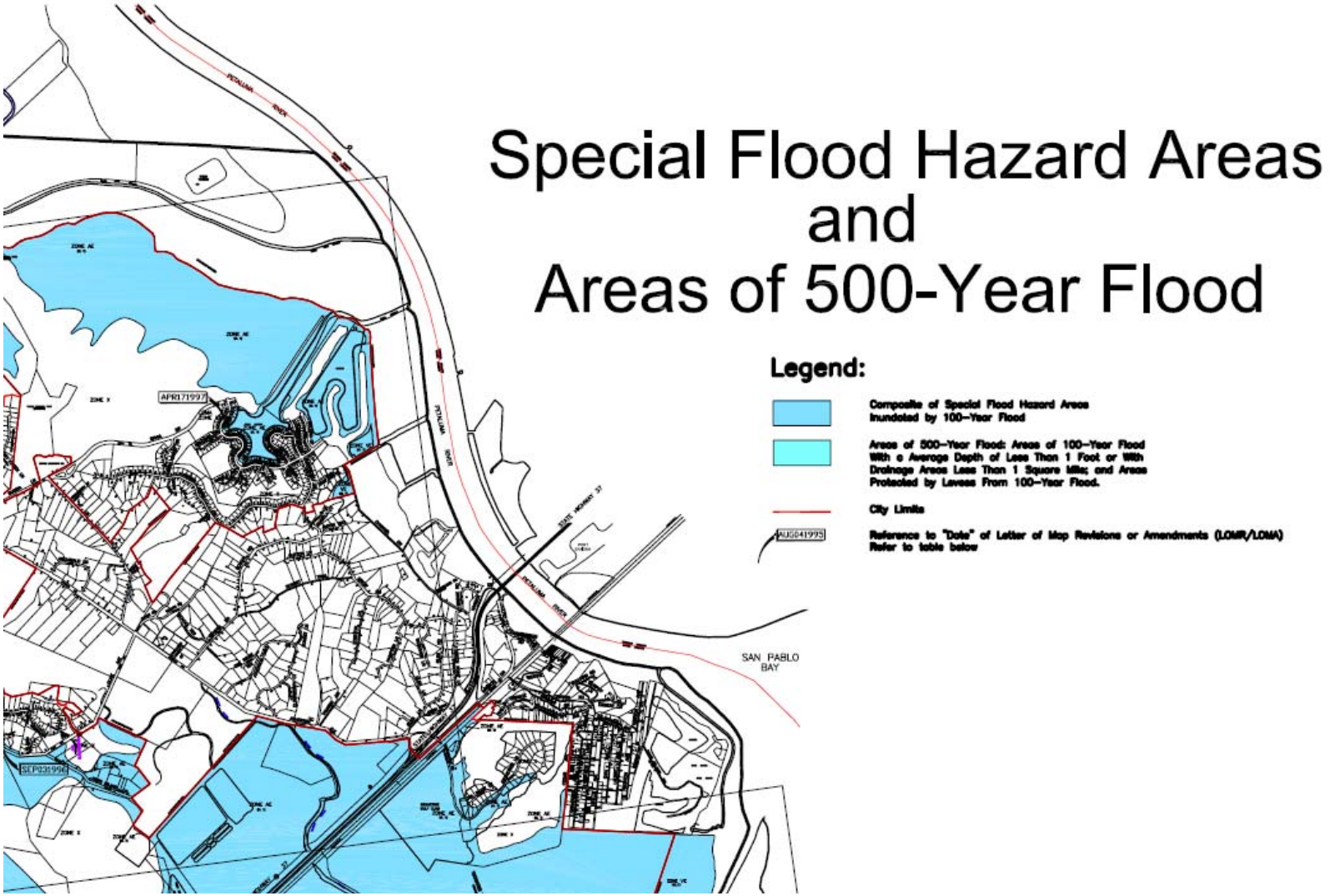
Flood FIRM Maps in Novato have been revised a number of times and the following table documents those revisions. It is important for both the Flood Insurance Program and Flood Mitigation projects that the Flood FIRM Maps be kept current and accurate. It is the intent of the City of Novato to make these maps a hazard mitigation ongoing project.

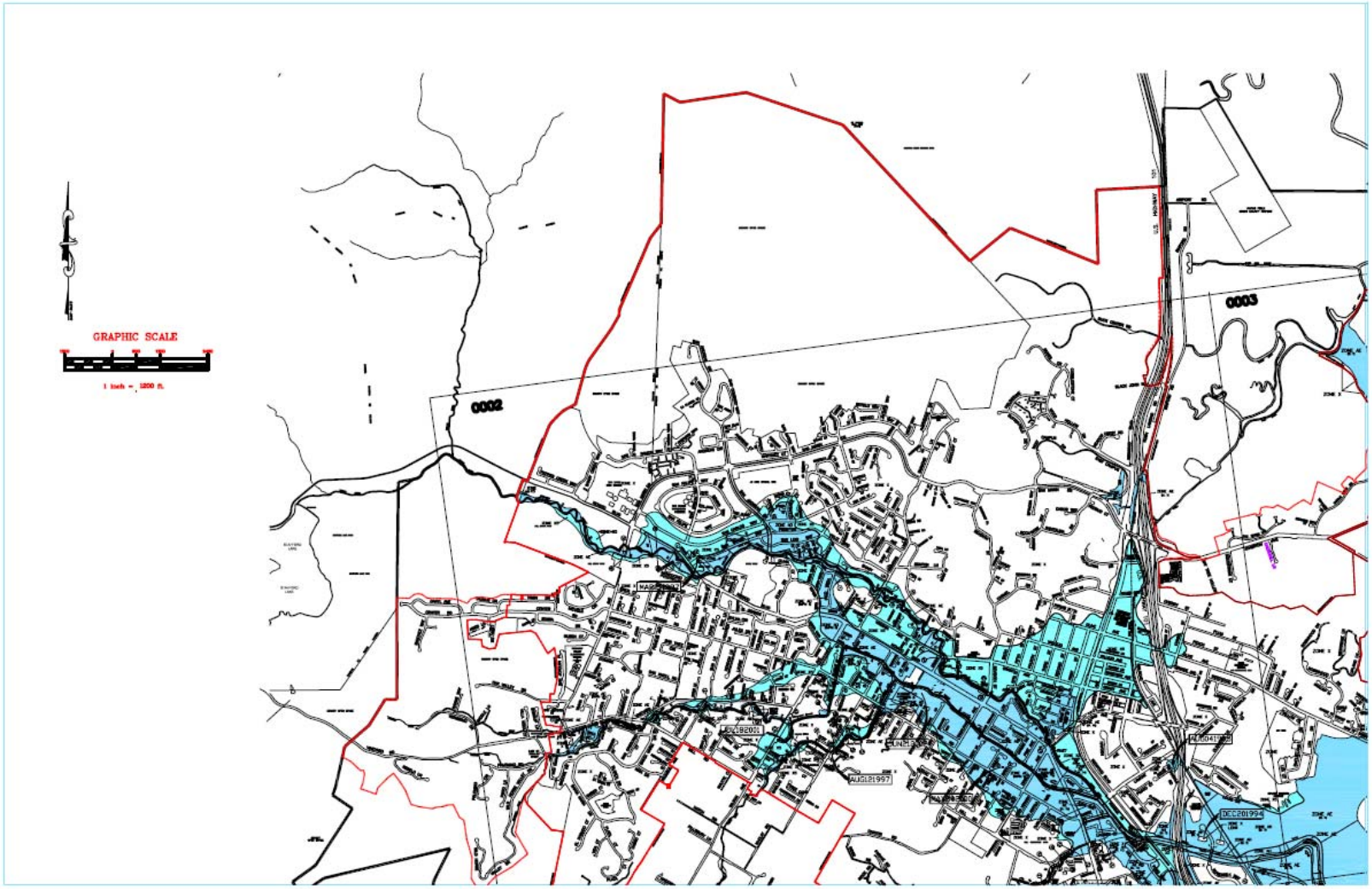
Table of Revisions & Amendments

	Date	Case #	Status	LOMA	LOMR	Description	Firm Zone	
							Current	Revised
	7/11/91	91-09-.8F	Conditional		X	Processed lots 1-47 Wildwood Glen Sub'd APN-143-110-75 & 78 & 143-491-01 thru 03, 05 thru 09 & 12		
Not Incorporated	12/20/94	95-09-075A	Final		XP	Lots 1 & 2 & the remainder of Golden Gate Business Park Phase 1 – 100 and 101 Rowland Way		
Un-determined	8/04/95	95-09-654A	Final	X		Portion of lots 20,21 & 22 on the sub'd of lots 1 & 2 Franklin Pl 702 and 704 Alice St		
Not Incorporated	9/27/95	95-09-879A	Final			Lot 5 Pacheco Creek Sub'd 12 Pacheco Creek Dr	X	
Not Incorporated	9/3/96	96—09-971A	Final		XS	Lot 44,45,& 46 Wildwood Glen 40,30 & 20 Wendy Ct	X	
Not Incorporated	3/21/97	97-09-449A	Final	XP		Lot 1077 – San Marin Unit 9 8 San Miguel Way	X	
Not Incorporated	4/03/97	97-09-472A	Final	XS		Portion of parcel 0 Marin Fur Village 1448 Pastel Lane	X	
Not Incorporated	4/17/97	97-09-802A	Final	X		Lot 66 Bahia Unit 1B 2441 Topaz Dr	X	
Not Identified in FEMA	8/12/97	97-09-812C	Final		X	Portion of parcel A 680 McClay Rd		
Incorporated	10/14/97 6/13/97 1/26/95	97-09-835P 97-09-835P 94-09-833R	Final Final Conditional		XP	1200' upstream of Perimeter Rd on right overbank 5900' upstream Along San Pablo Bay	AE7	X
Not Incorporated	2/3/98	98-09-315A	Final		XS	Units 1,2 & 3 as shown on the Parcel Map 21-92 400 Bel Marin Keys Blvd		
Not Incorporated	1/21/00	99-09-1082A	Final		XS	APN 154-034-29 Parcel 5 BLDGS 2-12 APN 153-034-15 Parcel 3 BLDGS 2-5,7-9	AE7	X
Not Identified in FEMA	4/4/00	00-09-474C	Final		XS	Portsmouth Drive	AE7	X
Incorporated	7/18/01	01-09-674P	Final		XP	Wilson Creek 500' upstream of McClay Rd to just downstream of Shields Ln (Elkin Property)		
Not Incorporated	6/21/02	02-09-994A	Final		XP	Walnut Grove Apts Portion of lot 54 Sub'd A & B Novato Ranch AMN 140-021-57,58,61 1811 Novato Blvd	AE7	X
Not Incorporated	5/24/00	00-09-635A	Final	XS		45 Bret Ct Structure Bret Court Sub'd	AO	X
Not Incorporated	11/23/04	04-09-1765A	Final		XS	9 Laurelwood Dr APN 160-930-05	X	
Un-determined	8/30/05	05-09-1406A	Finbal		XS	Olive Ridge Sub'd Club Drive	AE7	X
Not Incorporated	1/5/05	05-09-1406A	Final	XS		Bahia Unit 1B lot 90 2589 Topaz Dr		
Not Incorporated	1/18/02	05-09-1406A	Final	XS		Creekside Housing 1744 & 1748 Novato Blvd		
Not Incorporated	10-29-99	05-09-1406A	Final	XS		Marin Golf & Country Club 7 Nassau Ct		
Not Incorporated	6/8/98	05-09-1406A	Final	X		Bay Tree Park 419A & 425 A Enfrente Rd		
Not Incorporated	5/19/92	05-09-1408A	Final	X		1462A Pastel Ln		
Not	10/11/91	05-09-1406A	Final	X		548 Fairway Dr		

	Date	Case #	Status	LOMA	LOMR	Description	Firm Zone Current	Firm Zone Revised
Incorporated								
Un-determined	**6/14/05**			**X**		105,109,113,117,145,149 Laurelwood Drive		
Un-determined	**8/14/79**			**X**		Lot 233 Bahia, Unit 4		
Un-determined	**10/31/90**			**X**		Kaehler Sub'd		
Un-determined	**1/27/88**	**98-09-654**			**X**	Saddlebrook Estates Unit II		
Un-determined	**12/2/87**				**X**	Parcel 2, Lands of Fan		
Un-determined	**6/11/87**					Building 1-6 Redwood Landing		
Un-determined	**9/4/85**					1340 Monte Maria Ave		
Un-determined	**3/29/85**					Building #5 Unit 82		
Un-determined	**12/14/84**					Lots 38-44 Valley Oaks Estates		
Un-determined	**1/25/82**					Lots 93,94,108,109 Valley Oaks Estates		
Un-determined	**2/23/83**			**X**		The Woodlands, Lot 12		
Un-determined	**10/4/83**			**X**		Lots 93,94,108,109 Valley Oaks Estates		
Un-determined	**1/25/83**			**X**		Walnut Grove Apts Lot 54 Map Divisions A,B Novato Ranch		
Un-determined	**1/25/82**			**X**		Donner Springs Sub'd Unit #2 C-2 Lots 7-21 & 29-32, Block B		
Un-determined	**1/25/82**			**X**		Northlake Estates #10 Lots 1-11 Block 2 Lot 26 Block 4		
Un-determined	**1/25/82**			**X**		University Park, Lot 2		
Un-determined	**3/24/81**			**X**		Block 65 Admin Building Pump Station		
Un-determined	**8/14/79**			**X**		Lot 233 Bahia Unit 4		
New	**4/19/06**	**05-09-A080P 04-09-1085R**			**XP**	Pointe Marin Phase 2 & 4 Ignacio Creek		
New	**1/23/07**	**07-09-0583A**		**XS**		Marin Highlands Unit 2B Lot 11 6 Zoila Court		


Special Flood Hazard Areas
and
Areas of 500-Year Flood
Legend
Zone Designations
Legend
Notes
Table of Map Revisions and Amendments
City of Novato
Public Works Department


Special Flood Hazard Areas
and
Areas of 500-Year Flood
Legend:
Composite of Special Flood Hazard Areas Inundated by 100-Year Flood
Areas of 500-Year Flood: Areas of 100-Year Flood With a Average Depth of Less Than 1 Foot or With Drainage Areas Less Than 1 Square Mile; and Areas Protected by Levees From 100-Year Flood.
City Limits
AUG041995
Reference to "Date" of Letter of Map Revisions or Amendments (LOMR/LOMA) Refer to table below
SAN PABLO BAY
PETALUMA RIVER
APR171997
SEP031996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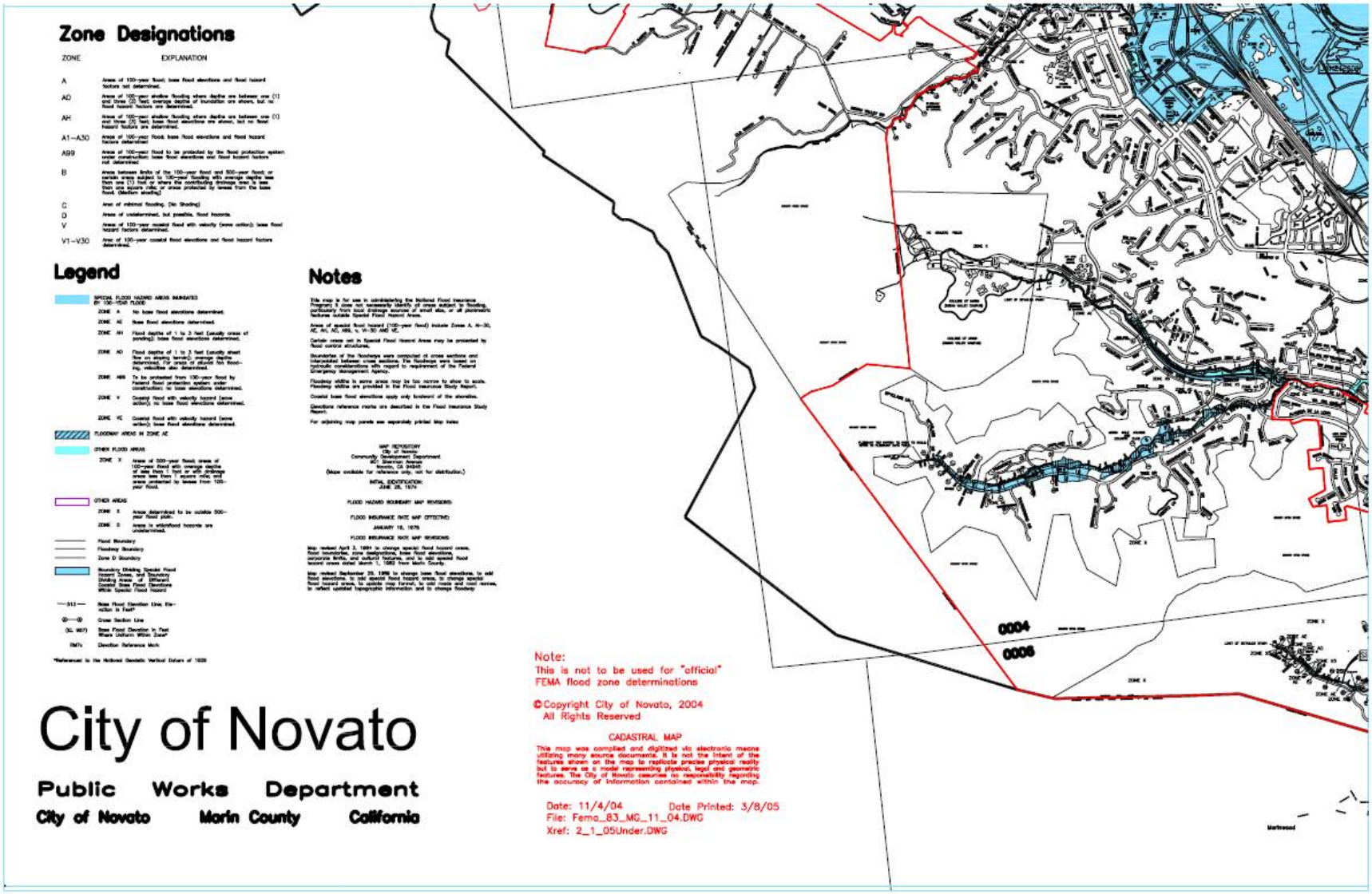
0002
0003


Zone Designations
ZONE
EXPLANATION
A
AO
AH
A1—A30
AR
B
C
D
V
V1—V30
Legend
Notes
Note:
This is not to be used for "official"
FEMA flood zone determinations
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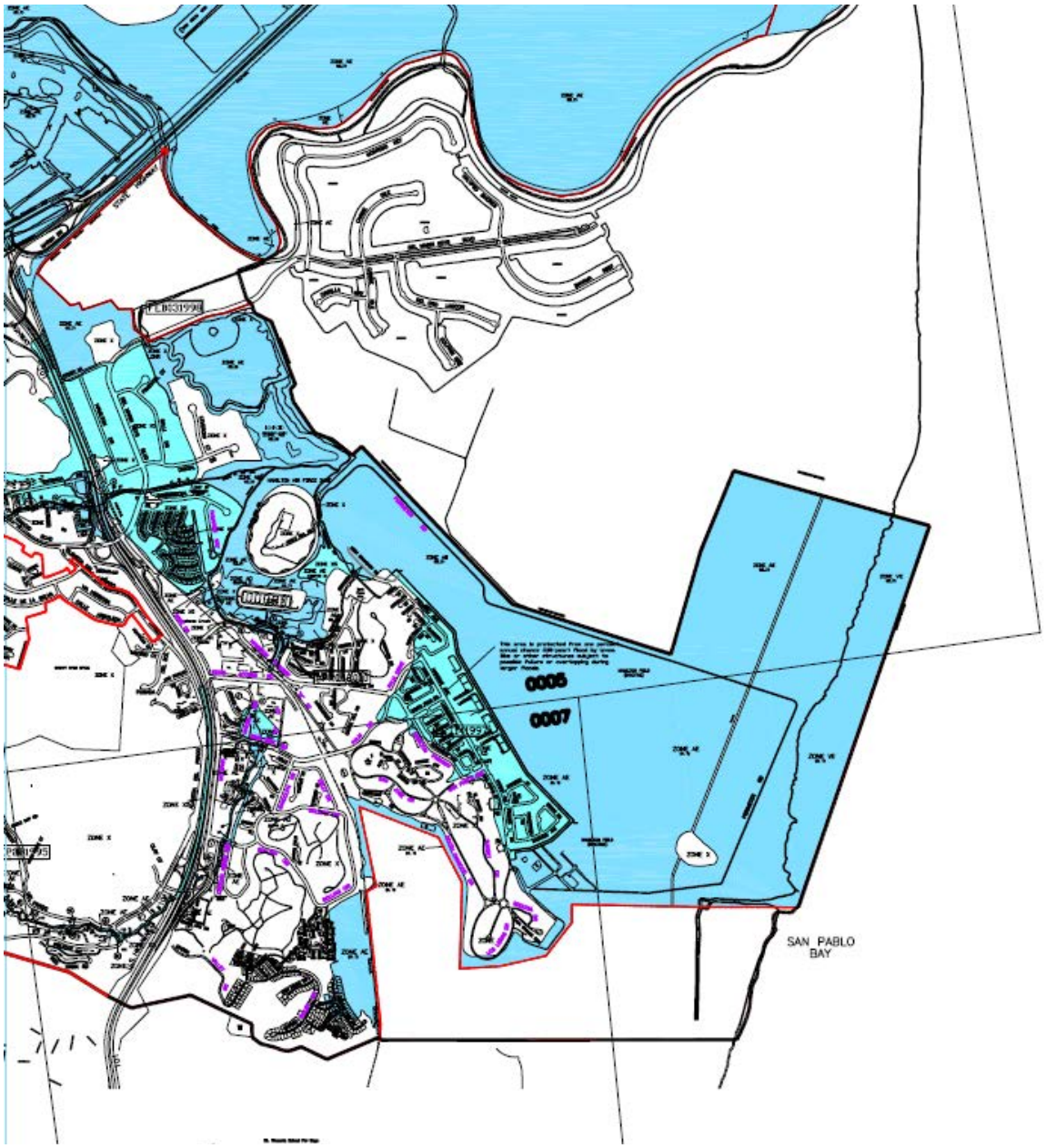
All Rights Reserved
CADASTRAL MAP
This map was compiled and digitized via electronic means utilizing many source documents. It is not the intent of the features shown on the map to replicate precise physical reality but to serve as a model representing physical, legal and geometric features. The City of Novato assumes no responsibility regarding the accuracy of information contained within the map.
Date: 11/4/04
Date Printed: 3/8/05
File: Fema_83_MG_11_04.DWG
Xref: 2_1_05Under.DWG
0004
0006
City of Novato
Public Works Department
City of Novato Marin County California


0005
0007
SAN PABLO
BAY

Updates to the City of Novato Repetitive Loss Plan

The City of Novato has performed specific actions to update and add to comprehensive CRS Program Repetitive Loss Plan. This Plan was last updated on December 14, 2000 with Resolution No. 139-00.

The Repetitive Loss Plan has been reviewed annually by the Community Development Department.

In 2007 and 2008 further steps were taken to update the Plan in accordance with the Repetitive Loss Plan Goals of.

1. Reduce Flood damage to existing buildings by helping property owners and/or residents to protect themselves and their property from (a.) The infrequent but severe general flooding resulting from major storm events that generate storm water runoff that exceeds the capacity of the creek system, (b.) local drainage system flood events, and (c.) Sewer back-up problems that can occur during local flood events.

2. Ensure that residents are given adequate warning of floods.

The City of Novato has completed a Flood Hazard Mitigation Plan which includes the components for updating the CRS Repetitive Loss Plan. The areas of that Plan are referred to by action and page number in the following matrix.

Flood Reduction Competitive Loss Activity	Page Location
Special Flood Hazard Area Notice to all residents	Page 4
Part 2, Public Outreach Documentation	Page 8 to 22
Flood Hazard Warning Instructions on Novato Emergency Radio Station 530 A.M.	Page 5
City of Novato Flood Damage Prevention Ordinance Dec. 2000	Page 92
The City completed at Disaster Mitigation Act of 2000 and it is currently on the City's website and has been submitted to Federal Emergency Management Agency (FEMA) and the State of California Governor's Offices of Emergency Services (COES) for review and authorization.	Page 105
Flood Hazard identification and flood hazard reduction activities SF 3 through SF 11	Page 106 to 108
Countywide Watershed Stewardship Plan with specific project identification	Page 109 and Pages 130-140
City of Novato Capital Improvements Projects to reduce flood hazards	Page 141 to 146
Flood reduction funded Projects	Page 146 to 180
City of Novato Ongoing Flood improvement Projects	Page 195 to 196
Future Flood Mitigation Projects Page	Page 201 to 205
Official Notice for Vulnerable Properties	Page 57
List of City of Novato Repetitive Loss Properties as of 6/2007 with map	Page 58-60
List of City Novato Flood Insured Properties	Page 68
Documentation of Elevated Homes	Page 71-74
CRS Program and Rating System Five Year Cycle Visit documentation	Page 77-84
Nation Flood Insurance Program Update for the City of Novato	Page 85-88

Repetitive Loss

City of Novato Resolution Number 139-00 officially adopted the City of Novato Repetitive Loss Plan on December 12, 2000. The Repetitive Loss Plan qualifies the City of Novato (through the Federal Community Rating System (CRS)) for a Class 7 rating. This results in a 15% base flood insurance premium reduction for flood insurance policyholders of record within the City. The City currently has accumulated 1,716 CRS credit points, verified by Insurance Services Office, Inc., FEMA's independent appraiser. These credit points were awarded to the City for performing the following FEMA-designated activities:

- Elevation Certificates
- Map Information
- Outreach Projects
- Hazard Disclosure
- Flood Protection Library
- Additional Flood Data
- Open Space Preservation
- Higher Regulatory Standards
- Flood Data Maintenance
- Storm Water Management
- Floodplain Management Planning
- Drainage System Maintenance
- Dam Safety

Official Notice for Vulnerable Properties

This is an
OFFICIAL NOTICE
from the
CITY OF NOVATO
affecting your neighborhood.

9494733911 C003

CITY OF NOVATO

This notice is being sent to you because your property is in or near the Special Flood Hazard Area. This area is the portion of Novato determined to have a high risk of flooding, placing you and your property at risk. Please take a few minutes to review the following information. If you have any questions about the information in this letter, please contact the City of Novato Public Works Department at (415) 899-8246 or 75 Rowland Way #200. More information can also be found at **www.ci.novato.ca.us/pw.**

Flooding in Novato
Heavy rains occasionally cause flooding damage in Novato. Properties upstream of the confluence of Novato, Warner, and Arroyo Avichi Creeks have been particularly susceptible to flooding. Heavy rains in 1980, 1982, 1983, 1986, 1989, and 1998 caused flooding and damage to buildings in these areas. Other areas with high flood danger include Ignacio, Arroyo San Jose, and Vineyard Creeks, as well as the Bahia area. Your property is in one of these high risk locations, placing you in danger of damage as well.

Flood Insurance
Homeowner's insurance policies do not cover flood damage. To protect your home and possessions from flooding, you must purchase flood insurance. Fortunately, the City of Novato's work to protect the city from flood losses reduces by 10% the cost of your flood insurance policies from the National Flood Insurance Program. If you do not already have flood insurance, talk to your insurance agent.

Before a Flood
- Rake up and bag leaves as often as possible before storms. Leaves clogging storm drains are the primary source of most flooding in Novato.
- Do not throw anything into drainage ditches or streams; not only is it a violation of City Code, but blocked drainage ways cannot carry water.
- Clean drains around your home, in including roof gutters, down spouts, drain inlets, pipes, drainage ditches and driveway culverts.
- Always check with the Community Development Department, Building Division (899-8989) and the Engineering Division before doing any work on your property. Permits may be required to ensure that your work does not cause unintended problems.

During a Flood
- Tune in to the Novato emergency radio station, 530 AM.
- Report any local flooding or severe runoff to the Maintenance Division (415-899-8280) or Police Department (415-897-4361)
- Do not walk or drive through flooded areas.
- Be careful of downed power lines and displaced animals in the water, especially rattlesnakes & rats.
- During and after, watch your step for open manhole covers and debris underfoot, like broken glass or cracked sidewalks.

Please visit www.ci.novato.ca.us/pw to get more detailed information about the flooding danger to your property. For more information, you can also find resources at the Marin County Free Library, the Novato Police Department, and the City of Novato Public Works Department.

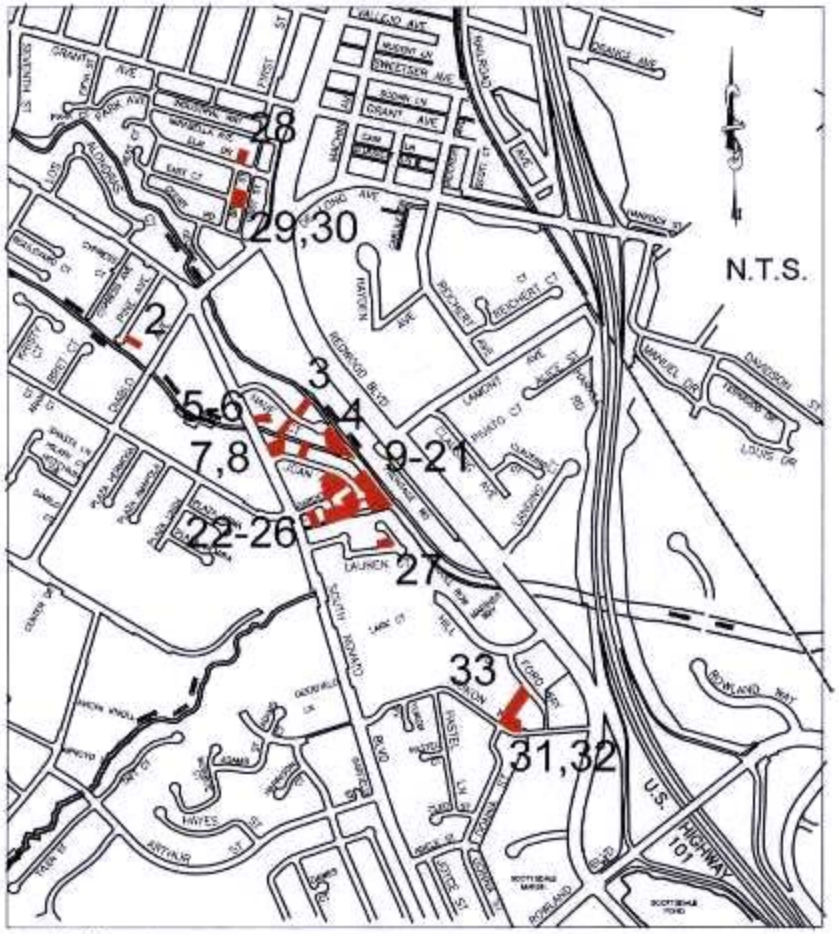
titive Loss Properties as of 6/2007

ddress	Last Claimant	Occupancy	Zone	Firm	Building Value	Tot Building Payment	Tot Contents Payment	# of Losses	Total Paid
AVE	DELUCCHI	SINGLE FMLY	AE	N	104,544	94,763.36	5,000.00	3	99,763.36
EN AVE	TERLIZZE,NICOLI	SINGLE FMLY	AO	N	56,900	9,373.77	4,374.50	2	13,748.27
AVE	SHARP	SINGLE FMLY	B	N	50,400	2,577.83	17,537.96	3	20,115.79
VE	EDUARDO & REYES	SINGLE FMLY	AE	N	111,239	41,252.23	1,603.75	4	42,855.98
CT	KLAHR	SINGLE FMLY	AO	N	62,000	7,790.79	0.00	2	7,790.79
VE	NT COMPANYYANKEL INVESTMENT COMPANY	SINGLE FMLY	AE	N	200,000	54,193.55	5,926.57	4	60,120.12
DR	FOCHETII	SINGLE FMLY	B	N	76,500	11,808.07	892.44	3	12,700.51
OVATO BLVD	WEHR	SINGLE FMLY	AO	N	55,700	20,802.47	0.00	2	20,802.47
NO ST	GRIMES	SINGLE FMLY	B	N	122,113	42,274.69	12,637.68	4	54,912.37
AVE	ENGMAN	SINGLE FMLY	A01	N	90,300	22,971.63	7,290.95	2	30,262.58
AVE	DANIEL A KEENER	SINGLE FMLY	AOB	Y	160,352	25,716.40	16,600.61	3	42,317.01
ST	NARDI	SINGLE FMLY	AO	N	52,500	14,414.16	0.00	2	14,414.16
N CT	TOMSKY	SINGLE FMLY	AE	N	117,451	24,556.97	2,414.87	4	26,971.84
AVE	STEPPLER	SINGLE FMLY	A05	N	65,000	28,109.41	795.00	2	28,904.41
N CT	BENEPE	SINGLE FMLY	AO	N	64,700	13,613.86	2,000.00	2	15,613.86
AVE	HOTCHKISS	SINGLE FMLY	AOB	N	83,510	23,485.56	6,887.00	3	30,372.56
	MORGAN	SINGLE FMLY	AO	N	590,000	34,005.53	0.00	2	34,005.53
CT	YOUNG	SINGLE FMLY	AO	N	70,000	28,899.11	14,373.04	3	43,272.15
AVE	SOLONCHE	SINGLE FMLY	AO	N	90,000	11,094.24	1,897.00	2	12,991.24
AVE	FUGATE	SINGLE FMLY	X	N	375,000	27,616.59	7,348.79	3	34,965.38
VE	CANNON	SINGLE FMLY	AO	N	57,300	13,074.91	2,149.24	2	15,224.15
DR	LIGBOYCE	SINGLE FMLY	B	N	6,142,500	20,934.15	10,357.50	2	31,291.65
EN CT	STOKES	SINGLE FMLY	AE	N	116,887	28,161.75	4,043.25	3	32,205.00
N CT	HONEY	SINGLE FMLY	AO	N	60,000	11,516.82	5,749.00	2	17,265.82
FSON CT	ASSUMED CONDO BLDG	ASSMD CONDO	C	N	0	6,333.07	6,647.24	2	12,980.31
ON WAY	MARTINEZ	SINGLE FMLY	AE	N	136,980	80,445.48	13,562.89	3	94,008.37
WAY	ROLAND	NON RESIDNT	AO	N	461,440	47,661.98	0.00	3	47,661.98
OUSTIE DR	SMITH	SINGLE FMLY	X	Y	250,000	37,815.72	3,770.00	3	41,585.72
ON WAY		SINGLE FMLY	A	N	135,000	29,096.88	16,800.00	2	45,896.88
NO ST	HANSON	SINGLE FMLY	B	N	130,746	16,425.17	567.61	3	16,992.78
VE	CLAY	SINGLE FMLY	AE	N	222,610	16,151.71	0.00	3	16,151.71
AVE	SARANG & BAGHERI-AL	SINGLE FMLY	AOB	N	104,425	21,478.66	272.12	2	21,750.78
N CT	LOPEZ	SINGLE FMLY	AE	N	93,080	17,822.71	0.00	2	17,822.71
CT	HEREDIA	SINGLE FMLY	AE	N	217,755	77,361.31	0.00	2	77,361.31

oss Update Worksheets (AW-501) are on file)

Detail 2

Detail 3

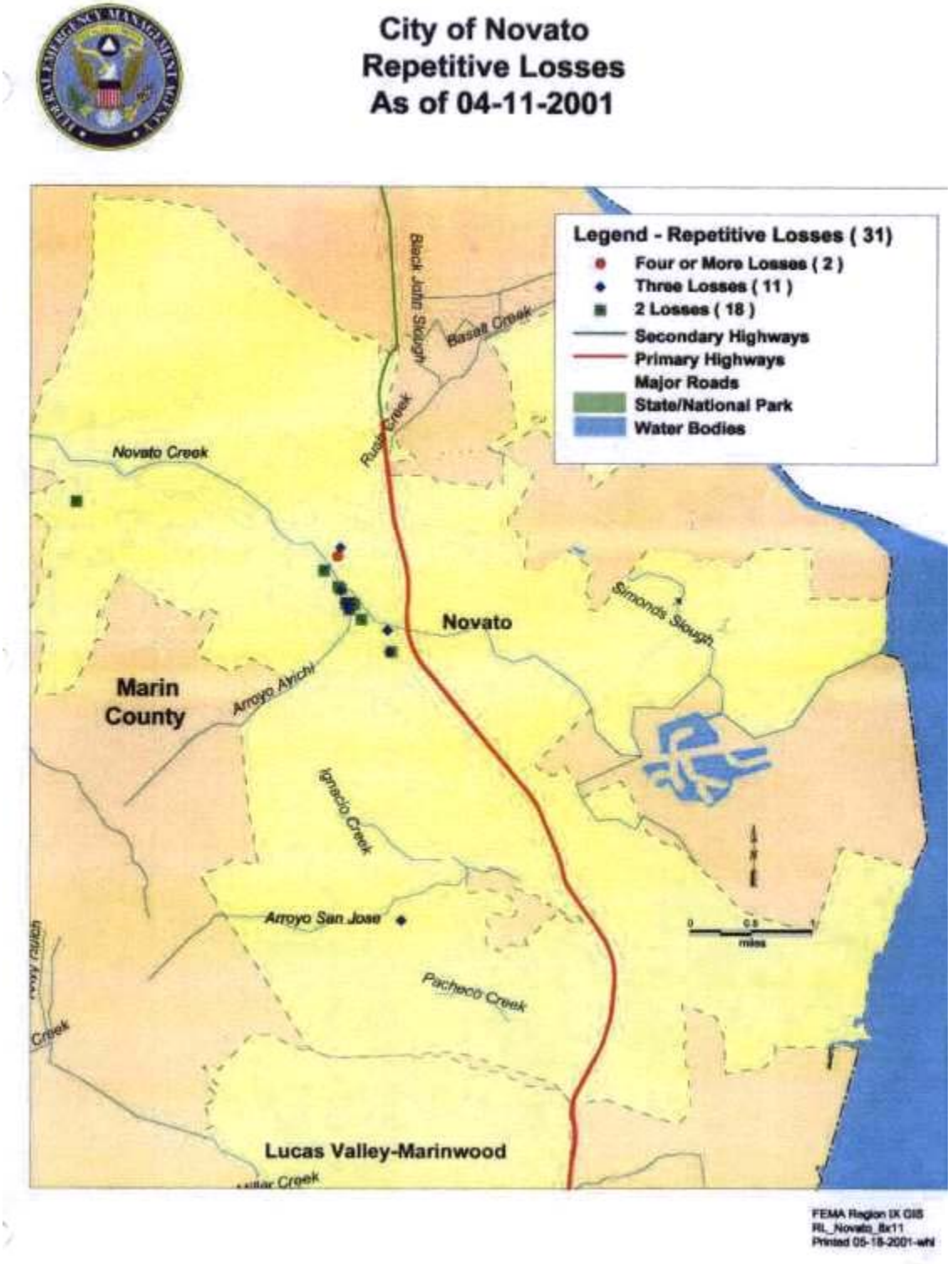


Detail 1

CRS Repetitive Loss Sites

#	Parcel	Address
1	132-191-20	1 Gustafson Court
2	140-053-26	850 Pine Avenue
3	140-071-06	17 Nave Court
4	140-071-12	20 Nave Court *
5	140-071-09	26 Nave Court
6	140-071-23	1570 South Novato Blvd.
7	140-071-27	1 Joan Avenue
8	140-071-27	3 Joan Avenue
9	140-071-27	4 Joan Avenue
10	140-071-29	5 Joan Avenue *
11	140-071-31	9 Joan Avenue
12	140-141-02	21 Joan Avenue *
13	140-11-04	25 Joan Avenue
14	140-141-05	27Joan Avenue
15	140-141-06	29 Joan Avenue
16	140-141-07	31 Joan Avenue
17	140-141-09	30 Joan Avenue
18	140-141-10	28 Joan Avenue
19	140-141-12	22 Joan Avenue
20	140-141-13	18 Joan Avenue
21	140-141-14	16 Joan Avenue
22	140-141-28	9 Garden Court
23	140-141-10	10 Garden Court
24	140-141-31	8 Garden Court
25	140-141-32	6 Garden Court *
26	140-141-33	4 Garden Court
27	140-141-45	41 Lauren Drive
28	141-285-16	1104 Elm Drive
29	141-302-03	942 Brouno Street
30	141-302-04	940 Bruno Street
31	152-031-05	1220 Yukon Way
32	152-031-06	1230 Yukon Way
33	152-051-12	150 Ford Way
34	160-030-37	37 Carnoustie Drive

* New Repetitive Loss Sites


City of Novato
Repetitive Losses
As of 04-11-2001
Legend - Repetitive Losses (31)
Four or More Losses (2)
Three Losses (11)
2 Losses (18)
Secondary Highways
Primary Highways
Major Roads
State/National Park
Water Bodies
Black John Slough
Basalt Creek
Rush Creek
Novato Creek
Novato
Simmons Slough
Marin
County
Arroyo Avichi
Ignacio Creek
Arroyo San Jose
Pacheco Creek
Lucas Valley-Marinwood
FEMA Region IX GIS
RL_Novato_8x11
Printed 05-18-2001-wN

Historical Insurance Claims on Novato Properties

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
2 JOAN AV	02/15/1986	2014030924	7,730
15 JOAN AV	01/04/1982	1003737952	9,610
701 OLIVE AV	01/04/1982	1906533532	780
1104 ELM DR	02/17/1986	1528002650	2,152
1104 ELM DR	01/04/1982	1528002650	8,977
150 FORD WAY	03/09/1995	2008850907	1,145
150 FORD WAY	02/03/1998	2008850907	29,938
150 FORD WY	02/17/1986	2008850907	16,579
16 JOAN AVENUE	02/18/1980	1933256560	908
16 JOAN AVENUE	02/17/1986	1933256560	3,694
16 JOAN AVENUE	01/04/1982	1933256560	20,974
4 HARRIS HILL DR	03/02/1998	3007586054	0
1541 CENTER RD	02/17/1980	1935144426	0
1541 CENTER RD	01/04/1982	1935144426	6,794
17 LOS ALONDRAS COURT	01/04/1982	1933601872	2,500
1281 LYNWOOD DR	02/17/1980	1940910019	594
767 PLAZA HERMOSA	01/04/1982	1051577300	12,205
11 GARDEN CRT	02/16/1986	2018737623	9,536
5 NOGALES CT	01/04/1982	1932962622	12,922
10 GDN CT	02/15/1986	2022973784	4,001
#11 REPOSA VISTA	02/15/1986	2013641986	0
1 GUSTAFSON COURT	01/10/1995	9901028425	2,207
1 GUSTAFSON COURT	01/10/1995	9901028633	4,863
1 GUSTAFSON COURT	02/17/1986	2010672554	5,910
1 JOAN AV	02/16/1980	1523441739	1,677
1 JOAN AV	02/16/1986	1523441739	13,355
1 JOAN AV	01/04/1982	1523441739	20,454
1 JOAN AVE	12/31/2005	0205RD6927	7,370
1 NORMA CT	02/21/2005	0104528797	0
1 NORMA CT	02/05/1998	0104528797	2,763
10 CREEKSIDE CT	01/04/1982	1520058650	230
10 GARDEN CT	02/18/1980	1003847199	832
10 GARDEN CT	12/31/2005	0158174702	4,276
10 GARDEN CT	01/04/1982	1003847199	23,927
10 GDN CT	02/18/1980	1901753168	445
10 JOAN AV	01/04/1982	2006141895	20,889
10 JOAN AVE	02/15/1980	1527988404	0
1024 7TH ST	01/04/1982	1935597482	2,997
1036 2ND ST	01/04/1982	1932271180	137
104 CARIBE ISLE	01/09/1995	2026403267	10,603
104 CARIBE ISLE	03/10/1989	2026403267	1,399
11 GARDEN CT	01/04/1982	1941213025	13,122
11 LAUREN	01/04/1982	1908746371	11,312

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
1100 ELM DR	02/20/1986	2010263735	0
1104 ELM DR	01/09/1995	2033489390	1,571
1104 ELM DR	02/03/1998	2033489390	787
1104 ELM DR	01/02/1998	2033489390	0
1107 EAST CT	01/09/1995	2029705437	0
1107 ELM DR	12/31/2005	0205RC0195	1,144
1108 ELM DR	02/05/1998	0807940531	3,250
1108 2ND ST	01/27/1983	2008875086	805
1112 ELM ST	01/04/1982	2003635824	3,943
1113 MIRABELLA DR	01/04/1982	1530537081	2,709
1125 MIRABELLA AV	01/04/1982	1933290395	2,553
114 OLIVA CT	02/02/1998	0114258097	0
1149 COURT RD	01/04/1982	1944829959	0
1173 MCCLELAND DR	02/18/1980	1941600932	745
1190 BELMARIN KEYS	02/16/1986	2004435802	0
12 HARBOR DR	01/15/1995	0047286239	0
1220 YUKON WAY	03/09/1995	0205E24323	15,568
1220 YUKON WAY	02/17/1986	2010129605	30,329
1220 YUKON WAY	12/31/1996	0205E24323	106
1230 YUKON WAY	03/09/1995	6001838066	31,518
1230 YUKON WAY	02/03/1998	6001838066	28,217
1230 YUKON WAY	02/17/1986	2020308876	34,274
1236 YUKON WAY	02/02/1998	0047437457	1,916
1240 YOUKON WY	01/04/1982	1051761771	0
125 SAN MATEOWY	02/18/1980	1933095760	2,415
1254 YUKON WY	02/16/1986	2017883303	6,309
13 JOAN AV	02/14/1986	2006164129	7,899
13 LAUREN AV	01/04/1982	1051528220	11,300
13 NAVE CT	02/14/1986	2021920596	5,935
13 PALM LN	01/04/1982	2005129131	0
1385 DONNA ST	01/04/1982	1933216671	434
14 COMMERCIAL BLVD STE 119	01/02/2006	7700229955	200,000
14 JOAN AV	01/04/1982	2002172423	0
14 JOAN AVE	12/30/2005	6500869059	4,754
14 JOAN AVE	02/02/1998	8000702020	0
1400 GRANT AV	01/04/1982	1523670188	9,385
1413 GRANT AV	01/04/1982	1528722802	753
1424 DONNA ST	02/19/1986	2020603086	1,615
15 DOW LANE GST HSE	01/15/1998	0850358904	5,003
15 JOAN AVE	12/31/2005	8702060232	0
1504 PARK CT	02/08/1998	0205SA4049	212
151 KENWOOD CT	01/04/1982	1900570845	4,933
1517 CENTER RD	12/16/2002	0600044296	1,928
1527 CENTER RD	02/14/1986	2022818559	0
1538 S NOVATO BL	02/15/1986	2021603549	3,978

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
1545 CENTER RD	01/04/1982	1529941831	14,470
1547 CENTER RD	02/25/1983	2005588534	343
1551 CENTER RD	01/27/1983	2005734567	0
1552 S NOVATO B	01/04/1982	1003776711	12,700
1554 S	02/15/1986	2010193734	17,330
1556 S NOVATO BLVD	12/31/2005	1803992500	1,841
1556 S NOVATO BLVD	01/04/1982	1523341095	10,767
1558 S NOVATO BLVD	02/14/1986	2019111356	14,038
1561 CENTER ROAD	02/13/1986	2015151554	6,809
1566 S NOVATO BL	01/04/1982	1945755328	9,893
1566 S NOVATO BLVD	12/31/2005	0205RG4454	4,843
1566 S NOVATO BLVD	02/14/1986	2022159723	6,866
1566 SOUTH NOVATO BLVD	11/30/1979	1933455295	0
1568 NOVATO BL	01/04/1982	1051776621	5,920
1568 NOVATO BLVD	02/15/1986	1051776621	9,165
157 VIDA CT	02/03/1998	0047910905	0
1570 SOUTH NOVATO BLVD	02/17/1986	1529719187	7,303
1570 SOUTH NOVATO BLVD	01/04/1982	1529719187	13,499
1572 S NOVATO BL	01/04/1982	1051528063	9,412
1574 S NOVATO BL	01/04/1982	1051528147	12,173
1575 S NOVATO BL	01/04/1982	2004546426	6,655
1575 S NOVATO BLD	02/20/1980	1520042233	130
16 CLEMENT COURT	01/11/1993	0047571604	690
16 JOAN AVE	12/31/2005	1933256560	17,649
16 LOS ALONDRAS CT	02/14/1986	2023235720	0
16 LOS ALONDRAS CT	01/04/1982	1935429793	3,967
16 NAVE COURT	02/14/1986	2014094201	0
16 NAVE CT	12/31/2005	1800563767	2,615
16 VIEJO WAY	01/04/1982	1525953525	385
16 VIEJO WAY	01/04/1982	1525953459	385
160 FORD WY	01/04/1982	1003820519	3,425
1605 NOVATO BLVD	01/23/1998	0123106497	0
1607 CENTER RD	02/14/1986	2019505797	0
1607 CENTER RD	02/14/1986	2019505805	1,354
1610 NOVATO BLVD	02/02/1998	3005558501	1,450
1619 CENTER RD	01/04/1982	1940662990	1,557
1620 NOVATO BLVD	10/20/2004	9901858908	0
1620 NOVATO BLVD	03/07/1998	7770008991	4,262
1626 CTR RD	02/14/1986	2010614952	77
1647 CENTER RD	01/04/1982	1526378656	0
1652 NOVATO BLVD	02/01/1998	7770007379	18,592
1653 INDIAN VALLEY RD	01/09/1995	3005418730	0
1655 CENTER RD	01/04/1982	1947628556	5,972
1655 CENTER RD	04/05/1982	1947628556	0
1663 NOVATO BLVD	01/11/1995	0047581724	0

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
1672 CENTER RD	01/04/1982	2004885543	575
1673 CENTER RD	01/09/1995	0205RA5465	0
1673 CENTER ROAD	12/07/1992	9901035086	994
17 BRYAN DRIVE	03/30/1995	068420991F	1,704
17 JOAN AVE	12/31/2005	8702393873	1,531
17 JOAN AVE	02/14/1986	2022468066	13,539
17 NAVE CT	02/15/1986	1526387806	3,740
17 NAVE CT	01/04/1982	1526387806	4,050
17 RENA CT	01/09/1995	0205RA5538	0
170 FORD WAY	02/03/1998	3005026723	7,059
170 FORD WAY	03/09/1995	3005026723	331
170 FORD WY	01/04/1982	1896221791	4,400
171 NOVATO BL	01/04/1982	1940406372	1,968
1717 NOVATO BL	01/04/1982	1940406364	5,038
1717 NOVATO BL	01/04/1982	1940406356	18,741
1717 NOVATO BL	01/04/1982	1940406349	7,952
1725 NOVATO BL BG 4	01/04/1982	1941377036	4,062
1725 NOVATO BL BG 5	01/04/1982	1941281139	15,780
1725 NOVATO BL BG 6	01/04/1982	1941377044	15,654
18 BRIAN LANE	02/18/1986	2011748379	0
18 JOAN AV	01/27/1983	2004153330	0
18 JOAN AV	02/15/1986	2004153330	1,723
18 JOAN AV	01/04/1982	2004153330	25,592
18 JOAN AVE	02/02/1998	0205RA2360	3,058
18 LAUREN AVE	02/15/1986	2015192475	2,501
18 SAN MIGUEL WAY	02/22/1998	0047473351	579
1819 NOVATO BLVD	01/04/1982	1932913153	0
1822 VIRGINIA AV	01/04/1982	1919514834	813
1907 NOVATO BLVD	02/26/2004	2022152066	8,868
1915 1/2 NOVATO BLVD	12/31/2005	6500720732	46,799
1931 NOVATO BLVD	02/03/1998	0803130459	0
1931 NOVATO BLVD	01/09/1995	0803130459	2,288
1949 NOVATO BL	01/04/1982	2000248233	10,670
2 BETTY LN	01/04/1982	1935810216	0
2 GARDEN CT	12/31/2005	8702550838	22,293
2 LAUREN AV	02/17/1986	2022369132	1,631
2 LOS ALONDRAS CT	02/02/1998	9901103566	880
2 PAPER MILL CREEK CT	01/23/1983	2005898529	0
2 PICO VIS	02/02/1998	1155F00002	2,565
2 PRESTWICK CT	02/02/1998	0047692364	1,459
20 KRISTY CT	02/14/1986	0205D02413	909
20 KRISTY CT	01/27/1983	2005323882	376
20 LAUREN	02/17/1986	2024511103	5,648
20 LAUREN AV	01/27/1983	2006107664	0
20 NAVE CT	02/05/1998	0047665793	4,082

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
20 NAVE CT	01/02/2006	8702525734	73,279
2091 VINEYARD RD	02/16/1986	2022189217	0
21 GROVE LN	01/04/1982	1933975060	16,552
21 JOAN AVE	12/31/2005	0205G54439	9,366
21 JOAN AVE	02/08/1998	0205G54439	12,385
21 LAUREN AVE	02/16/1986	2009851391	2,190
21 SHIELDS LN	01/09/1995	0047586583	3,846
2119 VINEYARD RD	01/09/1995	0805202272	0
216 PICO VISTA	02/14/1986	2016740504	0
22 JOAN AV	01/04/1982	2001351317	9,538
22 JOAN AVE	02/17/1986	2022539932	3,454
22 JOAN AVE	03/15/1998	0205RC2661	0
22 KRISTY COURT	02/14/1986	2008541969	0
22 LAUREN AV	01/04/1982	2004529133	4,710
23 BOULEVARD TERR	02/14/1986	2001754189	0
23 BOULEVARD TERR	01/04/1982	2001754189	545
23 JOAN AV	01/04/1982	1051560470	26,823
23 MARION CT	02/03/1998	0047684504	0
23 MARION CT	03/10/1995	3000004273	0
24 BOULEVARD TE	01/04/1982	1932239013	5,089
25 JOAN AVE	02/14/1986	1919177731	5,312
25 JOAN AVE	01/04/1982	1919177731	24,951
25 LAUREN AV	02/24/1980	1051771754	0
25 LAUREN AV	04/10/1980	1051771754	0
25 LAUREN AV	01/04/1982	1051771754	8,398
26 LAUREN AV	01/04/1982	2004963712	4,788
26 NAVE CT	02/28/1983	2010727036	1,159
26 NAVE CT	02/14/1986	2010727036	8,729
26 NAVE CT	01/04/1982	2000306056	33,385
262 SUNSET PKWY	12/31/2005	3000249691	1,341
27 JOAN AVE	02/18/1980	1520103787	2,491
27 JOAN AVE	02/14/1986	1520103787	9,178
27 JOAN AVE	01/04/1982	1520103787	8,447
28 BLVD TER	01/11/1995	0047336834	0
28 JOAN AVE	02/03/1998	0800615981	9,013
28 JOAN DR	02/20/1980	1523219994	428
28 JOAN DR	02/14/1986	0205D04616	7,024
28 JOAN DR	01/04/1982	1523219994	24,268
28 LAUREN AV	01/04/1982	1944045713	3,809
286 PICO VIS	03/15/1998	1000015588	0
29 BLOVARD TE	01/04/1982	1933984518	1,679
29 JOAN AVE	02/14/1986	1945256970	18,173
29 JOAN AVE	01/04/1982	1945256970	10,732
3 BLVD TE	01/04/1982	2001446976	0
3 BLVD TERRACE	02/14/1986	2010942353	0

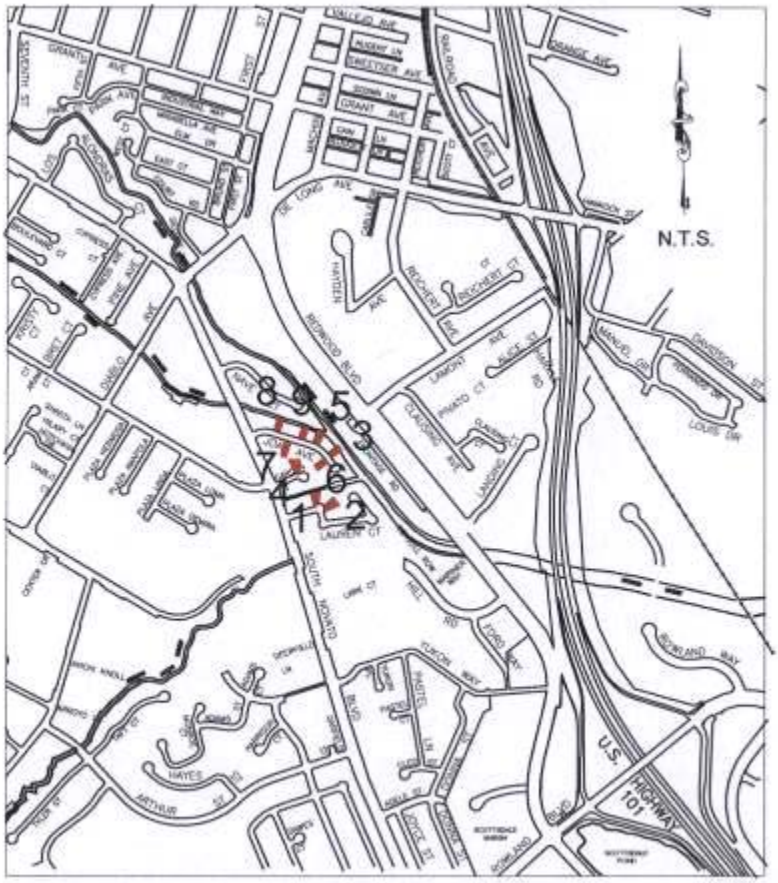
Address	Date of Loss	Flood Insurance Policy Number	Total Paid
3 JOAN AV	02/20/1980	1527919771	1,533
3 JOAN AV	01/04/1982	1527919771	17,903
3 JOAN AVE	02/02/1998	0047428276	32,192
3 JOAN AVE	01/01/2006	7700032850	8,493
3 MARINDA CT	01/04/1982	1939169320	6,976
3 NAVE CT	01/04/1982	1937509295	0
3 ST PAUL CR	01/04/1982	2002803829	135
30 BOULEVARD TER	01/09/1995	0205D03657	0
30 BOULEVARD TERRACE	02/14/1986	2015471291	0
30 JOAN AVE	12/31/2005	1804112892	12,166
30 JOAN AVE	02/16/1986	2019635446	6,194
30 JOAN AVE	01/04/1982	1938120902	16,605
30 JOAN AVE	02/09/1998	0120271797	0
30 LAUREN AVE	02/02/1998	0103996497	0
30 LOS ALONDRAS CT	01/04/1982	1935957215	6,873
30 MCKEON CT	01/02/2006	0125095498	31,224
300 SUNSET PKWY	10/20/1979	1941054957	0
300 SUNSET PKWY	01/12/1980	1941054957	7,987
31 JOAN AVE	12/31/2005	1801197557	71,602
31 JOAN AVENUE	02/15/1986	1003745799	4,295
31 JOAN AVENUE	01/04/1982	1003745799	23,867
32 JOAN AVE	02/17/1986	2015090141	5,550
32 LAUREN AVE	12/31/2005	0806912507	7,337
324 SUNSET PARKWAY	02/17/1986	2001931233	500
33 ORCHARD WAY	04/30/1993	2029844657	0
33 PACHECO CREEK DR	12/31/2005	1804007522	0
34 LAUREN AV	01/04/1982	1922178502	9,735
340 SUNSET PARKWAY	01/09/1995	3000018492	1,848
340 SUNSET PKWY	01/13/1980	1936138716	9,380
35 ORMOND CT	01/04/1982	1908746942	2,883
37 CARNOUSTIE DR	02/02/1998	3005293919	26,063
37 CARNOUSTIE DR	03/10/1995	3005293919	7,490
37 CARNOUSTIE DR	02/15/1986	2010839765	8,032
38 LOS ALONDRAS CT	02/03/1998	0120761397	0
39 C OLIVA DRIVE	01/04/1982	2000038964	2,903
39 ORCHARD WY	01/04/1982	2002689160	2,824
4 GARDEN CT	02/02/1998	0047807717	2,610
4 GARDEN CT	12/31/2005	0205RD2596	6,308
4 GARDEN CT	02/17/1986	1941671560	10,491
4 GARDEN CT	01/04/1982	1941671560	7,563
4 JOAN AV	01/27/1983	2010564744	0
4 JOAN AV	01/23/1983	2010564744	2,149
4 JOAN AV	01/04/1982	2002736979	13,075
4 LA NOCHE CT	02/02/1998	0205RA0994	0
4 MONTEGO KY # 24	02/05/1998	0850427295	0

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
40 GROVE LN	02/02/1998	0205RA3593	402
40 LAS TARDES CT	02/02/1998	0205SA8735	0
40 LAUREN AV	01/04/1982	2001176169	0
40 LOS ALONDRAS CT	01/27/1983	1530813524	0
405 MORMAN DRIVE	01/11/1995	0605012292	1,209
41 LAUREN AV	02/20/1980	1051579389	1,365
41 LAUREN AV	01/04/1982	1051579389	12,383
42 LAUREN AV	01/04/1982	1051577482	2,761
45 LAUREN AV	01/27/1983	2005624594	72
450 FAIRWAY DR	02/03/1998	8880005223	11,460
47 LAUREN AV	01/04/1982	2004551624	9,464
5 COMMERCIAL BLVD	12/31/2005	7700562132	31,571
5 CYPRESS CT	01/04/1982	1941648477	5,232
5 GARDEN CT	02/18/1980	1003861851	1,544
5 JOAN AV	02/15/1986	2023706688	0
5 JOAN AV	01/04/1982	1529371583	12,386
5 JOAN AVE	01/02/2006	1803471497	2,758
5 JOAN AVE	02/02/1998	0205SA3575	1,008
50 MCKEON CT	12/31/2005	0205RD6552	17,573
54 GROVE LN	01/04/1982	2004737876	0
54 GROVE LN	01/04/1982	2001887864	5,907
562 WILSON AVE	04/29/2006	3000267168	0
562 WILSON AVE	03/20/1995	3000061886	4,794
588 FAIRWAY DR	01/05/1993	0205SA6769	0
59 ORCHARD WY	01/04/1982	1915423659	3,977
6 GARDEN COURT	02/15/1986	2006264267	19,527
6 GARDEN CT	02/02/1998	0072973530	7,666
6 GARDEN CT	12/31/2005	1803849189	10,156
6 KRISTY CT	01/04/1982	1930258718	6,869
6 LA NOCHE CT	02/02/1998	0205D02572	0
6 NAVE CT	02/15/1986	2002101703	0
60 MCKEON CT	12/30/2005	8702105659	179,804
609 ROWLAND BLVD	06/16/1998	0205RC2674	0
631 WILSON AVE	02/02/1998	0047690045	13,025
65 BRET CT	01/04/1982	1527630345	0
67 GROVE LN	01/04/1982	1935332146	21,098
67 ORCHARD WAY	12/30/2005	006131721F	2,662
7 ESQUIRE CT	12/30/1996	3000072155	0
7 GARDEN CT	02/14/1986	2020125593	20,551
7 HILLARY CT	01/04/1982	2001251400	0
7 JOAN AVE	02/19/1980	1906378284	262
7 LA NOCHE CT	02/03/1998	0047562120	0
70 MCKEON CT	12/31/2005	SP00046795	27,686
70 SAN GREGORIO CT	03/07/1980	1938983952	0
70 SAN GREGORIO CT	02/15/1980	1938983952	930

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
704 FEL MAR AV	01/04/1982	1932352071	5,573
713 DIABLO	01/04/1982	1919512853	0
7299 REDWOOD BLVD	02/02/1998	0047666609	38,900
732 W ORANGE AV	01/27/1983	2005301433	680
744 BRADLEY AVE	04/01/1993	0801153362	0
75 GROVE LN	01/04/1982	2001686233	23,433
750 PL AMAPOLA	01/04/1982	1937636312	2,706
758 PLAZA HERMOSA	01/09/1995	0809677958	0
758 PLZ HERMOSA	02/14/1986	1933578450	0
758 PLZ HERMOSA	01/04/1982	1933578450	1,080
762 PL HERMOSA	01/04/1982	2002024285	15,776
763 PL HERMOSA	01/04/1982	1528766874	5,781
763 PLAZA HERMOSA	01/13/1993	0205N04898	0
764 PL AMAPOLA	01/04/1982	1940249459	6,894
766 PL AMAPOLA	03/01/1983	2007805084	432
766 PL HERMOSA	01/04/1982	1918902105	11,508
767 PLAZA AMAPOLA	02/14/1986	015693390F	1,321
768 DIABLO AV	02/26/1983	1934507409	0
768 DIABLO AV	01/04/1982	1934507409	16,844
770 DIABLO ST	01/04/1982	1526276769	6,127
770 PL AMAPOLA	01/04/1982	1523649737	15,774
770 PL HERMOSA	01/04/1982	1930913114	15,310
770 PLAZA HERMOSA	01/10/1997	0205D01029	0
771 DIABLO AV	01/04/1982	1934320431	6,612
771 PL AMAPOLA	01/04/1982	2000962213	8,000
771 PLAZA AMAPOLA	02/14/1986	2006249813	0
8 BLVD CT	01/04/1982	1938004213	1,421
8 GARDEN CT	02/28/1983	2005689910	1,173
8 GARDEN CT	02/14/1986	2021467333	16,093
80 CRESCENT LN	01/04/1982	2001955380	12,348
800 SWEETSER AV	10/23/1989	2030492470	981
800 SWEETSER AV	01/04/1982	1530992633	10,000
809 DIABLO AV BG B	02/04/1983	2005294968	1,722
809 DIABLO AV BG C	01/27/1983	2005294901	0
82 GROVE LN	01/04/1982	2003041643	8,011
829 WILMAC AV	01/04/1982	2002004139	0
835 WILMAC AVE	01/01/2006	8702071832	0
84 ORCHARD WY	05/15/1993	0205SA6459	0
850 CYPRESS AV	02/15/1980	1934893411	0
850 CYPRESS AV	01/04/1982	1934893411	14,794
850 PINE ST	02/14/1986	1938065651	2,213
850 PINE ST	01/04/1982	1938065651	12,202
852 PINE AV	02/14/1986	0205699448	9,784
853 TAMALPAIS AV	01/04/1982	1932526526	40,230
854 PINE	01/04/1982	1944590288	10,300

Address	Date of Loss	Flood Insurance Policy Number	Total Paid
855 CYPRESS ST	02/14/1986	2010111553	3,762
855 PINE AVENUE	02/10/1986	2015484161	1,404
857 PINE	02/16/1986	0205D02575	3,991
857 PINE AVE	02/03/1998	3006721827	3,957
858 PINE AVE	02/14/1986	0205D01604	50
858 PINE AVE	01/04/1982	1939710610	14,265
860 PINE AV	01/04/1982	2002036420	7,640
863 PINE AVE	02/02/1998	2031801323	4,152
863 PINE ST	01/04/1982	1940788977	5,457
865 PINE ST	09/15/1982	2003557093	0
865 PINE ST	01/04/1982	2003557093	6,180
877 GRANT AV	01/04/1982	2000910295	3,069
882 MCCLAY	01/04/1982	1520478833	29,592
9 GARDEN COURT	02/14/1986	2001454798	5,079
9 GARDEN COURT	01/04/1982	2001454798	10,535
9 JOAN	02/17/1986	2004867707	17,436
9 JOAN	01/04/1982	2004867707	16,570
90 GROVE LANE	01/04/1982	1530900495	18,518
90 MCKEON CT	12/31/2005	0205RG4319	83,480
933 BRUNO AV	01/04/1982	1933647339	488
936 BRUNO ST	02/02/1998	9901101453	27,209
936 BRUNO ST	02/14/1986	0205706202	1,437
938 BRUNO AV	01/04/1982	1933401695	15,169
940 BRUNO ST	02/20/1980	1529955864	1,175
940 BRUNO ST	02/02/1998	0205D02024	7,872
942 BRUNO ST	02/20/1980	1530716354	4,918
942 BRUNO ST	02/17/1986	1530716354	8,353
942 BRUNO ST	02/02/1998	0205D00729	12,853
942 BRUNO ST	01/04/1982	1530716354	28,789
95 GROVE LN	01/04/1982	1526116130	8,957
950 7TH ST	02/15/1986	2024299394	3,139
96 ORCHARD WAY	01/04/1982	1936963766	4,870
99 BACA VIS	12/20/2006	8000694573	0
6 NAVE CT	01/04/1982	1523354379	0
48 LAUREN AV	02/17/1986	2002620017	859
48 LAUREN AV	01/04/1982	2002620017	18,755
1558 S NOVATO BLVD	02/06/1998	2032661361	0

Elevated Home Sites



Elevated Home Sites*

#	Parcel	Address
1	140-141-39	9 Lauren Avenue
2	140-141-39	13 Lauren Avenue
3	140-141-04	25 Joan Court**
4	140-141-27	7 Garden Court
5	140-141-01	19 Joan Avenue
6	140-141-11	26 Joan Avenue
7	140-141-17	10 Joan Avenue
8	140-141-01	7 Joan Avenue
9	140-071-05	15 Joan Avenue

* Based on Field Review Only
** 3 140-141-04 25 Joan Court is included on CRS Repetitive Loss Sites

Elevated Home Property Photographs

13 Lauren Ave. APN. 140-141-41 Elevated Home Site #2

25 Joan Ave. APN. 140-141-04 Elevated Home Site #3
Repetitive Loss Site #13

7 Garden Ct. APN. 140-141-27 Elevated Home Site #4

19 Joan Ave. APN. 140-141-01 Elevated Home Site #5

26 Joan Ave. APN. 140-141-11 Elevated Home Site #6

10 Joan Ave. APN. 140-141-17 Elevated Home Site #7

7 Joan Ave. APN. 140-071-01 Elevated Home Site #8

15 Joan Ave. APN. 140-071-05 Elevated Home Site #9

Community Rating System (CRS) Program

The City of Novato voluntarily entered the FEMA Community Rating System Program (CRS) in the fall of 1994, when it submitted an application for a Class 9 rating (10 being the Lowest) The purpose of the program is to advise the public about flood issues in their area and to take advantage of the availability of Flood Insurance.

The CRS Repetitive Loss Plan Volume 1, describes the program as providing all of the different activities that FEMA tracks and credits as part of normal City planning. One of the benefits listed in obtaining a rating in the CRS Program is that every Flood Insurance Policyholder in the City then receives a discount on a portion of their annual flood insurance policy premium. This discount is 5% for every Class rating that is achieved. The City Currently qualifies for a Class 7 rating which results in a 15% discount. The City has over 1,300 flood insurance policies in affect and its citizens realize a savings of approximately $80.000 in flood insurance premiums.

The City has adopted Repetitive Loss Ordinances and describes the City's Repetitive Loss Plans purpose to obtain public input/consensus by following a proper planning process to develop a plan that determines what is best/feasible for the community in addressing the issue of local repetitive loss properties. The Plan's progress is reviewed annually by City and staff and reported to FEMA. The Plan may be updated as often as desired by the local community, however the CRS Program requires mandatory Repetitive Loss Plan updates at least once every five years.

The CRS Plan is sent for review to the following agencies:

- FEMA Regional CRS Coordinator
- California State National Flood Insurance Program NFIP Coordinator
- Insurance Services Office
- Marin County Flood Control and Water Conservation District
- City of Petaluma

The Community Rating System Volume 2

- This Volume of the CRS Program contains documentation to support the various floodplain management activities. It is a request for verification of these activities from the ISO/CRS Specialist to qualify the city of Novato to be classified as a CRS Class 7 or possibly a Class 6.

The Community Rating System Volume 3

- This Volume contains confirmation of the following flood mitigation, public information and flood planning activities.
- Elevation certificates completed since the last five-year recertification. The City maintains a computer format of the elevation certificates on the City website. The most recent elevation certificate on file was from 2003.
- A letter sent to insurance agents, real estate agents, mortgage lenders and banks.

The Community Rating System Volume 4, 2005 Cycle Verification:

- This Volume contains a summary of outreach projects which includes CRS notices in Novato's Activity Guide which is mailed to all Novato residences.

- The Volume documents compliance with California Code 1102 on property resale reports on whether the property is in a Special Flood Hazard Area (SFHA).

- The City has provided references to the Marin County Free Library of catalogued resources pertaining to flooding. The City has significantly updated the City's current website with regard to flood information. This includes linking Elevation certificate data to the website.

- The volume confirms the City is regularly updating GIS based aerial photograph and base mapping including topographic mapping, zoning, water features and open space.

- The volume contains a map showing the overlap of both open space and natural and beneficial areas with the floodplain. This shows a total of 5,022 acres in the floodplain, the City now maintains 3,532 acres of open space including 62.5 acres of natural and beneficial acres.

- The Volume contains a copy of the City's latest floodplain ordinance. The map for the open space also shows the intersection of low density zoning and the floodplain. This shows 387.5 acres of low density zoning in the 5022 acres of floodplain.

- The Volume demonstrates the GIS layers for flood mapping coordination as well as how the GIS is updated and used. The Elevation reference marks are maintained in the City as benchmarks, and full alphabetical listing of the benchmarks is included in the volume.

- The volume contains the completed Storm water Master Plan Questionnaire, along with its supporting documents. And includes the appropriate Ordinances.

- The Volume also contains a copy of the City's Repetitive Loss Plan as revised and adopted in 2000 including a map showing the repetitive Loss Properties.

- The Volume contains a flood warning program questionnaire.

- The volume contains documentation of the Hamilton Army Base conversion project, levees. The developments were subsequently removed from the regulating floodplain by FEMA. The levee supporting documentation is provided.

- The volume contains the **Notice to Residents Regarding the Special Flood Hazard Area,(SFHA)** and the SFHA mailing list.

THE CITY OF
NOVATO
CALIFORNIA

75 Rowland Way #200
Novato, CA 94945-5054
415/899-8900
FAX 415/899-8213
www.ci.novato.ca.us

August 19, 2005

Ms. Janine E. Ellington, CFM
ISO/CRS Specialist
614-C S. Business IH35, #28
New Braunfels, TX 78130

Subject: **Additional Documentation to Support Community Rating System Five-Year Cycle Visit, NFIP# 06178**

Dear Ms. Ellington:

Attached is additional documentation to support the various floodplain management activities by the City of Novato as identified in the CRS Program. We request credit for these activities, which along with those already identified during our June 9, 2005 verification visit and in your June 16, 2005 letter (copy attached) will hopefully qualify the City of Novato to be classified a CRS Class 7 or possibly a Class 6.

Activity 230 - Cycle Verification: Attached is a completed and signed AW-230 Cycle Cover Sheet.

Activity 310 - Elevation Certificates: We have provided a sample of elevation certificates that have been completed since the last five-year recertification in 1999. This sample includes one certificate completed since 2003. Additionally, the elevation certificate library is maintained in computer format for ECCF credit, and this library has been added to the City's website for ECWS credit. Staff found no additional Elevation Certificates in the Building Division, beyond those already submitted during the June 9, 2005 verification visit (see attached letter).

Activity 320 - Map Information: Attached is a copy of the revised letter that has been sent to insurance agents, real estate agents, mortgage lenders and banks. This letter states that Elevation Certificate are available at the City of Novato. Also attached is a brief description on letterhead as to how the City of Novato's FIRMs are updated.

Activity 330 - Outreach Projects: During previous years a notice was sent to all residents through the City of Novato's annual newsletter, "Visions". The Visions newsletter was discontinued at the end of 2004, so we have placed a notice in Novato's Activity Guide, which is also mailed to all Novato residences. This notice will appear in the fall 2005 issue, and here forth annually to coincide with the approach of the rainy season.

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We are also in the process of mailing outreach notices specifically to owners of properties in the Special Flood Hazard Area (SFHA). This mailing list is attached, and was generated by selection of parcels touching the SFHA on our GIS program. As an additional outreach, and in order to fulfill the City's Repetitive Loss Plan, notices have also been sent to repetitive loss properties. All of these outreach projects advertise the city's website address, and the portion of the web site pertaining to flooding has been significantly updated.

Activity 340 - Hazard Disclosure: The City's resale reports clearly informs prospective buyers whether or not a property is in a SFHA. California Civil Code 1102 also establishes that Real Estate agents must inform prospective buyers of known hazards to the property.

Activity 350 - Flood Protection Information: The Marin County Free Library contains a number of catalogued resources pertaining to flooding. The City is currently updating those resources. We have also significantly updated the City's website with regard to flood information. This includes linking Elevation Certificate data to the website (Activity 310).

Activity 360 - Flood Protection Assistance: Attached are the job descriptions and qualifications of the City of Novato personnel who are directly responsible for providing information and making site visits as part of the City of Novato Flood Protection Assistance activities. Documentation is also provided showing that information is provided to citizens upon request.

Activity 410 - Additional Flood Data: The City is regularly updating GIS based aerial photograph and base mapping including topographic mapping, zoning, water features, and open space.

Activity 420 - Open Space Preservation: A map showing the overlap of both open space and natural and beneficial areas with the floodplain is attached. This shows that of 5022 acres in the floodplain, the City now maintains 3532 acres of open space including 62.5 acres of natural and beneficial areas. Letters establishing the status of these natural and beneficial areas are also provided. The city's zoning codes from Municipal Code Chapters 19.06-19.08 are also attached per your request.

Activity 430 - Higher Regulatory Standards: A copy of the City's latest floodplain ordinance is attached. The map for Activity 420 also shows the intersection of low density zoning and the floodplain. This shows 387.5 acres of low density zoning in the 5022 acres of floodplain. The City's Municipal Code

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Mayor
Bernard H. Meyers
Mayor Pro Tem
Carole Dillon-Knutson
Councilmembers
Judy Arnold
Pat Eklund
Jeanne MacLeamy

City Manager
Daniel E. Keen

Ms. Janine E. Ellington
August 19, 2005
page 3

Chapter 19.35 establishes a 50' setback from the top of bank on streambeds. The establishment of open space is defined in Chapter 19.08, which is attached.

Activity 440 - Flood Data Maintenance: We have provided several screen shots showing the application of various layers in the GIS, as well as descriptions of how the GIS is used and updated. Elevation reference marks are maintained in the City as benchmarks, and a full alphabetical listing of benchmarks is attached. Additional copies of the City's FIRMs and Flood Insurance Studies from 1978, 1984, and 1989 are attached.

Activity 450 - Stormwater Management: The completed Stormwater Master Plan Questionnaire is attached, along with its supporting documents. Ordinances regarding erosion and sediment control include City Ordinances 1329 and 1331, both of which are attached.

Activity 510 - Floodplain Management Planning: Attached is a copy of the City's Repetitive Loss Plan as revised and adopted in 2000. Also attached is a map showing the repetitive loss properties. It is anticipated that repetitive losses will also be addressed in the upcoming Hazard Mitigation Plan (see attached email from Dick Scott), and a draft of this report will be forwarded to your office for review and comment.

Activity 530 - Flood Protection: We have found no records of any retrofitted buildings.

Activity 540 - Drainage System Maintenance: :The completed Drainage System Maintenance and Capital Improvement Questionnaire is attached along with the appropriate documentation. Attached are over ten work orders to clear drainage ditches, culverts, pipes, etc. showing that the City maintains the water drainage system, including ten pictures. Also attached are maps of both the City's storm drain system and the waterways system, establishing the surface water drainage system.

Activity 610 - Flood Warning Program: The Flood Warning Program Questionnaire has been completed and attached as requested.

Activity 620 - Levee Safety: As part of the Hamilton Army Base conversion project, levees were constructed to protect these developments. These developments were subsequently removed from the regulating floodplain by FEMA. Attached is documentation supporting the levee protection provided.

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Ms. Janine E. Ellington
August 19, 2005
page 4

I trust that the information provided above and in the attachments and as discussed during our verification visit of June 9, 2005 sufficiently documents the floodplain activities being conducted by the City of Novato. Thank you for your assistance on our CRS program and please call me if you have any questions or comments on our submittal.

Sincerely,

David Harlan

David Harlan
Principal Civil Engineer/CRS Coordinator

INSURANCE SERVICES OFFICE, INC.
614-C, South Bus IH35, #28, New Braunfels, TX 78130 PHONE 830-899-6422, FAX 830-899-6432
e-mail: JEllington@iso.com

June 16, 2005

RECEIVED
JUN 23 2005
By

Mr. David Harlan
Principal Civil Engineer
City of Novato
75 Rowland Way, #200
Novato, CA 94945-5054

RE: Community Rating System Cycle Visit – NFIP# 06178

Dear Mr. Harlan:

Thank you for your assistance during our recent verification visit on June 9, 2005. As we discussed, certain activities require additional documentation to verify the credit your community has requested. The additional documentation is as follows:

Activity 230 - Cycle Verification: Submit the completed and signed AW-230 Cycle Cover Sheet that is enclosed for your use.

Activity 310 - Elevation Certificates: The most recent Elevation Certificate on file was from 2003. As discussed, you were going to check with the city's Building Department for any more recent Elevation Certificates. If you find some, submit copies of each one for us to review. If you do not find any, provide a letter stating there has been no new construction or substantial improvements within the special flood hazard areas. During the city's next annual recertification, we will require copies of any new Elevation Certificates.

Activity 320 – Map Information: Please provide a copy of the revised letter that has been sent to insurance agents, real estate agents, mortgage lenders and banks. Make sure the letter states that Elevation Certificates are available at the City of Novato. Also, prepare a brief description on letterhead as to how the city's FIRMs are updated.

Activity 330 - Outreach Projects: Provide copies of any and all outreach projects, along with documentation as to how and when projects were distributed to at least 90% of all properties. (Enclosed is a model outreach for your consideration.) If you send the project to only the floodplain residents, you must provide a mailing list and an explanation as to how you determined the mailing list. If you use your website for outreach, please remember to advertise your website address

Activity 350 - Flood Protection Information: To maintain your credit under the Flood Protection Library, you either need to provide us a web address for the library's card catalogue, or a statement from the head librarian that provides what information is available. To receive credit for your website, provide us the city's website address for us to review. As was discussed, you must have flood information listed on your homepage or a search function for flood information, along with a link to the DHS/FEMA website. Also, you may want to consider linking your outreach project for maximum credit.

Activity 360 - Flood Protection Assistance: If you use the outreach project I have enclosed as a model, it will meet the advertisement requirements needed for you to receive credit on this activity. Provide current job descriptions of the personnel who are directly responsible for providing information and making site visits under this activity. Also, provide a copy of the updated version of the log sheet used for this activity.

Activity 420 - Open Space Preservation: Please calculate the acreage in the Regulatory Floodplain. You will need to submit a map showing the floodplain and the open space that intersects with it, along with the acreage of the floodplain and the acreage of the open space. Provide the same for natural and beneficial areas, along with a letter from a professional who specializes in natural sciences, stating that these areas are preserved as natural and beneficial. Also, provide copies of all corresponding ordinances. Also, provide a copy of the city's zoning ordinance Chapters 19.06 – 19.08 if it has been revised since 1999.

Activity 430 - Higher Regulatory Standards: Provide a copy of the latest floodplain ordinance. In order to receive credit for low density zoning, I will need a map showing the regulatory floodplain and any low density zoning that intersects with the floodplain, i.e. one acre or more. Please provide the acreage of this zoning. If the city has an ordinance that regulates subdivisions with regard to cluster subdivisions, density transfers, etc., please provide a copy of that as well.

Activity 440 - Flood Data Maintenance: Provide print screen copies of each layer of your GIS system with a small summary of how it used on a daily basis and how the information is updated. Provide a copy of a master list of elevation reference marks and submit documentation showing they are inspected, repaired, and replaced as needed, and how often they are inspected. Submit a copy the City of Novato's FIRM panels that have been issued since the city joined the NFIP in 1978, along with all Flood Insurance Studies.

Activity 450 - Stormwater Management: Send the completed **STORMWATER MASTER PLAN QUESTIONNAIRE**, which is enclosed. Attach the appropriate documentation and return it for technical review. Provide copies of any ordinances or regulations that would pertain to: Freeboard for all new buildings, and erosion and sediment control.

Activity 510 – Floodplain Management Planning: Provide a copy of the Multi-Jurisdictional Mitigation Plan for Marin County that includes Novato for review. If the plan addresses Novato's repetitive losses, it may qualify for credit under this activity, and you may not have to provide an additional plan under Section 501. If it does not address repetitive losses, you may be required to amend the Multi-Jurisdictional Plan or provide a Repetitive Loss Plan.

Activity 530 – Flood Protection: Provide a map, address listing, building permits, and copies of Elevation Certificates for any retrofitted buildings.

Activity 540 - Drainage System Maintenance: Send the completed **DRAINAGE SYSTEM MAINTENANCE AND CAPITAL IMPROVEMENTS QUESTIONNAIRE** along with the appropriate documentation. Submit a list of "hotspots" or areas that regularly flood during a storm, along with a map of the city's surface water drainage system. Provide copies of at least ten completed work order for drainage maintenance, and provide at least ten pictures and addresses of various ditches, culverts, etc., showing us they are clean.

Activity 610 – Flood Warning Program: Send the completed **FLOOD WARNING SYSTEM QUESTIONNAIRE**, which is enclosed, along with the appropriate documentation.

Activity 620 – Levee Safety: Submit a statement from the U.S. Army Corps of Engineers that provides the levee protection level and the date of construction **or** certification by a licensed P.E. that states the levee meets all of the NFIP levee recognition requirements, except for height, and gives the levee protection level and date of construction. Submit a copy of the city's levee emergency response plan specifying actions to be taken at various flood stages and a map showing the area protected by the levee.

Mr. David Harlan
June 16, 2005
Page 4

If you have any questions regarding any of the above activities, or if you find you would like to apply for additional credit, please let me know. The above documentation must be returned to me no later than July 30, 2005. This is longer than the normal thirty days, but you do have a lot to assemble. Please send the requested information to:

Janine E. Ellington, CFM
ISO/CRS Specialist
614-C S. Business IH35, #28
New Braunfels, TX 78130

Should you have any questions or if I can be of assistance, please contact me at 830-899-6422 or by e-mail JEllington@iso.com– thanks again.

Sincerely,

Janine E. Ellington, CFM
ISO/CRS Specialist

Enclosures (5)

cc: Bill Trakimas, ISO/CRS Technical Coordinator
Cynthia McKenzie, FEMA Region IX
Ricardo S. Pineda; CA State NFIP Coordinator

Loss Estimates

National Flood Insurance Program (NFIP) Data for Novato

The Federal Insurance and Mitigation Administration (FIMA) within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that provide assistance for mitigating future damages from natural hazards.

Community Overview

Community:	NOVATO, CITY OF	**State:**	CALIFORNIA
County:	MARIN COUNTY	**CID:**	060178

Program:	Regular	**Emergency Entry:**	02/26/1971	**Regular Entry:**	01/19/1978
Status:	PARTICIPATING			**Status Effective:**	01/19/1978
Current Map:	09/29/1989	**Study Underway:**	YES	**Level of Regs:**	
FIRM Status:	REVISED			**Initial FIRM:**	01/19/1978
FHBM Status:	SUPERCEDED BY FIRM			**Initial FHBM:**	06/28/1974

Probation Status:	
Probation Effective:	**Probation Ended:**
Suspension Effective:	**Reinstated Effective:**
Withdrawal Effective:	**Reinstated Effective:**

CRS Class / Discount:	08 / 10%	**Policies in Force:**	1,473
Effective Date:	05/01/2007	**Insurance in Force:**	$283,550,500.00
CAV Date:	01/18/2001	**No. of Paid Losses:**	307
CAC Date:		**Total Losses Paid:**	$3,136,830.50
Upton Jones Claims	**HMGP Projects**	**Sub. Damage Claims Since 1978:**	12
ICC Claims	**FMA Projects**		

Donnelly Study

Community:	NOVATO, CITY OF	**State:**	CALIFORNIA
County:	MARIN COUNTY	**CID:**	060178

Total

Area(Sq. miles):	26.02	**Value of Prop. at Risk 1980:**	$269,646,514.00
Population 1980:	43,916	**Value of Prop. at Risk 1987:**	$289,444,906.00
Households 1980:	15,493	**Value of Prop. at Risk 2002:**	$336,902,304.00
Households 1987:	16,628		
Annual % Change Houlseholds(1980-1987):			1.01
Average value of composite property at risk (SCOR) 1987-2002:			$312,613,404.00

Floodplain

Area(Sq. miles):	8.218	**Rank:**	264
Households 1980:	2,501	**State Rank by Risk Change:**	95
Households 1987:	2,685	**Rank by Risk Change:**	526
Households 2002:	3,125	**Regional Rank by Risk Change:**	116
		Change in Value of Prop. at Risk:	$47,457,398.00
Total Cost Study:	$0.00		
Comm. Share:	0	**Regional Rank by SCOR:**	64
Last Study:	0	**State Rank by SCOR:**	53

Insurance Overview

As of 04/30/2007

Community:	NOVATO, CITY OF	**State:**	CALIFORNIA
County:	MARIN COUNTY	**CID:**	060178

Overview | Occupancy | Zone | Pre/Post FIRM

Total by Community		Group Flood Insurance	
Total Number of Policies:	1,473	**Total Number of Policies:**	0
Total Premiums:	$864,636	**Total Premiums:**	$0
Insurance in Force:	$283,550,500	**Insurance in Force:**	$0
Total Number of Closed Paid Losses:	307	**Total Number of Closed Paid Losses:**	1
$ of Closed Paid Losses:	$3,136,831	**$ of Closed Paid Losses:**	$2,565
Post Firm Minus Rated Policies		**Manufactured Homes**	
Total Number of Minus Rated Policies:	37	**Total Number of Policies:**	5
A Zone Minus Rated Policies:	37	**Total Number of Closed Paid Losses:**	0
V Zone Minus Rated Policies:	0	**$ of Closed Paid Losses:**	$0
ICC		**1316**	
Total Number of ICC Closed Paid Losses:	0	**Number of Properties by Community:**	0
$ of ICC CLosed Paid Losses:	$0		

Substantial Damage Losses

Number of Substantial Damage Closed Paid Losses: 12

Insurance Occupancy

As of 04/30/2007

Community:	NOVATO, CITY OF	**State:**	CALIFORNIA
County:	MARIN COUNTY	**CID:**	060178

Overview | Occupancy | Zone | Pre/Post FIRM

	Policies in Force	Premium	Insurance in Force	Number of Closed Paid Losses	$ of Closed Paid Losses	Adjustment Expense
Single Family	903	$636,788	$208,379,300	274	$2,596,330.06	$120,444.77
2-4 Family	75	$26,816	$13,445,100	6	$41,704.59	$2,000.00
All Other Residential	435	$113,452	$41,553,600	8	$115,282.42	$3,420.00
Non Residential	60	$87,580	$20,172,500	19	$383,513.43	$13,208.47
Total	1,473	$864,636	$283,550,500	307	$3,136,829.00	$139,072.00

	Policies in Force	Premium	Insurance in Force	Number of Closed Paid Losses	$ of Closed Paid Losses	Adjustment Expense
Condo	483	$97,431	$47,195,500	4	$33,698.78	$1,420.00
Non Condo	990	$767,205	$236,355,000	303	$3,103,131.72	$137,653.24
Total	1,473	$864,636	$283,550,500	307	$3,136,829.00	$139,073.00

Insurance Zone

As of 04/30/2007

Community:	NOVATO, CITY OF	**State:**	CALIFORNIA
County:	MARIN COUNTY	**CID:**	060178

Overview | Occupancy | Zone | Pre/Post FIRM

	Policies in Force	Premium	Insurance in Force	Number of Closed Paid Losses	$ of Closed Paid Losses	Adjustment Expense
A01-30 & AE Zones	421	$293,276	$78,793,500	54	$626,656.18	$33,760.34
A Zones	40	$47,471	$9,412,100	13	$72,117.53	$4,695.00
AO Zones	744	$392,683	$130,270,700	138	$1,220,846.54	$52,158.47
AH Zones	3	$2,610	$555,200	0	$0.00	$0.00
AR Zones	0	$0	$0	0	$0.00	$0.00
A99 Zones	0	$0	$0	0	$0.00	$0.00
V01-30 & VE Zones	1	$2,501	$242,000	0	$0.00	$0.00
V Zones	0	$0	$0	0	$0.00	$0.00
D Zones	0	$0	$0	3	$15,244.11	$680.00
B, C & X Zone						
Standard	147	$89,174	$28,181,000	90	$1,056,538.45	$41,645.00
Preferred	117	$36,921	$36,096,000	8	$142,862.54	$6,009.43
Total	1,473	$864,636	$283,550,500	306	$3,134,263.00	$138,947.00

Insurance Pre/Post FIRM

As of 04/30/2007

Community:	NOVATO, CITY OF	**State:**	CALIFORNIA
County:	MARIN COUNTY	**CID:**	060178

Overview | Occupancy | Zone | Pre/Post FIRM

Pre-FIRM

	Policies in Force	Premium	Insurance in Force	Number of Closed Paid Losses	$ of Closed Paid Losses	Adjustment Expense
A01-30 & AE Zones	268	$260,746	$62,042,600	54	$626,656.18	$33,760.34
A Zones	39	$39,476	$8,912,100	13	$72,117.53	$4,695.00
AO Zones	546	$324,760	$94,061,200	135	$1,162,967.95	$50,668.47
AH Zones	3	$2,610	$555,200	0	$0.00	$0.00
AR Zones	0	$0	$0	0	$0.00	$0.00
A99 Zones	0	$0	$0	0	$0.00	$0.00
V01-30 & VE Zones	0	$0	$0	0	$0.00	$0.00
V Zones	0	$0	$0	0	$0.00	$0.00
D Zones	0	$0	$0	3	$15,244.11	$680.00
B, C & X Zone	214	$95,553	$48,248,000	94	$1,151,975.44	$45,229.43
Standard	127	$67,862	$21,925,000	87	$1,014,116.25	$39,645.00
Preferred	87	$27,691	$26,323,000	7	$137,859.19	$5,584.43
Grand Total	1,070	$723,145	$213,819,100	300	$3,028,959.00	$135,032.00

Post-FIRM

	Policies in Force	Premium	Insurance in Force	Number of Closed Paid Losses	$ of Closed Paid Losses	Adjustment Expense
A01-30 & AE Zones	153	$32,530	$16,750,900	0	$0.00	$0.00
A Zones	1	$7,995	$500,000	0	$0.00	$0.00
AO Zones	197	$66,506	$36,155,400	2	$57,878.59	$1,490.00
AH Zones	0	$0	$0	0	$0.00	$0.00
AR Zones	0	$0	$0	0	$0.00	$0.00
A99 Zones	0	$0	$0	0	$0.00	$0.00
V01-30 & VE Zones	1	$2,501	$242,000	0	$0.00	$0.00
V Zones	0	$0	$0	0	$0.00	$0.00
D Zones	0	$0	$0	0	$0.00	$0.00
B, C & X Zone	50	$30,542	$16,029,000	4	$47,425.55	$2,425.00
Standard	20	$21,312	$6,256,000	3	$42,422.20	$2,000.00
Preferred	30	$9,230	$9,773,000	1	$5,003.35	$425.00
Grand Total	402	$140,074	$69,677,300	6	$105,303.00	$3,915.00

Existing Plans

Drainage Plan

The City of Novato has implemented a Local Drainage Master Plan to accommodate the 25 year storm flow, as a result of a Storm Drainage Improvement Bond Measure approved in 1989. The previously mentioned 1985 Bond Measure for Flood Control is being implemented by the Marin County Flood Control and Water Conservation District. These improvements include a detention pond and pump station at Deer Island on the lower portion of Novato Creek and channel improvements to Novato Creek, Warner Creek, and Arroyo Avichi."

Drainage Ordinance

5-15 Drainage.

5-15.002 *Requirement*. Each affected permit or approval process shall provide for a storm water drainage system. (Ord. No. 750, § 9.15.002)

5-15.004 *Affected Permit or Approval Processes.*

a. Subdivision requiring final map
b. Subdivision requiring parcel map
c. Lot line adjustments
d. Building permit
e. Plan review
f. Precise development plan
g. Grading permit
h. Encroachment permit
i. Certificate of compliance
(Ord. No. 750, § 9.15.004; Ord. No. 948, § 17)

5-15.006 *Purpose*.

Standards for drainage are necessary to insure that underground and surface waters are conducted through and away from developments in such a manner as to not detrimentally affect other properties; insure that underground and surface water is not a problem within the completed development; and further, to correct or improve existing underground or surface water problems within the boundaries of the development and within the immediately affected surrounding area. (Ord. No. 750, § 9.15.006)

5-15.008 *Acceptable Standards*.

a. *Hydrologic Design*. Hydrologic design shall be predicated upon ultimate development, as projected by the Novato General Plan, of the tributary watershed. All proposed projects which contain or are contiguous to drainage channels and waterways within the jurisdiction of the Marin County Flood Control and Water Conservation District shall be referred to said district for review and comment. Flood flows to be used for the design of waterways, channels and closed conduits shall accommodate existing flow or have minimum average recurrence intervals as follows, whichever is greater:

1. Major drainage channels shall be designed for an average recurrence of 100 years.

2. Secondary and minor drainage channels shall be designed for an average recurrence interval of 25 years.

b. *Hydraulic Design*. For the solution of hydraulic design problems, the design engineer shall provide topographic drainage maps, drainage calculations, model studies, reports, or prototype tests as necessary to confirm the hydraulic design. Design depth of flow in gutters shall not exceed 0.4 foot. Where design depth exceeds 0.4 feet, a closed conduit system shall be provided.

c. *Open Channel Systems*. Open channel drainage systems shall be designed to carry the quantity of flow determined as set forth in Section 9.15.008 with adequate freeboard between design water surface and the top of bank. Bridges, culverts and utility crossings which span open channel systems shall have a minimum clearance from soffit to design water surface of 2.0 feet.

d. *Pressure Flow System*. Minor drainage channels placed in pressure flow systems may be designed for full conduit capacity, provided that adequate provisions are made for losses such as friction, bends, transitions, debris and entrance and exit conditions, and provided further that adequate freeboard is provided at the entrance and at all inlets to the system.

e. *Alignment, Slope Protection and Structural Design*. Structures shall be designed and constructed such that hydraulic conditions in the upstream and downstream waterway will not be altered to cause degradation, erosion or other undesirable effects.

f. *Constructed Channels*.

1. *Minimum Radii*. Minimum centerline radii for curves in constructed channels and waterways shall be three times the top width of the channel.

2. *Side Slopes*. Grassed channels or loose rock rip-rapped channels shall have side slopes not steeper than two to one. Lined channels shall have side slopes not steeper than 1.5 to one unless designed structurally to resist all lateral loads applied to bank lining. Channels shall have flatter side slopes if soil instability appears probable from field investigation. Design of slopes in unstable soils shall be predicated upon results of an investigation by a registered professional engineer qualified in soils engineering. Earth channels, in those areas not otherwise protected, shall be planted with an approved grass seed to establish a vegetative cover to the top of channel banks.

3. *Hydraulic Jump*. At drop structures or in other locations where a hydraulic jump may be formed, bank and channel invert protection shall be provided.

g. *Closed Conduits*.

1. *Minimum Size*. Minimum inside diameter of conduits shall be equal to a circular 15-inch pipe, except that for yard drains and other minor lot drainage, smaller conduits may be permitted by the city engineer.

2. *Entrances*. Entrance structures shall be designed to allow passage of water with anticipated debris loading at entrance. The design for entrance structures shall include screening which will preclude human entry.

3. *Hydraulic Design*. For major drainage channels, the design depth in closed conduits shall not exceed 0.80 of the vertical dimension or equivalent diameter of the conduit.

4. *Alignment*. The alignment of closed conduits shall be as nearly straight as practicable. Manholes or some other acceptable means of access shall be provided at or near all junctions, at all bends which are sharper than those formed by standard single bevel concrete pipe, and at intervals not to exceed 400 feet along the conduit.

5. *Catch Basins*. Catch basins shall be placed on the uphill side of curb returns whenever the gutter slope exceeds two percent or the computed gutter flow reaches a depth of 0.2 foot or more. Additionally, if the gutter slope exceeds three percent, a drainage gallery should be used to direct the flow into the catch basin. Gallery length shall depend on the respective gutter slope and quantity of flow. If practical, gutter flow shall be intercepted uphill of crosswalks.

6. *Gradients*. The gradient for earth ditches shall not exceed four percent nor be less than one percent. The gradient for lined or paved ditches and gutters should not be less than one percent and shall be not less than 0.5 percent.

7. *Structural Design*. Closed conduits, including nonreinforced and cast-in-place concrete pipe, shall be structurally designed to withstand earth and surcharge loads normally anticipated to be imposed thereon. Clearance between top of pipe and ground shall be sufficient to preclude displacement of or damage to conduit by all loading and surface land uses. Where seismic or other constraints are determined to have a highly potential negative effect upon closed conduits, the structural design shall consider these constraints.

8. *Conduit Materials*. Conduits shall be designed to have a minimum useful life of 50 years. Galvanized metal conduit will not be acceptable unless extra protection is provided to prolong its design life. In the event of erosive conditions, extra wearing surface will also be required.

Closed conduits discharging into open channels or waterways shall be provided with necessary designed pipe outlets and endwalls.

9. *Outlets*. Excessive outlet velocities shall be controlled with energy dissipators or other means. Endwalls shall be adequately designed to protect the embankment.

h. *Site Drainage*.

1. *General Requirements*:

(a) Site drainage, from or to adjoining properties, shall not be blocked or altered. Existing drainage patterns shall be maintained or improved. Site grading shall direct storm water flows away from structures to a drainage facility. No inundation of floors or garage slabs shall occur during short, intense storms (two inches per hour for 30 minutes duration) and no inundation of floors or garage slabs shall occur during a major storm (100-year recurrence interval). For "sag" conditions, shall occur during short, intense storms (two inches per hour for 30 minutes duration) and no inundation of floors or garage slabs shall occur during a major storm (100-year recurrence interval). For "sag" conditions, factors of safety shall be designed into the grading/drainage facility relationships commensurate with potential overland flow if blockage of the drainage facility occurs.

(b) Underfloor areas of dwellings shall be kept free of standing water. The builder shall provide drains, grading, pumps or waterproofing to prevent entry of surface water, or subterranean water in the underfloor area of a dwelling.

2. *Specific Requirements*:

(a) Rain gutters shall be provided along the roof eaves and shall be connected to downspouts. The chief building inspector may waive the requirement of eave gutters where roofs are small (such as small porch roofs) and water near the foundation would not cause erosion or foundation problems. Downspouts shall be connected to a closed conduit system that discharges to an approved outlet. Alternatively, downspouts shall, at the direction of the department of community development, be provided with splashblocks at least 24 inches long leading away from the structure. After water discharges from the splashblock, the drainage shall flow away from and/or

parallel to the structure. Additional drainage facilities may be required to provide for steep and/or specific soils conditions in order to prevent erosion.

(b) Foundation drain holes shall be provided through the foundation wall in at least two locations. The locations shall be selected to facilitate gravity drainage of the underfloor area. Until utilized, the drain holes may be plugged with "knockouts" and the location of the drainholes shall be clearly and permanently marked on the exterior of the structure at a point at least four inches above finished grade.

(c) Minimum grade on a lot and building pad shall be one percent. Swales constructed to provide lot drainage shall be designed at minimum one percent grade from the rear of the structure to an approved drainage facility. The underfloor area of a dwelling shall be graded at a minimum grade of one percent towards the foundation drain holes or approved outlet. Where minimum surface grades are not provided, underground drainage facilities shall be installed.

(d) Roof downspouts and footing drains, where installed, shall be connected to separate drainage facilities.

(Ord. No. 750, § 9.15.008; Ord. No. 948, §§ 18--24; Ord. No. 989, § 1; Ord. No. 1127, § 15)

Flood Damage Prevention Requirements (City Ordinance)

5-31 Flood Damage Prevention Requirements.

5-31.002 *Statutory Authorization, Findings of Fact, Purpose and Methods*.

a. *Statutory Authorization*. In addition to the authority cited in section 5-1.004 of this chapter, the Legislature of the State of California has in Government Code Sections 65302, 65560 and 65800 conferred upon local government units authority to adopt regulations designed to promote the public health, safety and general welfare of its citizenry.

b. *Findings of Fact*.

1. The flood hazard areas of the City of Novato are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

2. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

c. *Purpose*. It is the purpose of this section 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:

1. To protect human life and health;

2. To minimize expenditure of public money for costly flood control projects;

3. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

4. To minimize prolonged business interruptions;

5. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;

6. To 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 flood blight areas;

7. To insure that potential buyers are notified that property is in an area of special flood hazard; and

8. To insure that those who occupy the areas of special flood hazard assume responsibility for their actions.

d. *Methods*. In order to accomplish its purposes, this section includes methods and provisions for:

1. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

2. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

3. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;

4. Controlling filling, grading, dredging, and other development which may increase flood damage; and

5. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

(Ord. No. 1154)

5-31.004 *Affected Permit or Approval Processes*.

a. Subdivision requiring final map
b. Subdivision requiring parcel map
c. Master plans
d. Precise development plan
e. Use permit
f. Variance
g. Plan review
h. Building permit
i. Encroachment permit
j. Grading permit
(Ord. No. 1154)

5-31.005 *General Provisions*.

a. *Lands to Which This Section Applies*. This section shall apply to all areas of special flood hazards within the jurisdiction of the City of Novato.

b. *Basis for Establishing the Areas of Special Flood Hazard.* The areas of special flood hazards identified by the Federal Insurance Administration, through the Federal Emergency Management Agency in a scientific and engineering report entitled "Flood Insurance Study, City of Novato, California, Marin County", dated April 3, 1984, with an accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FLOODWAY) or the most recent Flood Insurance Study as prescribed by the Federal Insurance Administration is hereby adopted by reference and declared to be a part of this section. The Flood Insurance Study is on file within the Engineering Division of the Department of Community Development. This Flood Insurance Study is the minimum area of applicability of this section and may be supplemented by studies for other areas which allow implementation of this section and which are approved by the floodplain administrator.

c. *Compliance*. No structure of land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this section and other applicable regulations. Violations of the provisions of this section by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Nothing herein shall prevent the City of Novato from taking such lawful action as is necessary to prevent or remedy any violation.

d. *Abrogation and Greater Restrictions*. This section is not intended to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. However, where this section and another section, chapter, ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

e. *Interpretation*. In the interpretation and application of this section, all provisions shall be:

1. Considered as minimum requirements;

2. Liberally construed in favor of the governing body; and

3. Deemed neither to limit nor repeal any other powers granted under state statutes.

f. *Warning and Disclaimer of Liability*. The degree of flood protection required by this section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This section does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This section shall not create liability on the part of the City of Novato, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this section or any administrative decision lawfully made thereunder.

g. Provisions of this section are intended to meet, if not exceed, minimum National Flood Insurance Program (NFIP) criteria for requirements for floodplain management regulations. The community retains the prerogative to set requirements which reasonably exceed minimum standards set forth in this section as circumstances may be warranted.
(Ord. No. 1154)

5-31.006 *Administration*.

a. *Establishment of a Permit or Approval Process*. Approval for all affected permit or approval processes shall be obtained before construction or development begins with any area of special flood hazards established in section 5-31.005b.

b. *Application*. Application for a permit or approval process shall be made in accordance with requirements set forth by the applicable permit or approval process in this chapter. Information required may include but not be limited to: plans drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:

1. Proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures; in Zone AO or VO, elevation of highest adjacent grade and proposed elevation of lowest floor of all structures.

2. Proposed elevation in relation to mean sea level to which any structure will be floodproofed;

3. All appropriate certifications listed in section 5-31.006d, 4 of this chapter; and

4. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

c. *Designation of the Floodplain Administrator*. The city engineer is hereby appointed to administer and implement this section by reviewing development permits, plans and proposals in accordance with its provisions.

d. *Duties and Responsibilities of the Floodplain Administrator*. The duties and responsibilities of the floodplain administrator shall include, but not be limited to:

1. *Permit review*.

(a) Review all development permits to determine that the permit requirements of this section have been satisfied;

(b) Stipulate that all other required State and Federal permits shall be obtained;

(c) Determine if the site is reasonably safe from flooding in order to apply the applicable provisions of this section.

(d) Require until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones Al-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

2. *Use of Other Base Flood Data*. When base flood elevation data has not been provided in accordance with section 5-31.005b, the floodplain administrator shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer section 5-31.008.

3. Whenever a watercourse is to be altered or relocated:

(a) Notify adjacent communities and the California Department of Water Resources prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;

(b) Require that the flood carrying capacity of the altered or relocated portion of said watercourse is maintained.

4. Obtain and maintain for public inspection and make available as needed:

(a) The certification required in section 5-31.008a, 3(a) (floor elevations);

(b) The certification required in section 5-31.008a, 3(b) (elevations in areas of shallow flooding);

(c) The certification required in section 5-31.008a, 3(c)(3) (elevation or floodproofing of nonresidential structures);

(d) The certification required in section 5-31.008a, 3(d)(1) or 5-31.008a, 3(d)(2) (wet floodproofing standard);

(e) The certified elevation required in section 5-31.008c, 2 (subdivision standards);

(f) The certification required in section 5-31.008e, 1 (floodway encroachments);

(g) The information and certification required in section 5-31.008f, 6 (coastal construction standards).

5. Make interpretations where needed, as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in section 5-31.010.

6. Take action to remedy violations of this section as specified in section 5-31.005c.

(Ord. No. 1154)

5-31.007 *Definitions*. Unless specifically defined below, words or phrases used in this section shall be interpreted so as to give them the meaning they have in common usage and to give this section its most reasonable application.

"*Appeal*" shall mean a request for a review of the floodplain administrator's interpretation of any provision of this section or a request for a variance.
"*Area of shallow flooding*" means a designated AO, AH or VO Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident.
"*Area of special flood hazard*" - See "special flood hazard area."
"*Base flood*" shall mean the flood having a one percent chance of being equalled or exceeded in any given year (also called the "100-year flood").
"*Basement*" shall mean any area of the building having its floor subgrade (below ground level) on all sides.
"*Breakaway walls*" shall be any type of walls, whether solid or lattice, and whether constructed of concrete, masonry, wood, metal, plastic, or any other suitable building material which is not part of the

structural support of the building and which is designed to break away under abnormally high tides or wave action without causing any damage to the structural integrity of the building on which they are used or any buildings to which they might be carried by flood waters. A breakaway wall shall have a safe design loading resistance of not less than ten and no more than 20 pounds per square foot. Use of breakaway walls must be certified by a registered engineer or architect and shall meet the following conditions:

a. Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and

b. The elevated portion of the building shall not incur any structural damage due to the effects of wind and water loads acting simultaneously in the event of the base flood.

"*Coastal high hazard area*" shall be the area subject to high velocity waters, including coastal and tidal inundation or tsunamis. The area is designated on a Flood Insurance Rate Map (FIRM) as Zone V1-V30, VE or V.
"*Community*" shall mean the City of Novato, which has authority to adopt and enforce flood plain management regulations for the areas within its jurisdiction.
"*Development*" shall mean any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations.
"*Elevated building*" shall mean a nonbasement building:

a. Built, in the case of a building in Zones A1-30, AE, A, A99, AO, AH, B, C, X or D, to have the top of the elevated floor, or in the case of a building in Zones Vl-30, VE or V, to have the bottom of the lowest horizontal structure member of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers), or sheer walls parallel to the floor of the water.

b. Adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of Zones A1-30, AE, A, A99, AO, AH, B, C, X or D, "elevated building" shall also include a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters. In the case of Zones V1-30, VE or V, "elevated building" shall also include a building otherwise meeting the definition of "elevated building," even though the lower area is enclosed by means of breakaway walls if the breakaway wall meets the definition of this section.

"*Existing construction*" shall mean for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRM's effective before that date. "Existing construction" may also be referred to as "existing structures."
"*Flood or flooding*" shall mean a general and temporary condition of partial or complete inundation of normally dry land areas from; (1) the overflow of flood waters; (2) the unusual and rapid accumulation or runoff of surface waters from any source; and/or (3) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in this definition.
"*Flood boundary and floodway map*" shall mean the official map on which the Federal Emergency Management Agency or Federal Insurance Administration has delineated both the areas of flood hazard and the floodway.
"*Flood Insurance Rate Map (FIRM)*" shall mean the official map on which the Federal Emergency

Management Agency or Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
"*Flood insurance study*" shall mean the official report provided by the Federal Insurance Administration that includes flood profiles, the FIRM, the flood boundary and floodway map, and the water surface elevation of the base flood.
"*Floodplain or flood-prone area*" shall mean any land area susceptible to being inundated by water from any source (see definition of "flooding").
"*Floodplain management*" shall mean the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.
"*Floodplain management regulations*" shall mean zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term which describes such State or local regulations in any combination thereof, which provide standards for the purpose of flood damage prevention; and reduction.
"*Floodproofing*" shall mean any combination of structural and nonstructural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.
"*Floodway*" shall mean 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. Also referred to as "regulatory floodway".
"*Functionally dependent use*" shall mean a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term shall include only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.
"*Highest adjacent grade*" shall mean the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.
"*Lowest floor*" shall mean the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of this section.
"*Manufactured home*" shall mean a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the terms "manufactured home" shall also include park trailers, travel trailers and other similar vehicles placed on a site for greater than 180 consecutive days.
"*Manufactured home park or subdivision*" shall mean a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for sale or rent.
"*Mean sea level*" shall mean, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.
"*New construction*" shall mean, for floodplain management purposes, structures for which the "start of construction" commenced on or after the effective date of a floodplain management resolution adopted by this community.
"*One hundred year flood*" or "*100-year flood*" shall mean a flood which has a one percent annual probability of being equalled or exceeded. It is identical to the "base flood", which will be the term used throughout this section.
"*Person*" shall mean an individual or his agent, firm, partnership, association, or corporation, or agent of the aforementioned groups, or this state or its agencies or political subdivisions.
"*Principally above ground*" shall mean that at least 51 percent of the actual cash value of the structure, less land value, is above ground.

"*Remedy a violation*" shall mean to bring the structure or other development into compliance with State or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of the section or otherwise deterring future similar violations, or reducing Federal financial exposure with regard to the structure or other development.
"*Riverine*" shall mean relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.
"*Sand dunes*" shall mean naturally occurring accumulations of sand in ridges or mounds landward of the beach.
"*Special flood hazard area (SFHA)*" shall mean an area having special flood or flood-related erosion hazards, and shown on an FHBM or FIRM as A, AO, Al-30, AE, A99, AH, VO, Vl-V30, VE or V.
"*Start of construction*" shall include substantial improvement, and shall mean the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement was within 180 days of the permit date. The actual start shall mean either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure.
"*Structure*" shall mean a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.
"*Substantial improvement*" shall mean any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:

a. Before the improvement or repair is started; or

b. If the structure has been damaged, and is being restored, before the damage occurred.
For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either:

1. Any project for improvement of a structure to comply with existing State or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions; or

2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

"*Variance*" shall mean a grant of relief from the requirements of this section which permits construction in a manner that would otherwise be prohibited by this section.
"*Violation*" shall mean the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this section is presumed to be in violation until such time as that documentation is provided.
"*Water surface elevation*" shall mean the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, (or other datum, where specified) of floods of various magnitudes and frequencies in the flood plains of coastal or riverine areas.
(Ord. No. 1154)

5-31.008 *Provisions for Flood Hazard Reduction.*

a. *Standards of Construction*. In all areas of special flood hazards the following standards are required:

1. *Anchoring*.

(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

(b) All manufactured homes shall meet the anchoring standards of section 5-31.008d.

2. *Construction Materials and Methods*.

(a) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(b) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(c) All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(d) Require within Zones AH, AO or VO, adequate drainage paths around structures on slopes to guide flood waters around and away from proposed structures.

3. *Elevation and Floodproofing*.

(a) New construction and substantial improvement of any structure shall have the lowest floor, including basement, elevated to or above the base flood elevation. Nonresidential structures may meet the standards in section 5-31.008a, 3(c). Upon start of construction of the structure, the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor. Such certification shall be provided to the floodplain administrator in a form and manner prescribed by the administrator.

(b) New construction and substantial improvement of any structure in Zone AH, AO or VO shall have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM, or at least two feet if no depth number is specified. Nonresidential structures may meet the standards in section 5-31.008a, 3(c). Upon start of construction of the structure, the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor. Such certification shall be provided to the floodplain administrator in a form and manner prescribed by the administrator.

(c) Nonresidential construction shall either be elevated in conformance with section 5-31.008a, 3(a) or (b) or together with attendant utility and sanitary facilities:

(1) Be floodproofed so that structure is watertight with walls substantially impermeable to the passage of water one foot above the base flood level;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(3) Be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Such certifications shall be provided to the floodplain administrator in a form and manner prescribed by the administrator.

(d) Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

(1) Either a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwaters; or

(2) Be certified to comply with a local floodproofing standard approved by the Federal Insurance Administration.

(e) Manufactured homes shall also meet the standards in section 5-31.008d.

b. *Standards for Utilities*.

1. All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

2. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

c. *Standards for Subdivisions*.

1. All preliminary subdivision proposals shall identify the flood hazard area and the elevation of the base flood.

2. All final subdivision plans will provide the elevation of proposed structure(s) and pads. If the site is filled above the base flood, the final pad elevation shall be certified by a registered professional engineer or surveyor and provided to the floodplain administrator in a form and manner prescribed by the administrator.

3. All subdivision proposals shall be consistent with the need to minimize flood damage.

4. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.

5. All subdivisions shall provide adequate drainage to reduce exposure to flood hazards.

d. *Standards for Manufactured Homes*. All new and replacement manufactured homes and additions to manufactured homes shall:

1. Be elevated so that the lowest floor is at or above the base flood elevation; and

2. Be securely anchored to a permanent foundation system to resist flotation, collapse or lateral movement.

e. *Floodways*. Located within areas of special flood hazard established in section 5-31.005b are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

2. If section 5-31.008e, 1 is satisfied, all new construction and substantial improvement shall comply with all other applicable flood hazard reduction provisions of section 5-31.008.

f. *Coastal High Hazard Areas*. Within coastal high hazard areas established in section 5-31.005b, the following standards shall apply:

1. All new construction and substantial improvements shall be elevated on adequately anchored pilings or columns and securely anchored to such pilings or columns so that the lowest horizontal portion of the structural members of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood elevation.

2. All new construction shall be located on the landward side of the reach of mean high tide.

3. All new construction and substantial improvements shall have the space below the lowest floor free of obstructions or constructed with breakaway walls. Such temporarily enclosed space shall not be used for human habitation.

4. Fill shall not be used for structural support of buildings.

5. Man-made alteration of sand dunes which would increase potential flood damage is prohibited.

6. The floodplain administrator shall obtain and maintain the following records:

(a) Certification by a registered engineer or architect that a proposal structure complies with section 5-31.008f, 1.
(b) The elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings or columns) of all new and substantially improved structures, and whether such structures contain a basement.
(Ord. No. 1154)

5-31.010 *Variances and Exceptions*.

a. Variances and exceptions to the requirements of this section shall be processed in accordance with the provisions of section 5-3.010 of this chapter and in conformance with the following provisions:

1. In passing upon such applications for variance or exceptions, all technical evaluations, all relevant factors, standards specified in other sections shall be considered; and

(a) The danger that materials may be swept onto other lands to the injury of others;
(b) The danger of life and property due to flooding or erosion damage;
(c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
(d) The importance of the services provided by the proposed facility to the community;
(e) The necessity to the facility of a waterfront location, where applicable;
(f) The availability of alternative locations for the proposed use which are not subject to flooding or erosion danger;
(g) The compatibility of the proposed use with existing and anticipated development;
(h) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
(i) The safety of access to the property in time of flood for ordinary and emergency vehicles;
(j) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site; and
(k) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water system, and streets and bridges.

2. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing section 5-31.010a, 1(a) through section 5-31.010a, 1(k) have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.

3. Upon consideration of the factors of section 5-31.010a, 1 and the purposes of this section, the city may attach such conditions to the granting of variances as it deems necessary to further the purposes of this section.

4. The floodplain administrator shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

b. *Conditions for Variances*.

1. Variances may be issued for reconstruction, rehabilitation or restoration of structures listed in the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this section.

2. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

4. Variances shall only be issued upon:

(a) A showing of good and sufficient cause;

(b) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

(c) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

5. Variances may be issued for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the provisions of section 5-31.010a, 5 through section 5-31.010a, 8 are satisfied that the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

6. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the regulatory flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation. A copy of the notice (Grant of Variance) shall be recorded in the Office of the Marin County Recorder and shall be recorded in a manner so that it appears in the chain of title of the affected parcel of land. The applicant shall pay all fees associated with the recordation of the Grant of Variance.

(Ord. No. 1154)

DMA 2000 Hazard Mitigation Plan

Flood was rated a HIGH PRIORITY HAZARD by the City of Novato and the Novato Sanitary District Hazard Mitigation Planning Steering Committee. The plan outlines 11 Flood-specific strategies that have been incorporated into the strategies section of this Plan.

General Plan

The Novato General Plan is a statement of the community's vision for the future. The Plan is a comprehensive, long-range plan and identifies Novato's land use, transportation, environmental, economic, fiscal, and social goals and policies as they relate to the conservation and development of land in Novato. The Plan is the result of over five years of community participation, research, and preparation. The March 1996 Plan supersedes the City's existing 1981 General Plan. This General Plan is one of the strongest, if not the strongest, environmental plans in the State of California assuring the quality, protection, and conservation of the natural and built environment. The Plan balances its responsibilities of meeting the needs of Novato's residents with meeting the needs of Novato's environs.

Flood Hazards Addressed (General Plan)

Flood Hazards

Much of the bayfront lands are in agricultural, conservation or open space uses and flood frequently. These areas are reclaimed marshlands which had been near high tide level when drained. Since reclamation, the loss of water within the Bay Mud has led to subsidence, and many areas are now below mean sea level and require pumping to drain. If levees and pumps are maintained, flooding in these areas represents minimal hazard to persons or structures. Most of these lands are shown on the Land Use Map for Agriculture, Conservation, or other low-intensity uses.

The frequency and severity of flooding has increased in recent years partly as a result of increasing urban development. As more land becomes covered with impermeable surfaces such as buildings, parking lots and roads, water cannot drain into the soil and surface runoff increases, thereby causing acute local flooding.

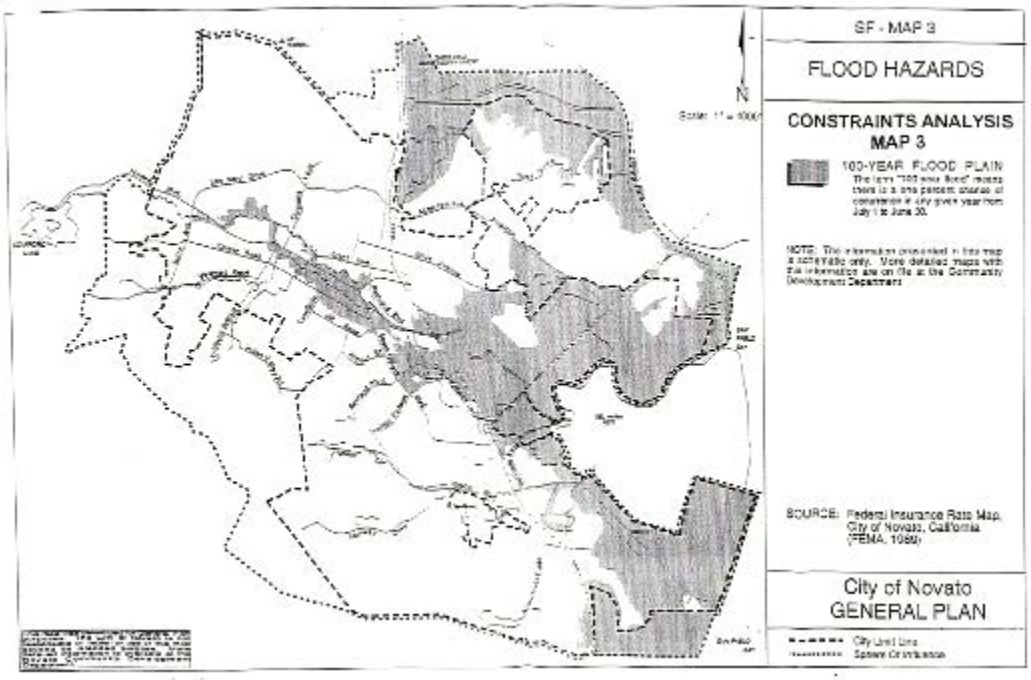
Novato Creek has a long history of flooding and is the main flood hazard to the community. Flooding along Novato Creek usually occurs in three stages; when the water levels rises above storm drains, resulting in flooded roads and lots; when Warner Creek and Arroyo Avichi rise and overflow their banks at the confluence with Novato Creek; and when Novato Creek itself rises to a level where it overflows at low points in its levees. In addition, localized flooding occurs periodically in certain locations. The frequency and severity of flooding has been reduced as a result of flood control improvements for Novato, Warner, and Avichi Creeks funded in 1985 and storm drainage projects funded in 1989.

Dam failure resulting from earthquakes is another potential source of flooding. Novato Creek Dam, an earth embankment constructed in 1951, is 71 feet high and under the jurisdiction of the California Division of Safety of Dams. This dam creates Stafford Lake, which has a capacity of 4,430 acre-feet of water. The dam, located upstream of Novato along Novato Creek at Stafford Lake, is designed to withstand an earthquake with a magnitude of 8.25 on the San Andreas Fault with a design epicenter located 10 miles from the dam. The inundation zone in the hypothetical event of a sudden failure of the dam is on file with the North Marin Water District and is in Appendix B of the General Plan.

The City has implemented a Local Drainage Master Plan to accommodate 25-year storm water flows which have a 4% chance of occurrence in any given year. In 1989, the voters approved a bond

measure to provide $4.2 million funding for storm drainage improvements. In addition, the Marin County Flood Control and Water Conservation District has implemented major improvements since 1985 to prevent flooding from 50-year storms. These improvements include a detention pond at Deer Island on the lower portion of Novato Creek, and improvements to the channels of Novato Creek,Warner Creek and Arroyo Avichi.

The Federal Emergency Management Agency updated its Flood Insurance Rate Map (FIRM) in 1989 to reflect these improvements. The FIRM is reproduced schematically in SF Map 3: Flood Hazards.



SF Objective 3 Reduce flood hazards.

SF Policy 4 Enhanced Floodwater Storage. Support measures to manage, protect and increase the floodwater storage capacity where appropriate.

SF Policy 5 Use of Updated Flood Rate Insurance Maps. Use the Federal Emergency Management Agency's Flood Insurance Rate Maps [FIRM] to reduce risk of flooding; identify 100 Year Flood Events; and calculate flow rates within identified stream channels.

SF Program 5.1: Use current Flood Insurance Rate Maps in the review of development proposals.

SF Program 5.2: Continue to enforce the City's Flood Damage Prevention Ordinance.

SF Program 5.3: Continue to participate in the National Flood Insurance Program.

This program involves continuing to implement the regulations of City Code Chapters 5-31: Floodplain Insurance Requirements and Chapter 19-11.056(f): Combining Floodways Regulations.

SF Policy 6 Cooperation with Marin County. Continue to work with the Marin County Public Works Department to minimize negative impacts of storm runoff.

> SF Program 6.1: Request that the County refer all development proposals located outside the City limits of Novato but within the Sphere of Influence to ensure that additional storm drainage runoff resulting from development occurring in unincorporated areas is adequately mitigated through improvements on site and downstream.

SF Policy 7 Funding Sources. Continue to cooperate with the Marin County Flood Control and Water Conservation District and other Marin jurisdictions in pursuing all available sources of funding to finance improvements to storm drainage facilities.

See also PF Program 1.5 regarding storm drainage facility fees.

SF Policy 8 Reducing Flood Hazards. Reduce flood risk by maintaining effective flood drainage systems and regulating construction.

> SF Program 8.1: Condition new development to maintain post development peak runoff rate and average volume similar to the predevelopment condition, to the maximum extent practicable.
>
> SF Program 8.2: Require runoff rate/volume analysis of projects where deemed necessary by City staff.
>
> SF Program 8.3: Require all development in the 100 year flood zone to comply with the Floodplain Zoning requirements in the Novato Municipal Code.
>
> SF Program 8.4: Require approved projects to cover the costs of drainage facilities needed for surface runoff generated.
>
> SF Program 8.5: Require analysis of the cumulative effects of development upon runoff, discharge into natural watercourses, and increased volumes and velocities in watercourses and their impacts on downstream properties. Include clear and comprehensive mitigation measures as part of project approvals with financial and other measures to ensure their implementation.
>
> SF Program 8.6: Request that the North Marin Water District maintain a file of inundation maps and drainage plans for existing and new water storage tanks in the City.

SF Policy 9 Storm Drainage System. Maintain unobstructed water flow in the storm drainage system.

> SF Program 9.1: Enforce measures to minimize soil erosion and volume and velocity of surface runoff both during and after construction through implementation of the Grading Ordinance.
>
> SF Program 9.2: Continue to carry out annual inspection and maintenance of the drainage systems.
>
> SF Program 9.3: Require, where necessary, construction and maintenance of siltation/detention ponds to be incorporated into the design of development projects.

SF Program 9.4: Periodically assess the need to establish improvement districts and other financing mechanisms to fund necessary storm drainage and watercourse improvements to minimize flood hazards.

See EN Policies regarding environmentally-sound flood control measures.

SF Policy 10 Hazards of Dam and Levee Failure. Ensure that the design and location of dams and levees are in accordance with all applicable design standards of the California Division of Safety of Dams.

SF Program 10.1: Continue to enforce City Code Chapter V regulating dams.

SF Program 10.2: Review new levees for seismic and hydrological safety.

SF Program 10.3: Request that the North Marin Water District keep dam inundation maps on file for review of property owners who are located in areas of possible inundation.

SF Policy 11 Rising Sea Level. Consider the potential for sea level rise when processing development applications that might be affected by such a rise.

SF Program 11.1: Work with the County Flood Control and Water Conservation District to prepare a plan for responding to a potential rise in sea level. Consider developing flood control projects and modifying the City's land use regulations for areas subject to increased flooding from sea level rise.

Countywide Watershed Stewardship Plan

Excerpts from the Summary of Actions for the May 1, 2008 meeting of the Marinmap Steering Committee (an Advisory Board for the Marin County General Services Authority)

Watershed Presentation – Terri Fashing

Terri Fashing, Storm water Program Administrator for MCSTOPPP, provided a status report on the Countywide Watershed Stewardship Plan where work is currently underway to expand the Marin County Watershed Management Plan of 2004 into the Watershed Stewardship Plan. The plan is funded, in part, through a watershed planning grant and will address eastern Marin County watersheds. The 2004 plan focused on watersheds of the west county. The local match required by the grant will be met with existing Flood Control staff.

The plan currently underway will address regional and local issues in the developed watersheds of east and west Marin County; uncover opportunities for integrated watershed management through intra-watershed and inter-organizational partnerships; provide information, criteria, and prioritized actions to support the Marin County Department of Public Works and other stakeholders' efforts to promote watershed health; and to demonstrate the elements and process of creating a watershed work plan that identifies specific, prioritized, multi-benefit projects.

Marin County departments, associations, and agencies will be working with a consultant to provide strategic oversight, planning assistance, and review & comment on the elements of the plan. Lead agency staff will work with stakeholder groups to propose implementation actions for the overall benefit of Marin County.

The public process will include the following watersheds: Novato Creek, Ross Valley, Miller Creek, Las Gallinas Creek, Mahon Creek, Corte Madera Creek, Richardson Bay, Inverness, Easkoot Creek, and San Geronimo Creek.

It is anticipated that the project will be completed within an 18-month period.

Wayne Bush asked how MarinMap could participate or benefit in the project? Can we host, help, share data, or assist in developing standards?

Laurie Williams announced that GIS coverages of the various watersheds and work products would be shared with MarinMap.

Nick Salcedo explained the National Hydorgraphy Dataset (NHD) project for the San Francisco Estuary Institute (SFEI) and how information collected, by and between, the NHD and Watershed Management Plan can be mutually beneficial.

The National Hydrography Dataset (NHD) is a comprehensive set of geospatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. Within the NHD, surface water features are combined to form "reaches," which provide the framework for linking water-related data to the NHD

surface water drainage network. These linkages enable the analysis and display of these water-related data in upstream and downstream order.

Dick Scott suggested that work products provided under the Countywide Watershed Stewardship Plan be evaluated to determine if they may qualify as a CRS Activity under the Community Rating System of the National Flood Insurance Program NFIP/CRS. Communities participating in the CRS program who implement floodplain management activities may qualify for flood insurance premium discounts from 5 to 45%.

Wayne commented that these activities are consistent with MarinMaps' theme for the year: "Year of the Watershed."

February 5, 2008

Board of Supervisors
Marin County Flood Control and Water Conservation District
3501 Civic Center Drive
San Rafael, CA 94903

Dear Board Members:

SUBJECT: Execute State Grant and Consultant Contract for Countywide Watershed Stewardship Plan

RECOMMENDATIONS:
1) Execute $168,210 watershed planning grant agreement with the Department of Water Resources Division of Planning and Local Assistance.
2) Execute $168,210 contract with Prunuske Chatham Inc.
3) Authorize the Auditor Controller to increase appropriations and revenue per the fiscal impact section below.

SUMMARY: The Department of Public Works has received a grant of $168,210 from the State of California Department of Water Resources Planning and Local Assistance Program to fund preliminary work to support the production of a watershed stewardship plan. This preliminary effort will include a synthesis of existing documents to support the preparation of an existing conditions report for selected watersheds. The Grant requires a $51,950 local match which will be met with existing Flood Control staff.

In addition to the existing conditions report, the plan will provide guidelines to support the development of multi-benefit projects and a work plan template that will serve to guide future project implementation. It is recommended that we utilize the North Bay firm Prunuske Chatham, Inc. to prepare these watershed planning documents. They were selected by the Marin County Community Development Agency via a competitive process in 2004 to draft the initial watershed plan for the Countywide General Plan update. The 2004 plan focused on west Marin and the identification of best management practices. This effort will focus on selected watersheds contained within established County flood zones and other watersheds where the County has prioritized stormwater management and creek restoration efforts. Prunuske Chatham, Inc. has expertise in geomorphology, hydrology, land use planning, stream and watershed restoration.

FISCAL IMPACT:

Fund	Fund Center	Commitment Item	Revenue Amount	Expenditures
10000	4100995010	5210100 - Expenditures (Professional Services)		$168,210
10000	4100995010	4530527 - Revenue (State – Grant)	$168,210	

REVIEWED BY:

[ ]	Auditor Controller	[X]	N/A
[X]	County Counsel	[ ]	
[ ]	Human Resources	[X]	N/A

Respectfully submitted,
MARIN COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

CAO Contract Log #_____

MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
STANDARD SHORT FORM CONTRACT

THIS AGREEMENT is made and entered into this ____ day of_____ 2008, by and between the MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, hereinafter referred to as "District" and Prunuske Chatham, Inc., hereinafter referred to as "Contractor."

RECITALS:

WHEREAS, District desires to retain a person or firm to provide the following services:
Update Marin County Watershed Management Plan

; and

WHEREAS, Contractor warrants that it is qualified and competent to render the aforesaid services;

NOW, THEREFORE, for and in consideration of the agreement made, and the payments to be made by District, the parties agree to the following:

1. SCOPE OF SERVICES:
Contractor agrees to provide all of the services described in **Exhibit "A"** attached hereto and by this reference made a part hereof.

2. FURNISHED SERVICES:
The District agrees to:

A. Guarantee access to and make provisions for the Contractor to enter upon public and private lands as required to perform their work.
B. Make available all pertinent data and records for review.
C. Provide general bid and contract forms and special provisions format when needed.

3. FEES AND PAYMENT SCHEDULE:
The fees and payment schedule for furnishing services under this Contract shall be based on the rate schedule which is attached hereto as **Exhibit "B"** and by this reference incorporated herein. Said fees shall remain in effect for the entire term of the Contract.

Contractor shall provide District with his/her/its Federal Tax I.D. number prior to submitting the first invoice.

4. MAXIMUM COST TO DISTRICT:
In no event will the cost to District for the services to be provided herein exceed the maximum sum of **$168,210** including direct non-salary expenses.

5. TIME OF AGREEMENT:
This Agreement shall commence on February 4, 2007, and shall terminate on December 31, 2009. Certificate(s) of Insurance must be current on day Contract commences and if scheduled to lapse prior to termination date, must be automatically updated before final payment may be made to Contractor. The final invoice must be submitted within 30 days of completion of the stated scope of services.

6. INSURANCE:
All required insurance coverages shall be substantiated with a certificate of insurance and must be signed by the insurer or its representative evidencing such insurance to District. The general liability policy shall be endorsed naming the Marin County Flood Control and Water Conservation District as an additional insured. The certificate(s) of insurance and required endorsement shall be furnished to the District prior to commencement of work. Each certificate shall provide for thirty (30) days advance notice to District of any cancellation in coverage. Said policies shall remain in force through the life of this Contract and shall be payable on a per occurrence basis only, except those required by paragraph 6.4. a. and b. which may be provided on a claims-made basis consistent with the criteria noted therein.

Nothing herein shall be construed as a limitation of Contractor's liability, and Contractor shall indemnify and hold the District, its employees, officers, and agents, harmless and defend the District against any and all claims, damages, losses and expense that may arise by reason of the Contractor's negligent actions or omissions. District agrees to timely notify Contractor of any negligence claim.

Failure to provide and maintain the insurance required by this Contract will constitute a material breach of the agreement. In addition to any other available remedies, District may suspend payment to the Contractor for any services provided during any time that insurance was not in effect and until such time as the Contractor provides adequate evidence that Contractor has obtained the required coverage.

Page 1 of 7

A request for a waiver of any of the following insurance requirements must be set forth on **Exhibit "C"** attached hereto. A waiver must address reduced amounts of coverage or the type of coverage waived entirely.

6.1 GENERAL LIABILITY
The Contractor shall maintain a commercial general liability insurance policy in an amount of no less than one million dollars ($1,000,000.00). The District shall be named as an additional insured on the commercial general liability policy and the Certificate of Insurance shall include an additional endorsement page.
(see sample form: ISO - CG 20 10 11 85).

☐ **Insurance Reduction or Waiver of Coverage Requested (Exhibit "C")**

6.2 AUTO LIABILITY
Where the services to be provided under this Contract involve or require the use of any type of vehicle by Contractor in order to perform said services, Contractor shall also provide comprehensive business or commercial automobile liability coverage including non-owned and hired automobile liability in the amount of one million dollars ($1,000,000.00).

☐ **Insurance Reduction or Waiver of Coverage Requested (Exhibit "C")**

6.3 WORKERS' COMPENSATION
The Contractor acknowledges that it is aware of the provisions of the Labor Code of the State of California which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and it certifies that it will comply with such provisions before commencing the performance of the work under this Contract. If Contractor has employees, a copy of the certificate evidencing such insurance or a copy of the Certificate of Consent to Self-Insure shall be provided to District prior to commencement of work.

☐ **Insurance Reduction or Waiver of Coverage Requested (Exhibit "C")**

6.4 OTHER INSURANCES
Contractor may be required to carry additional insurance based upon the nature of the work to be performed (scope of services). For each additional required insurance, a corresponding certificate of insurance must be provided. Claims-made policies must have a retroactive date either prior to the effective date of the Contract or the beginning of the Contract work. Claims-made coverage must extend a minimum of twelve (12) months beyond completion of Contract work or end of current Contract, whichever is later. If coverage is cancelled or non-renewed, and not replaced with another claims made policy with a retroactive date prior to the Contract effective date, the Contractor must purchase extended reporting coverage for a minimum of twelve (12) months beyond completion of Contract work. Contractor shall maintain a policy limit of not less than one million dollars ($1,000,000) per incident, with a deductible or self-insured retention not to exceed *$2,500 unless approved by the District.

6.4.a Professional Liability Insurance.....☐ **(check box if required)**
Deductibles greater than $2,500 require Insurance Reduction/Waiver form (Exhibit "C"**) to be completed.*
6.4.b Maritime Insurance.....☐ **(check box if required)**

7. NONDISCRIMINATORY EMPLOYMENT:
Contractor and/or any permitted subcontractor, shall not unlawfully discriminate against any individual based on race, color, religion, nationality, sex, sexual orientation, age or condition of disability. Contractor and/or any permitted subcontractor understands and agrees that Contractor and/or any permitted subcontractor is bound by and will comply with the nondiscrimination mandates of all Federal, State and local statutes, regulations and ordinances.

8. SUBCONTRACTING:
The Contractor shall not subcontract nor assign any portion of the work required by this Contract without prior written approval of the District except for any subcontract work identified herein. If Contractor hires a subcontractor under this Agreement, Contractor shall require subcontractor to provide and maintain insurance coverage(s) identical to what is required of Contractor under this Agreement and shall require subcontractor to name Contractor as additional insured under this Agreement. It shall be Contractor's responsibility to collect and maintain current evidence of insurance provided by its subcontractors and shall forward to the District evidence of same.

9. ASSIGNMENT:
The rights, responsibilities and duties under this Contract are personal to the Contractor and may not be transferred or assigned without the express prior written consent of the District.

10. LICENSING AND PERMITS:
The Contractor shall maintain the appropriate licenses throughout the life of this Contract. Contractor shall also obtain any and all permits which might be required by the work to be performed herein.

11. BOOKS OF RECORD AND AUDIT PROVISION:
Contractor shall maintain on a current basis complete books and records relating to this Contract. Such records shall include, but not be limited to, documents supporting all bids, all income and all expenditures. The books and records shall be original entry books with a general ledger itemizing all debits and credits for the work on this Contract. In addition, Contractor shall maintain detailed payroll records including all subsistence, travel and field expenses, and canceled checks, receipts and invoices for all items. These documents and records shall be retained for at least five years from the completion of this Contract. Contractor will permit District to audit all books, accounts or records relating to this Contract or all books, accounts or records of any business entities controlled by Contractor who participated in this Contract in any way. Any audit may be conducted on Contractor's premises or, at District's option, Contractor shall provide all books and records within a maximum of fifteen (15) days upon receipt of written notice from District. Contractor shall refund any monies erroneously charged.

12. TITLE:
Any and all documents, information and reports concerning this project prepared by the Contractor, shall be the property of the District. The Contractor may retain reproducible copies of drawings and copies of other documents. In the event of the termination of this Contract, for any reason whatsoever, Contractor shall promptly turn over all information, writing and documents to District without exception or reservation.

13. TERMINATION:

A. If the Contractor fails to provide in any manner the services required under this Contract or otherwise fails to comply with the terms of this Contract or violates any ordinance, regulation or other law which applies to its performance herein, the District may terminate this Contract by giving five (5) calendar days written notice to the party involved.
B. The Contractor shall be excused for failure to perform services herein if such services are prevented by acts of God, strikes, labor disputes or other forces over which the Contractor has no control.
C. Either party hereto may terminate this Contract for any reason by giving thirty (30) calendar days written notice to the other parties. Notice of termination shall be by written notice to the other parties and be sent by registered mail.
D. In the event of termination not the fault of the Contractor, the Contractor shall be paid for services performed to the date of termination in accordance with the terms of this Contract so long as proof of required insurance is provided for the periods covered in the Contract or Amendment(s).

14. RELATIONSHIP BETWEEN THE PARTIES:
It is expressly understood that in the performances of the services herein, the Contractor, and the agents and employees thereof, shall act in an independent capacity and as an independent contractor and not as officers, employees or agents of the District. Contractor shall be solely responsible to pay all required taxes, including but not limited to, all withholding social security, and workers' compensation.

15. AMENDMENT:
This Contract may be amended or modified only by written agreement of all parties.

16. ASSIGNMENT OF PERSONNEL:
The Contractor shall not substitute any personnel for those specifically named in its proposal unless personnel with substantially equal or better qualifications and experience are provided, acceptable to District, as is evidenced in writing.

17. JURISDICTION AND VENUE:
This Contract shall be construed in accordance with the laws of the State of California and the parties hereto agree that venue shall be in Marin County, California.

18. INDEMNIFICATION:
Contractor agrees to indemnify, defend, and hold District, its employees, officers, and agents, harmless from any and all liabilities including, but not limited to, litigation costs and attorney's fees arising from any and all claims and losses to anyone who may be injured or damaged by reason of Contractor's willful misconduct or negligent performance of this Contract. Nothing herein shall be construed as a limitation of Contractor's liabilities.

19. COMPLIANCE WITH APPLICABLE LAWS:
The Contractor shall comply with any and all Federal, State and local laws (including, but not limited to the County of Marin Nuclear Free Zone, Living Wage Ordinance, and Resolution #2005-97 of the Board of Supervisors prohibiting the offshoring of professional services involving employee/retiree medical and financial data) affecting the services covered by this Contract. Copies of any of the above-referenced local laws and resolutions may be secured from the District's contact person referenced in paragraph 20. NOTICES below.

20. NOTICES:
This Contract shall be managed and administered on District's behalf by the Department Contract Manager named below.

All invoices shall be submitted and approved by this Department and all notices shall be given to District at the following location:

Contract Manager:	Liz Lewis
Dept./Location:	Marin County Flood Control and Water Conservation District P.O. Box 4186 San Rafael, CA 94913
Telephone No.:	(415) 499-7226

Notices shall be given to Contractor at the following address:

Contractor:	Aimee Crawford, Prunuske Chatham, Inc.
Address:	400 Morris Street, Suite G Sebastopol, CA 95472
Telephone No.:	(707) 824-4600

21. ACKNOWLEGEMENT OF EXHIBITS

		CONTRACTOR'S INITIALS
EXHIBIT A.	☐ **Scope of Services**	
EXHIBIT B.	☐ **Fees and Payment**	
EXHIBIT C.	☐ **Insurance Reduction/Waiver**	

IN WITNESS WHEREOF, the parties have executed this Contract on the date first above written.

APPROVED BY
MARIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT:

By:_____

CONTRACTOR:
By:_____
Name: Lizbeth Prunuske
Telephone No.: 707-824-4600

COUNTY COUNSEL REVIEW AND APPROVAL (Only required if any of the noted reasons applies)
REASON(S) FOR REVIEW:

- ☐ **Contract requires approval of the Board of Supervisors of the Marin County Flood Control and Water Conservation District**
- ☐ **Standard Short Form content has been modified**
- ☐ **Optional review by County Counsel at Department's request**

County Counsel: _____

Date:_____

Page 4 of 7

PRUNUSKE CHATHAM, INC.

Exhibit A
Marin County Watershed Stewardship Plan
Department of Public Works and Prunuske Chatham, Inc.
Scope of Work

Introduction
An Administrative Draft of the Marin County Watershed Management Plan (Management Plan) was produced by Prunuske Chatham, Inc. (PCI) for the Community Development Agency (CDA) in 2004. It focused on watersheds of the west county to aid in the development of preparing the Countywide Plan. It provided descriptions of each watershed with discussions of watershed planning and management. It did not include descriptions of the urbanized watersheds of eastern Marin County.

Objectives
PCI, at the request of the Marin County Department of Public Works (DPW) and the Marin County Flood Control and Water Conservation District (MCFCWCD), has prepared this scope of work to begin expansion of the existing Management Plan into a Watershed Stewardship Plan (Stewardship Plan) that will address eastern Marin County watersheds while updating the watershed issues and needs for selected western Marin County watersheds. The process and products described herein are intended to support DPW's efforts to meet these four primary objectives:

1) To create a Watershed Stewardship Plan that addresses regional and local issues in the developed watersheds of east and west Marin County;
2) To uncover opportunities for integrated watershed management through inter-watershed and inter-organizational partnerships;
3) To provide information, criteria, and prioritized actions to support the Marin County Department of Public Works and other stakeholders' efforts to promote watershed health;
4) To demonstrate the elements and process of creating a watershed workplan that identifies specific, prioritized, multi-benefit projects.

Project Team
DPW, Marin County Open Space and Community Development Agency staff will provide strategic oversight, planning assistance, and review and comment on all draft elements of the Watershed Stewardship Plan. The North Bay Watershed Association (NBWA) and the Tomales Bay Watershed Council (TBWC) will host meetings and advise about east and west Marin water management issues respectively. Lead agency staff will work with stakeholder groups to inform the process of local conditions and preferences, to develop criteria for watershed improvement, and to propose implementation actions for the overall benefit of Marin County watersheds.

Task 1- Stakeholder Participation and Public Outreach
Community participation is vital to creating a Watershed Stewardship Plan that interweaves local priorities and resources into a practical and effective strategy for improving watershed health. When public agencies, watershed groups, and citizens are aligned on key goals and projects, stewardship—from funding to policy support to getting projects on the ground—becomes a shared effort.

The public process will focus on the following watersheds:

Watershed	Flood Control	City or Town(s)
Novato Creek	Zone 1	Novato
Miller Creek	CSA 13	Lucas Valley
Las Gallinas Creek	Zones 6 and 7	San Rafael
Mahon Creek	no zone	San Rafael
Corte Madera Creek	Zone 9- Larkspur, Ross, San Anselmo, Fairfax	
Richardson Bay	Zones 3 and 4 - Mill Valley, Tiburon, Sausalito	
Inverness	Zone 10	Inverness
Easkoot Creek	Zone 5	Stinson Beach
San Geronimo Creek	no zone	Woodacre, Forest Knolls

PCI Deliverables:

1) Agenda planning, technical presentations, facilitation and meeting summaries for watershed stakeholder meetings as requested by DPW. All documents produced for these meetings will be provided electronically to DPW for use in a county-designated website.

Provided by County:

1) Lists of watershed stakeholders.
2) Mail and e-mail lists for stakeholders.
3) Workshop scheduling, logistics, and physical set-up.
4) Costs for renting workshop facilities.
5) Posting of workshop information on designated website.
6) Large graphics and maps.
7) Agenda planning, technical presentations, facilitation and meeting summaries when DPW does not request PCI to provide these services.

Task 2 – Existing Conditions Reports

Existing conditions reports ("Report") will be developed for the selected east Marin watersheds and updated for west Marin watersheds. The Report will include: an overview of bay and ocean water management goals and current regional and local watershed planning and management efforts. Watershed descriptions will be organized utilizing the format provided in the State's Watershed Assessment Framework[1]. Key data gaps will be identified. The existing conditions report and the GIS maps produced by the County will be will be utilized to help describe the relationship between watershed conditions and key watershed health issues as follows:

Landscape Condition

- description of the physical and cultural setting
- land use changes over time
- environmental and resource management issues, concerns and needs

Hydrology and Geomorphology

- overview of hydrologic data and studies
- overview of geomorphic evaluations

Social and Economic Condition

- current and projected land use including projected buildout and calculation of impermeable area by watershed
- history of water management
- current water management strategies including flood control

[1] Adopted in 2006 by the Steering Committee for the Governor's Watershed Action Plan

- a list of organizational and funding resources for continued watershed involvement
- description of existing or funded restoration efforts based on review of existing databases

Chemical and Physical Characteristics

- State of California designated beneficial uses
- water quality assessment and issues at Bay and Ocean levels as well as tributary conditions

Biotic Condition

- biotic assessment including special status species, valuable habitat and the need for specific habitat protections

Ecological Function

- habitat connectivity
- fragmentation

Natural Disturbance Regimes

- flooding history and frequency
- fire history and frequency (to maintain consistency with the other sub-sections here we did not refer to information sources here)
- sudden oak death syndrome (same as above; however, we will review the UCB work)

Summaries of Resource Management, Land Use and Stewardship Documents
DPW has provided PCI with a list of primary documents in the form of regional planning reports, watershed plans, engineering and environmental studies that will be reviewed for the Existing Conditions Report. PCI and DPW will work together to summarize the most relevant information and incorporate it into a watershed document database. This database will help organize and sort information for the Stewardship Plan, and will also be a useful tool for future tracking and information searches.

Regional planning documents, such as the Tomales Bay Coastal Integrated Water Management Plan and the North Bay and San Francisco Bay Integrated Water Management Plans, the Regional Board's Watershed Management Initiative, State of California Coho Recovery Plan and others will be reviewed for definitions of regional needs and samples of project selection criteria, particularly

those that target important state and federal requirements and possible funding programs.

PCI Deliverables:

1) Existing Conditions Report with sections for each watershed listed in Task 1.
2) Descriptions and locations of existing or funded restoration efforts based on a review of existing databases.
3) Revised Report based on comments from the PAC.
4) Revised Report based on comments from the watershed work groups.
5) Obtain documents and prepare digital bibliography.

Provided by County:

1) GIS base maps for eastern and western Marin County.
2) Specific maps for each watershed, including, but not limited to previous study areas, issues, and analysis of key opportunities.
3) Electronic document review form.
4) Document review of any reports not reviewed by PCI.
5) Summary table of plans with regional or multi-watershed scope.
6) Review and comments on Draft Existing Conditions Report within ten days of delivery.

Task 3- Watershed Health Evaluation

Overall watershed health will be analyzed for the focus watersheds using available watershed metrics. The Existing Conditions Report, stakeholder input, the GIS and published data will be utilized to generate this analysis. Metrics to be analyzed may include benthic macroinvertebrate data (indices of biological integrity), percent impervious coverage by sub-watershed as well as percent build out (as per the Countywide Plan), road density, aquatic habitat assessments, geomorphic assessments, and critical species population trends. Analysis already completed in the regional and watershed plans reviewed in Task 2 will be evaluated and incorporated as appropriate.

The watershed health assessment will be the result of a comprehensive analysis of issues and opportunities that relates and refers to the California Watershed Assessment Framework. Translation of complex issues into relatively simple language will be necessary for use by county residents, policy makers, and agency stakeholders to understand watershed needs and to track progress in

improving and restoring watersheds. PCI will produce draft assessment criteria and draft evaluations for review by DPW.

PCI Deliverables:

1) Identify and prioritize watershed assessment criteria with input from the PAC and TWG; describe how criteria can be used to track effectiveness and relative success of project implementation.
2) Draft assessment criteria based on comments from PAC.
3) Draft Watershed Health Evaluations based on selected criteria for each of the focus watersheds.

Provided by County:

1) Review and comment on draft assessment criteria.
2) Participation in meetings to apply criteria to watersheds.
3) Review and consolidate comments on each of the Watershed Health Evaluations.

Task 4- Project Criteria Development and Action List by Watershed

PCI will develop draft criteria to evaluate and rank multi-functional benefits and specific project contributions to watershed health. The criteria development will be consistent with best management practices described in the County's Stormwater Management Plan and FishNet 4C best management practices for road maintenance. The criteria will draw from the watershed health evaluations, needs assessments in the Existing Conditions Reports, existing criteria currently in use by public agencies, and proposed criteria from the regional plans reviewed in Task 2. PCI will provide this draft to the PAC, NBWA, TBWG and other stakeholders in the watersheds, who will participate in development of criteria to assist with selecting and ranking actions that address ecological as well as infrastructure needs. NBWA and TBWG members will review draft criteria at one of their regular meetings.

Actions will be generated and will then be evaluated by the criteria. Actions can include implementation projects, assessments, and management measures. Most actions will be specific to individual watersheds; however some, such as coordinated permitting strategies and invasive species management, will transcend watershed boundaries.

PCI Deliverables:

1) Draft criteria for multi-benefit project selection.

Provided by County:

1) Participation in criteria development.
2) Review of draft criteria.

Task 5- Multi-Benefit Guidelines

DPW and other agency stakeholders need guidelines to assist with incorporating multi-benefit analysis into their Capital Improvement Project (CIP) process. Some projects will be identified through the stakeholder review process, while others will be developed during subsequent capital development programs. In either case, a process for integrating multiple benefits (i.e., infrastructure and ecological improvements) into projects is needed. With input from County staff, PCI will develop draft guidelines based on the existing process will be developed that will clearly outline an approach for determining, describing, prioritizing, and implementing multi-benefit projects, including guidelines to rank stream and wetland projects.

Deliverables:

1) Review and update of County's engineering design process to incorporate new stormwater guidance.
2) Draft criteria and guidelines for multi-benefit projects into the County Capital Improvement Program (CIP).

Provided by County:

1) DPW CIP process guide and list.
2) Open Space CIP list.

Task 6- Project Management

Successful project progress will require consistent project team communication, including phone calls, email and in-person meetings. PCI will participate in regular calls with agency staff to discuss relevant issues in plan and/or meeting preparation. PCI will also prepare and circulate agendas prior to each call. PCI will assist DPW with reporting to project funders as needed.

Deliverables:

1) Participation in regular check-in calls.
2) Agendas for regular check-in calls.
3) Management of project scope with staff.
4) Monthly project reports emailed to DPW for submittal to project funders

Exhibit B, Part 2
Cost Estimate Detail
Marin County Department of Public Works
Watershed Stewardship Plan

	$167,978	Line Item SubTotals
	Task	
1	**Stakeholder participation and public outreach**	
	Planning and participation in meetings, staffing as needed	$27,000
	Task 1 Subtotal	**$27,000**
2	**Existing conditions reports**	
	Existing Conditions Report for each of the focus watersheds	$68,458
	Revised Report based on PAC comments	$3,674
	Revised Report based on watershed work group comments	$8,840
	Obtain documents and prepare digital bibliography	$3,650
	Task 2 Subtotal	**$84,622**
3	**Watershed health evaluations**	
	Develop draft watershed assessment criteria	$9,808
	Develop draft watershed health evaluations based on criteria	$3,500
	Task 3 Subtotal	**$13,308**
4	**Project criteria development and action list**	
	Develop draft criteria for multi-benefit project selection	$15,500
	Task 4 Subtotal	**$15,500**
5	**Multi-benefit guidelines**	
	Review and update County's engineering design and capital improvement process to incorporate new Phase II stormwater guidance	$7,826
	Develop draft criteria and guidelines for multi-benefit projects to incorporate into the CIP process guide	$8,022
	Task 5 Subtotal	**$15,848**
6	**Project Management**	
	Participation in regular check-in calls	$3,000
	Agendas for regular check-in calls	$700
	Management of project scope with PMT	$6,000
	Assistance with reporting to funders	$2,000
	Task 6 Subtotal	**$11,700**
	TOTAL	**$167,978**

EXHIBIT A: SCOPE OF WORK

Part 1: Background **Exhibit A**

The purpose of this proposal is to update the Marin County Watershed Management Plan drafted in 2004 by the Marin County Community Development Agency (MCCDA). The draft 2004 plan provided a framework for watershed management planning but focused primarily on drainages to the Pacific Ocean and Tomales Bay. The primary purpose of the 2004 draft plan was to guide MCCDA's efforts to update the County's General Plan. The draft 2004 plan is available on line at http://www.co.marin.ca.us/depts/CD/main/comdev/Watershed/WMP_Pt1.pdf. This proposal would amend the 2004 draft watershed management plan to include watersheds draining to San Pablo and San Francisco Bay and would support the development of multiple benefit projects and update several chapters to reflect the integration of new regulatory requirements including local and State policies for stormwater quality and creek protection. This plan would also include a process to work directly with community stewardship groups and State and Federal regulatory agencies during plan scoping and development to solicit their watershed issues and concerns.

The Board also recognizes that Marin County supports significant natural resources and that watershed management planning provides a framework to guide watershed protection and enhancement activities. The plan revision would align the Department's flood control and creek restoration capitol project priorities with municipalities, watershed groups, Local, State and National Parks and regional organizations such as the North Bay Watershed Association. The plan would identify projects that complement the State of California's and Federal recovery planning priorities for Coho salmon and steelhead, California red-legged frog, Northern spotted owl, and species included in the Tidal Marsh Ecosystem Recovery Plan. The planning would help identify potential water quality issues for the San Pablo and San Francisco Bay watersheds and provide the State with background information for their TMDL planning process. The plan would include guidance for prioritizing restoration work within targeted watersheds (i.e steelhead recovery, TMDL implementation, NPDES stormwater permit compliance) and provide an iterative process for providing updates.

The plan would be developed using a community-based approach that would support stakeholder participation with the ultimate goal of presenting the plan to the Marin County Planning Commission and Board of Supervisors for their review and adoption.

Part 2: Task Descriptions **Exhibit A**

Specific Project Tasks:	Task Title	Description	Product or Deliverable
Task 1: Watershed info collection	Marin Watershed descriptions	Includes information collection, synthesis, and planning for East Marin watersheds and updating	Draft and final watershed management plans
Task 2: Public Outreach	Public outreach and meetings	Attend regular watershed group meetings to describe the scope and intention of this plan and solicit issues and concerns to be included. Devlelop content for a page on MCSTOPPP web site or equivalent. Facilitate two public meetings to present draft plan and solicit feedback.	Meeting summaries and action items to be incorporated into management plan.
Task 3: Improve coordination and delivery of multiple benefit projects	Update criteria for selecting restoration projects to include public works project process	Review and update County's Engineering design process to impove delivery of multiple benefit projects	Revised project process will be distributed and shared with all municipalities. Process will be incoporated into final watershed plan
Task 4: Update Recommended Actions section of existing plan	Marin County recommendations for improving watershed health	Update this chapter to reflect implementation of watershed scale measures for stormwater infiltration and treatment and update best management practices information (BMP); develop and criteria to identify, evaluate and rank stream and wetland projects consistent with stormwater plan	1) Coordinate with stormwater program, Water Board staff, and others to develop and document criteria which can be used to identify, evaluate, and rank stream and wetland restoration projects 2) Review CIP plans and local watershed plans to begin identifying suitable projects that would meet the requirements of a functionally equivalent plan for stormwater infiltration and water quality protection. 3) Propose a draft list of projects by watershed. 4) Update watershed management plan to incorporate new BMP information
Task 5: Develop Framework for Plan Updates	Plan Updates	Develop framework and criteria for Plan updates	Develop framework and criteria for plan updates
Task 6: Produce publication ready copy of watershed plan	Publication ready copy of watershed management plan	Produce publication ready version of plan	Publication ready verison of plan
Task 7: Environmental Work Plan for Novato Creek watershed	Novato Creek Watershed Environmental Work Plan	Produce template outlining steps to develop an environmental work plan; review all available studies and engineering reports; develop scope for a RFP for watershed restoration planning and implementation for the Novato Creek watershed	Environmental work plan template for Novato Creek watershed. Request for Proposals (RFP) for work plan would be a deliverable.
Task 8: Watershed mapping and analysis	Watershed mapping and analysis	Update creek and watershed mapping, watershed delineation; calculation of watershed parameters	Prepare Watershed maps; calculate watershed parameters such as drainage area, % impervious surface; stream miles
Task 9: Project Management	Project Management	Project management	Coordination and project management
Administration:			
Reporting Requirements:			
	Monthly Reports		
	Annual:		
	Special:		
	Final:	Final Marin County watershed management	
Invoicing		monthly	
Data collection			
CEQA or Permitting		N/A	

Part 3: Project Schedule				Exhibit A
Task or Milestone	**Milestone Description**	**Due Date**		**Time to completion**
Marin Conservation League's (MCL) Creek and Wetland Comm monthly meeting	Present draft plan template to MCL creek and wetlands committee to scope plan, identify issues and opportunities	March	2008	4 months
Preliminary meetings with Friends of Novato Creek; Corte Madera Creek Watershed, Friends of Miller Creek and Mill Valley Streamkeepersand others	Present draft plan template to local watershed stewardship groups to review update, identify issues and opportunities	Feb-June	2008	7 months
Preliminary meeting with North Bay Watershed Association's Watershed Council	Present draft plan template to NBWA watershed council to review consistency with NBWA IRWMP and to identify issues and opportunities	July	2008	8 months
Novato Creek Flood Advisory Board	Present draft environmental work plan to Flood Advisory Board	Sept	30-Jun	10 months
Draft report	Circulate draft report to watershed groups, regional organizations and County staff	Nov	2008	12 months
Final Report	Release final report and post to web site	March	2009	15 months

Part 4: Contractual Partners and Sub-Contractors		Exhibit A
Sub-Contractor 1:		
Name of Organization:	Prunuske Chatham Inc.	
Type of Organization:	Ecological restoration and design firm	
Area of Expertise:	creek restoration design and construction, watershed planning, erosion control, re-vegetation projects	
Sub-contractor 1 Contact Person		
Last Name:	Prunuske	
First Name:	Liza	
Title:	CEO	
Telephone:	707.874.0100	
E-mail:	liza@pcz.com	
Other:		
Sub-contractor 1 Mailing Address		
Line 1:	PO Box 828	
Line 2:		
City:	Occidental	
State:	CA	
Zip Code:	95465	
County:	Sonoma	

Task Item	**Description**	**Amount $**		**Due Date / Timeline**
PCI to provide assistance with tasks #1-7 described below	Description of tasks #1-7 described in Part 1-Task Item Budget	$168,210		Final plan due March 2009

EXHIBIT B: PROJECT BUDGET

Part 1: Task Item Budget **Exhibit B**

Funds shall be expended consistent with this Exhibit B Budget. Expenditures may include variations in budget line items up to $25,000.00 or 10 percent of the annual agreement total, whichever is less, but shall not exceed a cumulative maximum of $50,000. Any variations in expenditures shall not change the total Grant Amount identified in Paragraph 3 of this Agreement. Grantee shall get advance written or e-mail approval from the State's Grant Manager of such variations in expenditures.

Project Work Task	Sub-tasks	Task Description	Other Funds	Grant Funds	Project Total
Task 1:Marin Watershed Descriptions	Collect watershed information; Information synthesis and planning; Produce watershed overviews;	Includes information collection, synthesis, and planning for East Marin watersheds and updating west Marin watershed description updates	$5,000	$46,320	$51,320
Task 2:Public Outreach	Coordinate data collection with watershed groups; Develop content for web page; Facilitate (2) public meetings to present draft plan and to solicit feedback	Attend regular watershed group meetings to solicit input on the scope and to obtain data and information for the watersheds, solicit issues and concerns to be included. Devlelop content for a page on stormwater program web site or equivalent. Facilitate two public meetings to present draft plan and solicit feedback.	$5,000	$19,435	$24,435
Task 3: Update Criteria for Selecting Restoration Projects to Include Public Works Project Process	Improve coordination and delivery of multiple benefit projects	Review and update County's Engineering design process to impove delivery of multiple benefit projects	$2,100	$10,377	$12,477
Task 4: Update Recommended Actions and Next Steps section of existing plan	Develop and document criteria to rank stream and wetland projects; Identify projects by watershed; Update watershed plan to ensure consistency with new stormwater guidance	Prepare draft to include new information including implmentation of tasks 1-4 as described in deliverables section of Part 2. Ensure consistency with County stormwater management plan	$5,000	$52,239	$57,239
Task 5: Develop Framework for Plan Updates		Develop framework and criteria for Plan updates		$1,820	1820
Task 6: Produce publication ready copy of watershed plan		Produce publication ready version of plan		$8,349	8349
Task 7: Environmental Work Plan for Novato Creek watershed	Review available studies and restoration plans; Produce template for Novato Creek watershed; Develop scope for RFP	Review all available studies and engineering reports;Produce template outlining steps to develop an environmental work plan; develop scope for a RFP for work plan		$25,870	$25,870

Part 1: Task Item Budget Continued					Exhibit B
Project Work Task	Sub-tasks	Task Description	Other Funds	Grant Funds	Project Total
Task 8: Watershed Mapping	Watershed mapping and analysis	Prepare Watershed maps; calculate watershed parameters such as drainage area, percent impervious surface; stream miles	$9,900		
Task 9: Project Management		Coordination between public works, consultants and other stakeholders	$7,000	$3,800	$10,800
Add additional tasks as needed:					
Administration:					
Reporting:			$15,000		$15,000
	Monthly, annual, special, final				
Invoicing:			$2,950		
Data collection:					
CEQA or Permitting:					
	Negative Declaration				
	Mitigations				
	EIR/EIS				
	other permits				
TOTAL PROJECT BUDGET:			$51,950	$168,210	$220,160

Part 2: Line Item Budget					**Exhibit B**
Funds shall be expended consistent with this Exhibit B Budget. Expenditures may include variations in budget line items up to $25,000.00 or 10 percent of the annual agreement total, whichever is less, but shall not exceed a cumulative maximum of $50,000. Any variations in expenditures shall not change the total Grant Amount identified in Paragraph 3 of this Agreement. Grantee shall get advance written or e-mail approval from the State's Grant Manager of such variations in expenditures.					
Line-Item Details	**Description**		**Other Funds**	**Grant Funds**	**Project Total**
Total Salaries & Wages:					
Personnel Services:		MCDPW staff			
Class or title:	Principal Planner	Project management; assist with data compilation	$14,100		14100
	Cost per hour:	47			
	Anticipated Hours:	300			
	Benefits				
Class or title:	Senior Planner	Grant adminstration including reporting and invoicing;assist with data compilation	$27,950		27950
	Cost per hour:	43			
	Anticipated Hours:	650			
	Benefits				
Class or title:	GIS Resource Specialist	Map production and watershed analysis	$9,900		9900
	Cost per hour:	33			
	Anticipated Hours:	300			
	Benefits				
Equipment					
Supplies					
Data Software/Hardware					
Partner Contracts					
Professional & Consultant contracts	Contract with watershed planning consultant to assist with plan preparation including implementation of tasks 1-7 described in Part 1: Task Item budget			$168,210	
Construction Expenses					
Overhead					
TOTAL PROJECT BUDGET:			**$51,950**	**$168,210**	**$220,160**

EXHIBIT D
GRANTEE RESOLUTION

COUNTY OF MARIN
www.co.marin.ca.us/pw

ADMINISTRATION
499-6528

ACCOUNTING
499-6576 • FAX 507-2899

AIRPORT
453-A AIRPORT ROAD
NOVATO, CA 94945
897-1784 • FAX 897-1364

BUILDING MAINTENANCE
499-6576 • FAX 499-3259

CAPITAL PROJECTS
499-6877 • FAX 499-3724

COMMUNICATION MAINTENANCE
499-7313 • FAX 499-3738

DISABILITY ACCESS
499-6528 (VOICE)
499-3333 (TTY)

ENGINEERING & SURVEY
499-6877 • FAX 499-3724

FLOOD CONTROL DISTRICT
499-6528

COUNTY GARAGE
499-7388 • FAX 499-7198

LAND DEVELOPMENT
499-6549

PRINTING
499-6577 • FAX 499-6617

PURCHASING AGENT
499-6371

REAL ESTATE
499-6278 • FAX 446-7373

ROAD MAINTENANCE
499-7388 • FAX 499-9656

STORMWATER PROGRAM
499-6528

TRAFFIC ENGINEERING
499-6528

TRANSIT DISTRICT
499-6079 • FAX 499-6035

WASTE MANAGEMENT
499-6647 • FAX 446-7373

DEPARTMENT OF PUBLIC WORKS

P. O. Box 4186, San Rafael, CA 94913-4186 • 415/499-6528 • FAX 415/499-3799 • TTY 415/499-3252

Farhad Mansourian, RCE
Director

July 18, 2006

APPROVED
JUL 18 2006
MARIN COUNTY
BOARD OF SUPERVISORS

Board of Supervisors
County of Marin
3501 Civic Center Drive
San Rafael, CA 94903

SUBJECT: Initiation of Watershed Management Program and Related Staffing Request

Dear Supervisors:

RECOMMENDATIONS:
1. Approve initiation of the Watershed Management Program as outlined.
2. Authorize the Public Works Director to submit grant applications to State and Federal agencies for watershed management and restoration projects.

SUMMARY: The watersheds of Marin County are characterized by more than 1050 miles of perennial and intermittent creeks, many of which support Steelhead and Coho Salmon which are designated by the federal government as threatened species. Marin County is recognized, in fact, as having the most significant and populous Coho salmon run on California's central coast. In March 2005, your Board initiated a Fish Passage and Creek Restoration Program with the purpose of restoring salmon passage through existing County culverts and restoring stream channels throughout the County, especially within existing flood zones.

Implementation of the fish passage program and the recent floods demonstrate the need for Marin County to embrace a watershed approach that integrates flood management and habitat restoration elements. In recognition of the County's significant natural resources, the department is proposing a Watershed Management Program that would establish a decision framework to guide watershed protection and enhancement activities beginning with the watersheds currently managed by the Marin County Flood Control District (flood zones and county service areas). The program, in cooperation with the Marin County Stormwater Pollution Prevention Program (MCSTOPPP), would provide significant opportunities for stakeholder participation.

This letter provides background, critical program elements and identifies current and potential projects.

BACKGROUND: The department has worked diligently over the years to incorporate habitat enhancement elements into the design of flood protection projects, a recent example being Phase VIII of the Novato Creek Flood Control and Bank Stabilization project. This project incorporates native vegetation and fishery enhancements into the overall engineering design.

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1 12

Principal Planning Watersheds

Phase I watersheds

Novato Creek
Vineyard Creek, Novato
Miller Creek (no current flood control responsibilities covered through CSA 13) Corte Madera CreekArroyo Corte Madera del Presidio and Coyote Creek, Mill Valley
San Geronimo Creek (no current flood control responsibilities, on-going work through fish passage program)
Easkoot Creek

Phase 2 watersheds
Vineyard Creek, Novato
Las Gallinas Creek
Miller Creek
Alder Creek, Bolinas
Lagunitas Creek
Redwood Creek
Arroyo Corte Madera del Presidio and Coyote Creek, Mill Valley
Corte Madera Creek

WORKPLAN

FY 06-07 Plan The watershed planning effort will produce a template for each Phase I watershed based on existing watershed plans and the latest technical information. The planning effort will draw from such documents as the Community Development Agency's (CDA) 2003 Draft County Watershed Management Plan (*http://www.co.marin.ca.us/depts/CD/main/comdev/Watershed/WMP_Pt1.pdf*) and the North Bay Watershed Association's (NBWA) Integrated Regional Watershed Management Plan (*www.nbwatershed.org*). The template will outline and describe major issues and needs within each watershed. The planning effort will culminate with a list of potential projects and include an iterative process to update the planning database.

Potential user groups other than the County of Marin include other public agencies, community groups, State and Federal regulatory agencies, and private landowners. Staff would evaluate grant writing opportunities and produce a funding database. Work on these items would begin once the requested staff has been hired.

FY 07-08 Plan Work will continue in Phase I watersheds and Phase 2 watershed planning will begin. Program effectiveness will be measured by the number of projects implemented that are consistent with the planning goals. Program success will be contingent upon the receipt of grant funding from State and Federal sources. Because most grants require a local match, funds will need to be allocated to implement projects. Work with the watershed groups will continue in order to obtain input to the planning process. Staff will coordinate watershed planning with other local public agencies such as the Marin Municipal Water District, County Open Space District, and National Parks Service.

Woodacre Creek @ Park Street	Fish Passage Restoration	Replace concrete culvert with natural bottom arched culvert		$420,000	TBD	2006
Easkool Creek	Improve floodway management and fishery habitat		TBD	TBD	TBD	2006
Vineyard Creek	Flood protection and Bank stabilization	Planning for bank stabilization and riparian re-vegetation	TBD	TBD	TBD	2006-08
Novato Creek	Bank stabilization design palette	Prepare conceptual designs for permitting and construction of fish friendly bank stabilization projects	$60,000	TBD		2007
Miller Creek	Channel restoration and bank stabilization project	Geomorphic channel restoration and erosion control projects	TBD	$600,000	TBD	2007
Lower Coyote Creek Project	Flood Protection and Wetland restoration	Preliminary design work, grant funding will be required to implement	TBD	$2,000,000	TBD	2007-10
Arroyo Corte Madera del Presidio	Watershed Planning	Development of watershed plan to include flood mitigation, fish passage and habitat restoration elements	TBD	TBD	TBD	2008-09

This program can be accomplished very economically by rearranging resources within the department, specifically, by utilizing resources from non-general fund; we are able to accomplish this program by re-aligning one Principal Planner position and only adding one new Position (Senior Planner). The enclosed chart provides more detail.

Novato Creek Stabilization

Marin County Flood Control & Water Conservation District Project

Proposal for Professional Engineering Services

NOVATO CREEK BANK STABILIZATION DESIGN MEASURES

Submitted to:

Marin County Flood Control and Water Conservation District
Liz Lewis, Principal Planner
PO Box 4186
San Rafael, California 94913
Tel: 415.499.7226
lizlewis@co.marin.ca.us

Submitted by:

Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
Point Richmond, California 94801
Tel: 510.236.6114
Fax: 510.236.2423
www.questaec.com

Questa Project No. 260207

October 20, 2006

CONTENTS

PROPOSED WORK PLAN AND SCHEDULE

Project Approach

Novato Creek has been subjected to incision and channel widening primarily caused by hydromodification. The channel is the process of adjusting to new hydrologic regime by eroding its banks and bed. This adjustment and subsequent erosion has contributed to sedimentation in the lower creek reaches. The Marin County Flood Control and Water Conservation District (District) seeks to develop bank stabilization designs for two 3,000-foot reaches of Novato Creek: 1) Grant Avenue to Simmons and 2) Miwok Park from Las Tardes to Novato Boulevard.

The challenge of the project will be to develop a bank stabilization approach that can adjust over time with the adjustment of the stream channel. In other words project designs that recognize the dynamic, evolving forces of channel geomorphology and riparian habitats and to incorporate them in the adopted designs. Questa favors bank stabilization methods that use a combination of rock, large woody debris, soil re-enforcement, and plant materials which create a complex grid, or matrix, of different materials in the bank. These are often referred to as "Bio-technical" or "Bio-engineered" design approaches. However, in many cases where used, the "engineering" aspect of "bio-engineering" is missing. In other words, little or no attempt has been made to understand factors such as shearing forces or sediment transport dynamics, matching known shear resistance of the biotechnical materials to channel forces.

Novato Creek is an urban creek that supports salmonid habitat so designing bank stabilization schemes is complex because many different goals need to be met in an environmentally sensitive solution. Channel management and bank stabilization can be achieved in a number of ways, depending on the nature of the problem, the constraints of the site, and project goals and objectives. Among the goals and objectives of this project are to minimize impacts to aquatic habitat, and to avoid creation of downstream or cumulative impacts. Typically an urban bank stabilization project needs to balance issues such as flood control, infrastructure/private property protection, habitat improvement, geomorphically appropriate design, and environmental impacts. The key is developing a design that meets all of these needs. To meet these goals a multi-faceted approach needs to be taken that carefully evaluates the project from both an engineering perspective and an ecological perspective. The project thus provides an environmentally sensitive, low-maintenance solution with lower long-term costs. Questa uses a hybrid approach that utilizes detailed hydraulic modeling techniques to evaluate channel forces combined with geomorphic investigative techniques to assess appropriate channel configurations and long-term stability. We pay close attention to channel sediment transport dynamics within the project to make sure our designs maintain or improve localized sediment transport rates or do not impact adjacent areas. Thus though our designs are "bio-engineered" we strive to emphasize the engineering analysis in the design.

Our study team has extensive experience with the application of hydraulic and fluvial geomorphic analysis techniques applied to biotechnical bank stabilization design within urban environments. The project team includes stream ecologists, as well as engineers, hydrologists, geologists, and landscape architects trained in biotechnical slope stabilization.

Our approach for the design of the Novato Creek bank stabilization projects is based on an integration of hydraulic and geomorphic analysis with biological input, and utilizes a thorough testing of alternatives through feasibility analysis and modeling. Following the reach evaluations and site surveying, a palette of biotechnical bank stabilization approaches will be described in the Preliminary Engineering Design Report. This report will summarize field reconnaissance, right of way issues, constraints analysis, and hydrologic and hydraulic analyses, and provide preliminary planning level cost estimates. The Preliminary Design Report will also provide an inventory of erosion conditions and rank the high priority sites to focus on the most severely eroded sections of the project reaches. The alternatives will avoid or minimize impacts and include internal mitigations. The proposed management and design process represents a departure from the traditional approach to channel design. It facilitates the use of multiple objectives required to meet environmental and conveyance needs of stream systems, as well as recognizing and working with the natural dynamics of the creek system. In this way,

requirements for flood and erosion control, drainage, and habitat are fulfilled within the context of a fully functional and stable ecological channel restoration.

Project Tasks

In order to complete this project in a timely and efficient manner, we propose to complete the following tasks.

Task 1 - Site Reconnaissance and Topographic Surveys

1a) Kick-off Meeting

This meeting with Marin County Flood Control and Water Conservation District (District) staff will review project goals, work scope, deliverables, and project schedule. We will discuss specific design criteria, receive input on types of alternatives being considered, agree on general design guidelines and approach, and confirm the project schedule. We will gather preliminary information and exchange ideas regarding methodology and project design objectives.

1b) Background Data Review

Any existing background information on site history, biology, and geology will be assembled and reviewed. This information will include District geomorphic surveys, Questa's previous watershed analysis, the 1998 Laurel Collins and 2001 Prunuske Chatham studies, existing topographical surveys, historical maps, Department of Public Works aerial data, and any prior hydrologic models.

1c) Field Mapping and Data Collection

We will conduct a field investigation of the project area to familiarize ourselves with the site, supplement available mapping and data, and verify field conditions. We propose to compile a series of base maps and GIS layers that compile all existing site conditions, and geomorphic data in a single database. This database will indicate:

- Location and condition of existing roads, trails, etc.
- Utilities/culvert outfalls.
- Tributary drainage channels and drainage structures.
- Structures, fences, gates.
- Riparian habitat assemblages and other vegetation data.
- Drainage patterns.
- Sensitive habitat areas, including adjacent wetlands, pool habitats, riffles zones, and other aquatic and fisheries resources
- Longitudinal thalweg profile survey

This task will also involve:

- Preparation of topographic base maps, cross sections, and channel profiles, including cross-section locations, based on available data and spot survey.
- Determination of the need for geotechnical studies.
- Questa would also propose to utilize detailed datum mapping and GIS layer formation for long-term data management for the area.
- Gathering existing hydraulic models from FEMA and other sources
- Determining reference reach areas and documenting key geomorphic parameters such as entrenchment ratios, bankfull widths and discharges, in-stream terrace heights, pool-riffle spacing, meander bend geometry, and channel substrate characterization.

Task 1 Deliverables: Topographic, bank erosion, and geomorphic survey data to be provided in AutoCad Land Desktop and/or GIS format

Task 2. Channel Reach Technical Analysis

Once all base data is compiled, Questa will complete a series of technical analysis to develop a deeper understanding of the hydrodynamics and geomorphic conditions of the project site. The hydrologic/hydraulic analysis will be an iterative process used to define and design the appropriate biotechnical features and mix of hard and soft bank stabilization methods, and to implement adequate erosion control. Existing FEMA studies or The Marin County Rational Method will be used to determine 10-, 50- and 100-year recurrence interval peak flows in Novato Creek. In-stream indicators and/or gage data will be used to determine bankfull flows. HEC-RAS will be used to determine water surface elevations, channel velocities, sediment transport potential and bed and bank shear stresses.

These analyses will at a minimum include:

- Development of reach specific hydraulic models. These models will be a compilation of existing and new hydraulic data. We anticipate that much of the existing structure data can be attained through existing detailed FEMA models and enhanced with latest aerial topographic information and field survey data collected for this project.
- Water surface profiles for bank full, 10-, 25-, 50-, and 100- year flood events.
- Longitudinal sediment transport analysis. Using the hydraulic models as base we can determine sediment transport capability/potential at each cross section throughout the study reach.
- Longitudinal mean channel velocity analysis.
- Longitudinal bed and bank shear stress analysis
- Longitudinal thalweg comparisons. Using compiled thalweg information we will compare historic channel profiles with existing conditions. This analysis can potentially produce incites into the channel evolution and erosion trends.

Task 3 - Develop Preliminary Engineering Design Report, including Conceptual Design Details

This task will involve developing a preliminary engineering design report that summarizes all of the data compilation and analysis from previous tasks and present project design alternatives. A constraints analysis will discuss environmental issues such as tree removal, staging and access, and dewatering issues. The field data collection, topographic survey from **Task 1**, as well as the constraints analysis, will be presented. This will include cross sections of stable reaches, appropriate geomorphic parameters, channel substrate data. Priority

erosion sites within the project reaches will be identified. We will provide plan view detailed drawings of the erosion sites and the potential stabilization techniques. We anticipate that two to three conceptual alternatives will be presented for each site. This preliminary report will include:

a. Base topographic maps, with right-of-way information overlain.

b. Develop existing sections from survey data for selected locations throughout the project reach. The cross sections will be representative of a physically defined reach that is exhibiting excessive erosion and in need of bank stabilization. Additionally, up to three cross sections of reference reaches (stable, non-eroding) will be included for design purposes.

c. Produce plan views for selected locations, as determined under **Task 1** and in consultation with District staff.

d. Develop preliminary cost estimates of the presented bank stabilization alternatives.

Task 3 Deliverables: The Preliminary Engineering Design Report will include a summary of hydrologic/hydraulic analyses, priority ranking of erosion sites, constraints analysis, alternative bank stabilization drawings including cross-sections and plan view of selected locations, and preliminary cost estimates. Three (3) sets of hard copy drawings (24" x36"), PDF images and CAD dwg files will be provided.

Task 4. Final Engineering Design Report

After County review and consultation, Questa will revise the draft report and develop the final engineering design report. This will include all of the previously compiled data, analysis and alternative but will present and describe the preferred stabilization plan for the project study reaches. We anticipate that this will be a new section of the report that clearly defines and provides additional detail for the proposed stabilization plans for the reaches. Included will be detailed plan view drawings of the stabilization areas along the channel profile and cross section views. The intent of the final report is a document that can be circulated to the appropriate state and federal agencies for review and permitting. It will seek to provide all analysis and justification for the project plans and be suitable for project permitting and CEQA review.

Task 4 Deliverables: Final Engineering Design Report and all accompanying graphics and drawings in Marin County format.

Task 5 - Meetings and Coordination

Questa assumes attendance at a total of six meetings throughout the project. In addition to the kickoff meeting (**Task 1**), Questa representatives will attend one preliminary design review meeting with District staff and two Marin County Project Coordination Meetings to meet with regulatory agencies for their input and review of preliminary plans (**Task 2**). Two additional progress meetings are assumed for budgeting purposes, to allow for meetings with regulatory agencies (permitting issues) and/or District staff (priority ranking and site-specific constraints).

Task 5 Deliverables: For the Marin County Project Coordination Meetings, we will prepare a PowerPoint presentation describing results from the site reconnaissance, hydrologic/hydraulic analyses, constraints analysis, and priority rankings. We will also display the 30% preliminary plans, including biotechnical bank stabilization details, cross-sections, and plan views for selected erosion sites.

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Novato creek project finished

$2.5 million phase of bank stabilization plan began in June

By Carla Bova
IJ reporter

The final phase of the Novato Creek Flood Control project to stabilize creek banks is finished in time for winter storms.

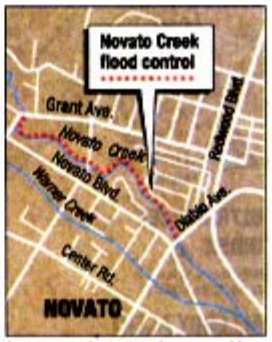
The Marin County Flood Control and Water Conservation District is celebrating the completion with a ribbon-cutting ceremony at Lee Gerner Park on Friday.

The $2.5 million construction for the project's eighth and last phase began in June along a one-mile stretch of the Novato Creek between Diablo and Grant avenues.

"We merged creek habitat concerns with bank stabilization," said county creek naturalist Liz Lewis. "It provides those residents and businesses along that stretch of creek with bank protection before going into winter. Timing is critical."

The phase was designed to reduce erosion, enhance creekside habitat, incorporate native vegetation and provide 50-year flood protection. Work also included building access ramps

See Creek, page C2



Source: Novato Public Works Dept. IJ map

CREEK: Project to stabilize banks in Novato is complete

From page C1

and re-sloping banks to increase capacity.

"This project incorporates state-of-the-artengineeringwith fish-friendly measures that will improve creek habitat and conditions for steelhead, which is on the federal list of threatened species," said county Public Works Director Farhad Mansourian.

Maggiora & Ghilotti Inc. of San Rafael did the construction work.

The Novato Creek Flood Control project consisted of eight phases to improve Novato Creek, Warner Creek, Arroyo Avichi Creek and Deer Island Wetlands, Lewis said.

The first seven phases, which began in 1986, cost about $10 million and focused on enlarging the three creeks to allow more water to flow through and installing a bypass channel in Arroyo Avichi Creek, among other improvements.

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Novato works to prevent another flood

Crews to improve creek drainage

By Carla Bova
IJ reporter

Novato is making drainage improvements to repel winter floods along Wilmac Avenue and McKeon Court.

The west Novato neighborhood was caught in the New Year's Eve flood, with extensive damage to nine homes on McKeon Court.

"The big concern is this winter," said Veronica Valero, a resident of McKeon Court. "Even with the work that has been done, we are worried. There is a lot of uncertainty about what will happen. We no longer sleep peacefully when it rains."

The City Council approved a $17,000 project to replace the 18-inch-diameter storm pipe and outlet structure at the end of McKeon Court with a pipe and structure at a new alignment designed to reduce flooding. Work is expected to start by mid-December.

IJ map

"In my mind, the drain pipe was half the cause of the flooding," said Doug Michener, a McKeon Court resident. "If they fix it in time, that is 50 percent less chance of flooding, and that is reassuring."

Councilwoman Pat Eklund supports additional work.

"The City Council agreed that

See Novato, page C2

NOVATO: City works to prevent more flood damage this winter

From page C1

the work on McKeon should go forward, and we asked staff to come back with recommendations for Wilmac," Eklund said "We are looking at doing work on the culvert to facilitate the flow of water. The city and the county need to work together so residents do not have to go through that again."

While the area flooded in 1982 and 1995, homes on McKeon Court didn't flood indoors, said Valero.

"In the past, homes on Wilmac flooded so they had done flood alleviation to mitigate that, and we all assumed we were safe," Valero said. "So when it happened on Dec. 31, we were all caught off guard and totally unprepared for any flooding."

Residents went door-to-door early that morning alerting one another that homes were surrounded by water spilling from Vineyard Creek between McKeon and Wilmac. Several homes were damaged.

Six to eight inches of water surged through Michener's house, forcing his family out for about nine months.

He logged about $200,000 in damage — and had to pay $2,200 a month to rent another place to stay.

"We had to remove the sheetrock off the walls and the ceiling, so we were down to the studs," Michener said. "We had to do cleanup remediation, mold remediation, extensive stucco work. The heating and water system had to be redone, and we had to replace the insulation."

Water reached the garage at Valero's house and caused about $25,000 damage.

"Our washer and dryer were totaled, and we had to pay $3,000 to clean both cars where water got in," she said. "We paid $9,000 for mold mitigation. We had to redo the insulation under the house and replace duct work. The pool filled with dirt and the patio is not stable."

Bob Beaumont, county chief assistant director of public works, said the county Flood Control District is responsible for creek maintenance and the city of Novato is responsible for its drainage system.

"Immediately after the storm, our staff walked the creek with some neighbors and looked at problem areas — where it was overgrown, choked or silted in — and took action to improve those areas to increase creek flow," Beaumont said.

Last month, the county did additional work, including minor dredging.

A study prepared by White and Prescott Civil Engineers & Land Surveyors of Novato determined causes of the flooding.

"The No. 1 contributing factor to the flooding is that the culvert at Center Road could not handle the capacity and overflowed," Valero said. "The catch basin at Arbor Circle was geysering. The angle of the pipe on McKeon Court contributed to the flooding and the catch basin on Wilmac is antiquated. There was a lot of overgrowth in the creek which caught debris and inhibited flow as well."

A hydraulic study completed in September looked at increasing creek flow.

"The study found the dredging work performed after the storm improved the creek capacity sufficiently so that no further work was required, but it also found the culvert crossing Center Road was too small and would continue to result in flooding," Beaumont said.

As a result, the city and county are discussing construction of a larger culvert.

"We are working with the county to design and identify funding for a new culvert along Center Road so there will be greater capacity," City Manager Daniel Keen said. "This is a long-term improvement that will take two to three years to accomplish and will be jointly funded."

The city will start work on the drainage pipe at McKeon Court next month and take other steps.

"The storm drains along Center will get valves that will prevent water from backing up from the creek onto residential streets," Keen said. "The city will continue to study what work can be done for Wilmac."

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Capital Improvement Projects Related to Flooding

Clean Storm Water Capital Improvement (321) Fund

This fund was established in FY 95/96 for the capital improvement element of the City of Novato's Clean Stormwater program. The expenditures for capital improvement projects are typically used to fund storm drain improvements as part of street reconstruction projects. These projects provide for pollution prevention by allowing for more effective street sweeping and storm drainage system maintenance.
The fund receives $45,000 per FY from storm water fees. This fund received an an interfund loan from the underground utility fund of $124,000 in FY 97/98 in order to maintain a positive cash balance.

	ACTUAL FY 04/05	ESTIMATED FY 05/06	PROPOSED FY06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11
FUND BALANCE - BEGIN FY	18,884	(19,126)	(6,776)	347	11,436	53,224	96,267
AVAILABLE FUNDS	101,871	63,861	58,037	347	11,436	53,225	96,267
Revenues:							
Investments Earnings	2,895	3,279	863	174	956	2,209	3,501
Other							
Subtotal Revenues	2,895	3,279	863	174	956	2,209	3,501
Transfers In							
General Fund							
Clean Stormwater Fund	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Interfund Loan - Underground Utility Fund							
TOTAL FINANCING AVAILABLE	149,766	112,140	103,900	45,521	57,392	100,434	144,767
Expenditures							
Transfers Out:							
Capital Projects	85,905	54,103	9,361	34,085	4,167	4,167	4,166
Interfund Loan - Underground Utility Fund			64,813				
Carryover			29,379				
TOTAL EXPEND & TRANSFERS	85,905	54,103	103,553	34,085	4,167	4,167	4,166
FUND BALANCE - END FY	(19,126)	(6,776)	347	11,436	53,224	96,267	140,601
AVAILABLE FUNDS	63,861	58,037	347	11,436	53,225	96,267	140,601

Clean Storm Water Capital Improvement (321) Projects

Project No.	Project Name	Object	FISCAL YEARS						TOTAL
			Prior FY 06/07	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	
93-002	Diablo Avenue Drainage Improvements	410	4,221	0	0	0	0	0	4,221
93-002	Diablo Avenue Drainage Improvements	430	42,208	0	0	0	0	0	42,208
93-002	Diablo Avenue Drainage Improvements	440	2,110	0	0	0	0	0	2,110
98-008	Storm Drain Master Plan	410	37,500	12,381	29,919	0	0	0	79,800
99-006	Drainage Facilities-Minor Works	410	0	5,313	833	833	834	833	8,646
99-006	Drainage Facilities-Minor Works	430	15,000	(8,333)	3,333	3,334	3,333	3,333	20,000
	TOTAL		101,039	9,361	34,085	4,167	4,167	4,166	156,985
	CARRYOVER			29,379					

Street and Storm Drain Maintenance (322) Fund

This fund was established in fiscal year 1997-98 to provide interest revenue to be used for ongoing maintenance and emergency needs in connection with the City's streets and storm drains. It was originally established with a transfer from the emergency and Disaster Response Reserve in the amount of $100,000. An additional transfer in the amount of $81,330 was authorized by the City Council in fiscal year 1998-99 using the previous fiscal year's general fund balance. $77,000 and $20,000 is proposed for transfer from the general fund to cover the cost of refurbishing the Hamilton Pedestrian Bridge on Main Gate Road over the Railroad

	ACTUAL	ESTIMATED	PROPOSED				
	FY 04/05	FY 05/06	FY06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11
FUND BALANCE - BEGIN FISCAL Y	322,263	317,374	372,293	339,915	242,583	245,332	248,162
AVAILABLE FUNDS	222,263	217,374	272,293	239,915	242,583	245,332	248,162
Revenues:							
Investments Earnings	5,611	10,217	7,497	6,835	6,915	6,997	7,082
Prior Period Adjustment							
Subtotal Revenues	5,611	10,217	7,497	6,835	6,915	6,997	7,082
Transfers In:							
General Fund		170,270	4,901	20,000	20,000	20,000	20,000
TOTAL FINANCING AVAILABLE	227,874	397,861	284,691	266,750	269,498	272,329	275,244
Expenditures							
Transfers Out:							
Capital Projects	8,280	114,593	5,302	24,167	24,166	24,167	24,168
Engineering Services	2,220						
Contract Services		10,975					
Carryover			39,474				
TOTAL EXPEND & TRANSFERS	10,500	125,568	44,776	24,167	24,166	24,167	24,168
FUND BALANCE - END FISCAL YR	317,374	372,293	339,915	242,583	245,332	248,162	251,076
AVAILABLE FUNDS	217,374	272,293	239,915	242,583	245,332	248,162	251,076

Street and Storm Drain Maintenance (322) Fund

Proj. No.	Project Name	Sub Object	FISCAL YEARS						TOTAL
			Prior	FY 05/06	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	
99-006	Drainage Facilities-Minor Works	410	4,136	1,175	834	833	833	834		8,645
99-006	Drainage Facilities-Minor Works	430	0	6,666	3,333	3,333	3,334	3,334		20,000
06-007	Traffic, Bicycle, Pedestrian Enhancements	410	5,000	5,000	5,000	5,000	5,000	5,000		30,000
06-007	Traffic, Bicycle, Pedestrian Enhancements	430	15,000	15,000	15,000	15,000	15,000	15,000		90,000
06-008	Hamilton Pedestrian Bridge Refurbishment	410	25,220	(729)	0	0	0	0		24,491
06-008	Hamilton Pedestrian Bridge Refurbishment	430	104,000	(22,539)	0	0	0	0		81,461
06-008	Hamilton Pedestrian Bridge Refurbishment	440	10,060	729	0	0	0	-0		10,789
	TOTAL		163,416	5,302	24,167	24,166	24,167	24,168		265,386
	CARRYOVER			39,474						

Street and Storm Drain Bond Project Fund (307 Measure "B")

This fund was established to account for the proceeds and use of the Street and Storm Drain General Obligation Bonds (Measure B) approved by the voters in March 2000. Bonds are schedule to be issued in three series of $5,000,000 each: One was issued in 2000, another is scheduled for 2004, and the last one in scheduled for 2007.

	ACTUAL	ESTIMATED	PROPOSED				
	FY 04/05	FY 05/06	FY06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11
FUND BALANCE - BEGIN FY	1,741,067	4,605,893	2,115,599	337,500	2,998,880	1,888,505	1,490,743
AVAILABLE FUNDS	1,741,067	4,605,893	2,115,599	337,500	2,998,880	1,888,505	1,490,743
Revenues:							
Bond Proceeds	5,080,161	0	0	5,000,000	0	0	0
Investments Earnings	116,032	153,453	158,057	49,714	72,650	50,377	40,189
Subtotal Revenues	5,196,193	153,453	158,057	5,049,714	72,650	50,377	40,189
Transfers In							
General Fund							
Capital Projects							
Interfund Loan Repayment							
TOTAL FINANCING AVAILABLE	6,937,260	4,759,346	2,273,656	5,387,214	3,071,529	1,938,881	1,530,933
Expenditures							
Transfers Out:							
Capital Projects	2,307,178	2,618,348	469,317	2,360,732	1,154,457	418,570	302,201
Carryover			1,440,171				
General Fund Clerical Support	24,189	25,398	26,668	27,602	28,568	29,568	30,603
TOTAL EXPEND & TRANSFERS	2,331,367	2,643,746	1,936,156	2,388,334	1,183,025	448,138	332,804
FUND BALANCE - END FY	4,605,893	2,115,599	337,500	2,998,880	1,888,505	1,490,743	1,198,129

Street & Storm Drain Bond Projects (307) (Measure "B")

Project No.	Project Name	Sub Object	FISCAL YEARS						TOTAL
			Prior FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	
93-002	Diablo Avenue Drainage Impts	410	41,763	(3,832)	0	0	0	0	37,931
93-002	Diablo Avenue Drainage Impts	430	643,632	(3,348)	0	0	0	0	640,284
93-002	Diablo Avenue Drainage Impts	440	30,822	(2,462)	0	0	0	0	28,360
93-012	Grant Avenue Improvements	410	235,135	0	0	0	0	0	235,135
93-012	Grant Avenue Improvements	430	449,588	(187,176)	0	0	0	0	262,412
93-012	Grant Avenue Improvements	440	71,493	187,176	0	0	0	0	258,669
96-003	Simmons Lane Pedestrian Bridge	410	14,353	0	0	0	0	0	14,353
96-003	Simmons Lane Pedestrian Bridge	430	0	150,184	0	0	0	0	150,184
96-003	Simmons Lane Pedestrian Bridge	440	0	13,216	0	0	0	0	13,216
00-011	Redwood Blvd Pavt Rehab Lamont-Olive	410	69,556	(1,121)	0	0	0	0	68,435
00-011	Redwood Blvd Pavt Rehab Lamont-Olive	430	626,106	(40,261)	0	0	0	0	585,845
00-011	Redwood Blvd Pavt Rehab Lamont-Olive	440	69,035	4,048	0	0	0	0	73,083
00-015	Rush Creek Drainage Impts	410	57,407	0	0	0	0	0	57,407
00-015	Rush Creek Drainage Impts	420	20,000	0	0	0	0	0	20,000
00-015	Rush Creek Drainage Impts	430	0	0	229,630	0	0	0	229,630
00-015	Rush Creek Drainage Impts	440	0	0	22,963	0	0	0	22,963
00-016	Pavement Management System	410	8,087	0	0	0	0	0	8,087
01-002	Measure 'B' Bond Pavt Rehabilitation Program	410	375,244	(63,009)	0	0	0	0	312,235
01-002	Measure 'B' Bond Pavt Rehabilitation Program	430	4,143,711	426,419	0	0	0	0	4,570,130
01-002	Measure 'B' Bond Pavt Rehabilitation Program	440	470,388	91,758	0	0	0	0	562,146
01-004	Impts to Novato Bl (Diablo Ave/Grant Ave)	410	0	0	0	0	92,299	0	92,299
01-004	Impts to Novato Bl (Diablo Ave/Grant Ave)	430	0	0	0	0	0	266,748	266,748
01-004	Impts to Novato Bl (Diablo Ave/Grant Ave)	440	0	0	0	0	0	35,453	35,453
01-009	Slurry Seal Grp 1	410	14,844	0	0	27,400	0	0	42,244
01-009	Slurry Seal Grp 1	430	0	0	0	0	158,600	0	158,600
01-009	Slurry Seal Grp 1	440	0	0	0	0	14,000	0	14,000
02-008	Sherman Avenue/Cain Lane Impts	410	35,304	0	11,625	0	0	0	46,929
02-008	Sherman Avenue/Cain Lane Impts	430	0	0	0	0	135,632	0	135,632
02-008	Sherman Avenue/Cain Lane Impts	440	0	0	0	0	18,039	0	18,039
02-009	Mill Rd Impts (Trumbull Ave/Sinaloa Ct)	410	0	0	26,756	0	0	0	26,756
02-009	Mill Rd Impts (Trumbull Ave/Sinaloa Ct)	430	0	0	0	166,249	0	0	166,249
02-009	Mill Rd Impts (Trumbull Ave/Sinaloa Ct)	440	0	0	0	14,678	0	0	14,678
02-011	Traffic Signal Redwood Bl/Olive Ave & Redwood Bl Pav't Rehab	410	29,912	0	0	0	0	0	29,9
02-011	Traffic Signal Redwood Bl/Olive Ave & Redwood Bl Pav't Rehab	430	0	0	172,922	0	0	0	

Street & Storm Drain Bond Projects (307) (Measure "B")

Project No.	Project Name	Sub Object	PRIOR YEARS						TOTAL
			Prior FY 06/07	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	
02-011	Traffic Signal Redwood Bl/Olive Ave & Redwood Bl Pav't Rehab	440	0	0	15,266	0	0	0	15,266
03-003	Alameda Del Prado and Measure B Groups 5 and 6	410	145,676	(25,832)	0	0	0	0	119,844
03-003	Alameda Del Prado and Measure B Groups 5 and 6	430	0	0	1,563,000	0	0	0	1,563,000
03-003	Alameda Del Prado and Measure B Groups 5 and 6	440	0	0	77,800	0	0	0	77,800
03-009	Cypress Avenue Improvements	410	22,330	1,563	0	0	0	0	23,893
03-009	Cypress Avenue Improvements	430	129,074	27,286	0	0	0	0	156,360
03-009	Cypress Avenue Improvements	440	11,396	25,812	0	0	0	0	37,208
04-001	Kendon Lane Improvements	410	46,649	(30,733)	0	0	0	0	15,916
04-001	Kendon Lane Improvements	430	134,824	(88,824)	0	0	0	0	46,000
04-001	Kendon Lane Improvements	440	17,527	(11,547)	0	0	0	0	5,980
04-002	Hill Road and Indian Valley Road Impts	410	0	0	82,721	0	0	0	82,721
04-002	Hill Road and Indian Valley Road Impts	430	0	0	0	239,104	0	0	239,104
04-002	Hill Road and Indian Valley Road Impts	440	0	0	0	31,775	0	0	31,775
05-001	Redwood Bl Pav't Rehab OaK Crest-Yukon	410	0	0	52,252	0	0	0	52,252
05-001	Redwood Bl Pav't Rehab OaK Crest-Yukon	430	0	0	0	302,187	0	0	302,187
05-001	Redwood Bl Pav't Rehab OaK Crest-Yukon	440	0	0	0	26,661	0	0	26,661
07-001	Novato Bl Pavement Rehabilitation West	410	0	0	105,797	0	0	0	105,797
07-001	Novato Bl Pavement Rehabilitation West	430	0	0	0	305,756	0	0	305,756
07-001	Novato Bl Pavement Rehabilitation West	440	0	0	0	40,647	0	0	40,647
	TOTAL		7,913,856	469,317	2,360,732	1,154,457	418,570	302,201	12,619,133
	CARRYOVER			1,440,171					

Funded Projects

Pavement Rehabilitation Elm Drive and Neighborhood Street and Drainage Improvements

Project No.: 00-009 **Base Code:** 431

Funded

Project Objective: To resurface existing streets and to address neighborhood drainage problems.

Project Description and Background: These streets have been on the City maintenance list as streets receiving periodic one-inch overlay. This overlay has deteriorated and failed in about 40-60% of the street. There are 20 homeowners that live on Elm Drive and all 20 have petitioned the City to have work done. Other homeowners on Mirabella Avenue have likewise requested street and drainage improvement over the years. This project includes Elm Drive, Mirabella Avenue, Fourth Street between Elm Avenue and Mirabella Avenue, and Bruno Street between Elm Drive and Court Road. The project previously shown as Fourth Street Drainage Improvements (Project No. 90-009) has been combined with this project. Industrial Way will also be included as it is in the immediate vicinity of the project and is a Measure "B" candidate street for pavement rehabilitation.

Basis for Cost Estimate: Costs are based on the Measure "B" Engineer's Report. The Measure "B" funding OF $466,800 is based on November 1999 estimates in the February 2000 Measure "B" Report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis. Note: Measure "B" oversight committee recommended extending limits of Elm Drive Pavement Rehabilitation.

Basis for Schedule: The project is scheduled for construction in the summer of 2004.

Revenue Considerations: Measure "B" is the primary revenue source of this project. The cost of new driveway approaches or sidewalk would be assessed to fronting property owners per construction agreement or cash payment made by individual property owners. AB 2928 funds will be used to cover additional construction costs replacing budgeted Gas Tax dollars.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	103,410						103,410
Acquisition	420							
Construction	430	0	370,500					370,500
Construction Mgt	440	0	40,955					40,955
Equip/Furnish	450							
TOTAL		103,410	411,455	0	0	0	0	514,865

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
AB 2928 (274)	430	0	25,065					25,065
Bond "B"	410	101,410						101,410
Bond "B"	430	325,435						325,435
Bond "B"	440	39,955						39,955
Chapter 27	410	2,000						2,000
Chapter 27	430	20,000						20,000
Chapter 27	440	1,000						1,000
Gas Tax	430	25,065	-25,065					0
TOTAL		514,865	0	0	0	0	0	514,865

C-33

6/28/04

Hamilton Field Flood Protection Levee Improvement

Project No.: 00-013 **Base Code:** 431

Funded

Project Objective: To reestablish the original height of the levee at Hamilton Field in order to address the current and projected settlement due to construction over compressible Bay mud. This project was contemplated in the improvement projects to be funded by the Hamilton Community Facilities District annual special tax for maintenance.

Project Description and Background: In October 1996, the levee at Hamilton Field adjacent to the Phase I Master Plan development was constructed. The levee protects the new homes from inundation by San Pablo Bay (as most of the homes are constructed below sea level). The Hamilton Phase I neighborhoods require that all drainage be pumped beyond the levee (old runway area) into the area that ultimately will be converted to tide lands. Because the levee construction is over Bay mud, settlement has occurred during the first five years after construction (ultimate settlement will be as much as two to three feet). After initial settlement occurs, projected settlements will be expected to be considerably less over time. The City has been monitoring these settlements since the levee construction in 1996 and has found them to be approaching the two-foot settlement level currently. The City is obligated by the terms of the agreements for facility maintenance at Hamilton and by FEMA to reestablish the original height of the levee.

Basis for Cost Estimate: The cost estimates are for raising the levee with the stockpiled native material and imported borrow and also for raising the masonry block "splash" wall that was constructed on top of the levee.

Basis for Schedule: The project was scheduled to be designed and constructed in FY 01/02; however, the Army Corps of Engineers are looking to implement a project directly adjacent to the levee which may impact this project. The City and its consultant will be monitoring the Corps project closely and if needed, the project may be scheduled for the late summer of 2004. Studies are currently being undertaken by the COE. Prior to final design meetings will be held with homeowners in the area.

Revenue Considerations: Community Facilities District No. 1994-1 (CFD Hamilton Field) annual special tax levy for maintenance will be used to fund this project.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	36,356	3,000					39,356
Acquisition	420	0						0
Construction	430	0	331,100					331,100
Construction Mgt	440	0	15,500					15,500
Equip/Furnish	450	0						
TOTAL		36,356	349,600	0	0	0	0	385,956

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Hamilton CFD (241)	410	32,420	6,936					39,356
Hamilton CFD (241)	430	331,100						331,100
Hamilton CFD (241)	440	15,500						15,500
TOTAL		379,020	6,936	0	0	0	0	385,956

C-26 6/28/04

NOTE: March 2008 Management & Administration Report – The City Attorney has recently submitted updated drafts of two or three easement documents to the State Coastal Conservancy. Planning staff is completing the CEQA review for the project.

Grant Avenue Improvements Between Seventh Street and Scott Court

Project No.: 93-012 **Base Code:** 431

Funded

Project Objective: To reconstruct pavement and damaged sidewalks and improve Downtown Nova's main street as indicated in the adopted Downtown Specific Plan and utilizing available funding.

Project Description and Background: The project involves Grant Avenue from Scott Court to Seventh Street. With the input of the Council, the public and staff during project development, different levels of improvements were identified and are being under- taken in accordance with available funding.

The project improvements are as indicated in the Downtown Specific Plan and the various grants for the project. These improvements include new storm drains, new street paving, new sidewalks, "bulbous" at intersections, historic-style light standards, street furniture, transit center shelter improvements on Redwood Boulevard, and new street trees. The City has applied for a low interest loan with the California Infrastructure and Economic Development Bank (CIEDB). The CIEDB program, available through the Department of Commerce, provides loans for qualified economic development projects. Two Measure "B" candidate streets for pavement rehabilitation, Logan Street and Scorn Lane, have been added to the project as they are in the immediate project area.

Basis for Cost Estimate: Construction costs are based on prices from the successful bidder on the contract. Project Development are actual and Construction Management costs are a combination of actual costs and estimates to complete the project.

Basis for Schedule: The design process started in 2000. The concept design was completed in late November 2001 and involved an extensive community participation process. The construction schedule and staging has received careful attention, including tight contract time limits and thorough investigation of underground utilities. As of May 2004 street reconstruction has been completed from Scott Court to 2nd Street. It is anticipated that the rest of the street reconstruction will be completed by November 2004.

Revenue Considerations: Measure "B" per the engineer's report. CIEDB Loan. Development Impact Fees per the 1999 and 2002 updates. State Transportation Improvement Program and Transportation for Livable Communities Grants. Loans from the Vehicle and Equipment Replacement Fund and the Community Center Performing Arts Fund. State Local Transportation Partnership and utility reimbursements. The Redevelopment Agency (RDA) contribution of $1,038,186 will come from loans to the RDA from Development Impact Fees $60,000 (70% Streets and Intersections and 30% Civic Facilities, per the 4/02 DIF Report) for the ZenK lot Improvements, utility reimbursements from

Project Expenditure	Sub Objects	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	1,994,953						1,994,953
Acquisition	420	1,345						1,345
Construction	430	4,399,535	2,982,952					7,382,487
Construction Mgt	440	513,172	180,000					693,172
Equip/Furnish	450	0						
TOTAL		6,909,005	3,162,952	0	0	0	0	10,071,957
Funding Source	**Sub Objects**	**Prior to 04/05**	**04/05**	**05/06**	**06/07**	**07/08**	**08/09**	**Total**
Bond "B" (307)	410	591,624	(408,691)					182,933
Bond "B" (307)	430	205,178	351,396					556,574
Bond "B" (307)	440	5,012	66,481					71,493
CIEDB Loan	410	391,385	(337,035)					54,350
CIEDB Loan	430	2,602,399	1,043,251					3,645,650
Comm Cen PA (331)	430	300,000						300,000
Dev Impact-St/Int (327)	410	444,135	(364,966)					79,169
Dev Impact-St/Int (327)	420	1,345						1,345
Dev Impact-St/Int (327)	430	0	395,846					395,846
Dev Impact-St/Int (327)	440	130,143	(90,558)					39,585
Equip/Vehicle Repl Loan (605)	410	0	1,000,000					1,000,000
Equip/Vehicle Repl Loan (605)	430	901,100	(901,100)					0
Equip/Vehicle Repl Loan (605)	440	98,900	(98,900)					0
Gas Tax (272)	410	300,000						300,000
Interest	410	715						715
Private Financing	430	412,572	(412,572)					0
RDA Contribution (400)	410	0	202,324					202,324
RDA Contribution (400)	430	0	318,555					318,555
RDA Contribution (400)	440	100,000	417,307					517,307
STIP Grant	410	130,000						130,000
STIP Grant	430	500,000						500,000
SB 300 (271)	410	45,462						45,462
TLC Grants	430	1,130,000						1,130,000
Utility Reim	430	0	535,862					535,862
Utility Reim	440	0	64,787					64,787
TOTAL		8,289,970	1,781,987	0	0	0	0	10,071,957
CARRYOVER		1,380,965						

Eucalyptus Avenue Improvements
Between Novato Boulevard and Vineyard Road

Project No.: 89-016 **Base Code:** 431

Funded

Project Objective: To repair pavement and provide pedestrian and drainage improvements.

Project Description and Background: This street was shown as a priority in the Measure "F" campaign literature. The budget is based on reconstructing the pavement at rural width standards. Comments received at neighborhood workshops was the basis for the concept plan development. The concept plan was approved by council in January of 2003. In February 1998, the Planning Division recommended that Eucalyptus Avenue be designated as a rural street and required a pathway on one side. The project also includes pavement rehabilitation on Measure "B" street Santa Ynez Circle. Another Measure "B" street Mendocino Lane ($33,500) was completed in 2001 in conjunction with the Thorssen Subdivision private portion of Mendocino Lane. The Developer's contractor was paid for resurfacing the public portion of the street.

Basis for Cost Estimate: Project development costs are based on actual costs. The construction costs are based on a preliminary estimate of contract quantities and prices. Construction Management costs are based on past projects. Acquisition costs of 50,000 is based on appraisals; utility easements are needed to move poles off the proposed roadway and shoulder. Measure "B" costs are per the engineer's report. The Measure "B" funding OF $428,300 is based on November 1999 estimates in the February 2004 Measure "B" Report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis.

Basis for Schedule: The project is currently scheduled for construction in the summer of 2004. Right of way acquisition needs to be fully completed prior to award of a construction contract.

Revenue Considerations: In-lieu fees collected in 1992 from Hanzlik Land Division and Falzon Land Division are proposed to be applied to pavement rehabilitation, shoulders, and sidewalk, to the extent these improvements are included in the final design. Additional funding will come from Measure "B", Gas Tax, SB300, AB 2928, Measure F, recently adopted assessment district (4-13-04) and utility reimbursements.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	0809	Total
Proj Develop	410	513,085						513,085
Acquisition	420	50,000						50,000
Construction	430	0	1,030,000					1,030,000
Construction Mgt	440	0	90,000					90,000
Equip/Furnish	450	0						
TOTAL		563,085	1,120,000	0	0	0	0	1,683,085

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	0809	Total
AB 2928 (274)	410	0	38,000					38,000
Bond "B" (307)	410	85,792	7,833					93,625
Bond "B" (307)	430	274,887	22,658					297,545
Bond "B" (307)	440	34,121	3,009					37,130
Bond "F" (305)	410	50,021						50,021
Gas Tax (272)	410	129,464	167,153					296,617
Gas Tax (272)	420	30,000	20,000					50,000
Gas Tax (272)	430	471,006	57,533					528,539
Gas Tax (272)	440	37,367	6,823					44,190
Ch 27 (251)	410	24,420						24,420
Ch 27 (251)	430	325,660	(152,064)					173,596
Ch 27 (251)	440	24,420	(15,740)					8,680
Rest Rev Falzon D/L (325)	430	7,104	(3,304)					3,800
Rest Rev Hanzlik D/L (325)	430	21,343	177					21,520
SB 300 (271)	410	10,402						10,402
Util Reim	430	0	5,000					5,000
TOTAL		1,526,007	157,078	0	0	0	0	1,683,085
CARRYOVER		962,922						

Project Study Report for Novato Boulevard Between Diablo Avenue and Grant Avenue

Project No.: 97-003 **Base Code:** 442

Funded

Project Objective: The Project Study Report (PSR) is a technical and community input process that results in a master plan for a future street or highway improvement project. This PSR will also develop a "Deficiency (Improvement) Plan" as required by the Marin County Congestion Management Program for this segment of Novato Boulevard, which is in the future expected to fall below acceptable standards for traffic congestion. The project is also identified for construction in a future year depending on the outcome of this PSR and future funding (see Project AGP-1).

Project Description and Background: This planning project is funded by grant funds from the federal Surface Transportation Program (STP); the grant application was authorized by City Council on 11/28/95. The project would evaluate options for reducing congestion and enhancing safety with the minimum impact on the existing neighborhood. The General Plan identifies improvements needed at the intersection of Novato Boulevard and Seventh Street/Tamalpais Avenue; this project would provide preliminary engineering for those improvements and for the entire block between Diablo Avenue and Grant Avenue. A Transportation Engineering Technical Assistance Program (TETAP) grant was obtained in the fall of 1999 which analyzed the traffic at the intersections and developed recommendations to improve the efficiency; however, the STP/CMAQ 25 percent Golden Gate Corridor Management Program grant applied for in December 2000 was not successful in an effort to obtain funding for the improvements recommended by the TETAP funded study.

Basis for Cost Estimate: Costs are based on a preliminary estimate of hours needed by engineering staff and consultants. The project team includes a traffic engineer, landscape architect, land use planner, surveyor, and right-of-way consultant.

Basis for Schedule: This will be completed in December 2004.

Revenue Considerations: Primary funding is from the Surface Transportation Program funds allocated by the Metropolitan Transportation Commission (MTC). In-lieu fees collected in 1977 from the Weiss Company for a project at 1649 Novato Boulevard would be used as the local match for the grant funds. In accordance with Government Code 66000 et seq, this project is found to have a reasonable relationship to the purpose for which the fees were charged. The Citywide development impact fees is an additional funding source for this report.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	144,738	117,239					261,977
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		144,738	117,239	0	0	0	0	261,977

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Dev Impact-St/Int (327)	410	130,000						130,000
Res Rev, Weiss (325)	410	19,977						19,977
STP Grant	410	112,000						112,000
TOTAL		261,977	0	0	0	0	0	261,977

Drainage Facilities - Minor Work, Various Locations (Citywide)

Project No.: 99-006 **Base Code:** 431

Funded

Project Objective: The general project objective is to enable the case-by-case improvement of key components of the storm drainage system. Work may include construction of new inlet structures, debris grates, backflow prevention devices (flap gates), sedimentation basins, and miscellaneous drainage structures. Relatively short segments of failed storm drain pipe may be replaced under this project.

Project Description and Background: The project is a reactivation of work originally budgeted as Project No. 90-013 (Miscellaneous Drainage Project) in the adopted FY 90/91 through FY 94/95 Capital Improvement Budget. It has been found that as problems are discovered through routine maintenance or from winter storm situations that an ongoing budget for this type of work is desirable. The project ties in with the "Storm Drain Master Plan (Project No. 98-008)" since the work was originally prioritized as a project eligible for Measure "F" bond funds. The ongoing linkage with the Storm Drainage Master Plan results from the continuing inventory of the storm drainage facilities for which the City of Novato is responsible.

This project will enable the improvement of existing drainage systems where the project scale does not justify a separate capital improvement project. A criteria or "matrix of factors" will be utilized to bring approval recommendations for specific projects back to the City Council. The Maintenance and Engineering Divisions of the Public Works Department will coordinate efforts so that the most cost-effective construction can be implemented. Where scope of projects is small and Maintenance personnel are available, the work will be done as a Maintenance Division force account project. Otherwise, projects will be bid out.

Basis for Cost Estimate: The recommended strategy is to fund projects on an as needed basis depending upon the urgency if beyond the scope of the Maintenance Division and to provide funding from Contingency Reserve if critical in nature.

Basis for Schedule: The project is scheduled for implementation on an annual and case by case basis. Additional funding sources will be needed should a multitude of projects requiring attention arises.

Revenue Considerations: Funding for this project was budgeted from the Measure "F" bond funds. The project is a project that would serve the public well in terms of localized flood prevention and the project is Citywide with specific locations identified by the Storm Drainage Master Plan project (98-008) or by the Maintenance Division. In FY 99/00, $47,000 was reappropriated to the South Novato Boulevard (between Rowland Boulevard to U.S. 101) Improvement Project to fund drainage improvements. The remaining Measure F funds are being eliminated due to depleted funding. Funding to serve the project will be required from other sources such as the Street and Storm Drain Maintenance Fund interest earnings and Clean Storm Water Fund.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	3,411	3,068					6,479
Acquisition	420	0						0
Construction	430	0	15,000					15,000
Construction Mgt	440	0						0
Equip/Furnish	450	0						
TOTAL		3,411	18,068	0	0	0	0	21,479

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Bond "F" (305)	410	2,343						2,343
Clean Storm (321)	430	15,000						15,000
St/Storm Drain Maint. (322)	410	4,136						4,136
TOTAL		21,479	0	0	0	0	0	21,479

C-14 6/28/04

Diablo Avenue Drainage Improvements and Diablo Avenue and Center Road Pavement Rehabilitation

Project No.: 93-002 **Base Code:** 431

Funded

Project Objective: To improve the local drainage system per Novato's Storm Drainage Master Plan between Center Road to Warner Creek. To rehabilitate the pavement on Diablo Avenue between Center Road and Novato Boulevard, on Center Road between South Novato Boulevard and Diablo Avenue and on Center Road between Tamalpais Avenue and Crescent Lane.

Project Description and Background: This project is needed to construct a "trunk" storm drain in Diablo Avenue between Center Road and Warner Creek. The drainage project was identified in the Local Storm Drainage Master Plan. The first phase of the drainage improvements (in Diablo Avenue between Hill School and Center Road) was completed during the Bond Group 4 Pavement Rehabilitation Project funded by Measure "F." Measure "B" candidate streets Diablo Avenue (transferd from bond group 2) and Center Road are being added in FY 03/04 for ease of construction and cost savings due to larger bid quantities. The private development project will provide all of its frontage street improvements and a pipe stub-out for this proposed drainage project as a condition of approval of the development project.

In the spring of 2004 Staff applied for a Transportation For Clean Air (TFCA) 40% County Grant that would pay for bike lanes on Diablo Avenue between Center Road and South Novato Boulevard. The City received the highest score of all applications and it appears the City may recieve the Grant.

Basis for Cost Estimate: Construction costs are based on a preliminary estimate of contract quantities and recent bid prices. Project Development and Construction Management costs are based on past projects. Pavement Rehabilitation costs are from the Measure "B" Engineers report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis.

Basis for Schedule: The drainage portion of this project was previously scheduled for FY 00/01 and construction was deferred to FY 04/05 during the last budget cycle to include the pavement portion (Diablo Avenue and Center Road). With the high possibility of obtaining the TFCA grant for the bike lanes construction is being deferred to FY 05/06 to include the grant. In addition, the Novato Sanitary District is replacing the sewer line down Center Road between South Novato Boulevard and Diablo Avenue in the summer of 2004 deferring the project to FY 05/06 allows the City to pave the street after the sewer work is compiete.

Revenue Considerations: The cost of drainage improvements will be from Clean Storm Water and Measure B Revenue sources as previously budgeted for this project. Measure F funding originally appropriated for the project has been depleted. Pavement Rehabilitation will be funded by Measure B.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	12,419	49,300					61,719
Acquisition	420	0						0
Construction	430	0		323,699				323,699
Construction Mgt	440	0		28,206				28,206
Equip/Furnish	450	0						
TOTAL		12,419	49,300	351,905	0	0	0	413,624

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Bond "B" (307)	410	51,395						51,395
Bond "B" (307)	430	0		297,360				297,360
Bond "B" (307)	440	0		26,245				26,245
Clean Storm Water (321)	410	10,324						10,324
Clean Storm Water (321)	430	0		26,339				26,339
Clean Storm Water (321)	440	0		1,961				1,961
TOTAL		61,719	0	351,905	0	0	0	413,624

Cherry Street Drainage Project

Project No.: 03-007 **Base Code:** 431

Funded

Project Objective: To alleviate localized flooding on local streets.

Project Description and Background: There is 30" storm drain which currently conveys drainage flows down Cherry Street and outlets at U.S. Highway 101 where it is piped under the freeway by twin 36" culverts to a channel on the west side of the freeway which flows into Rush Creek near the Golden Gate Transit bus facility. The storm drain crosses Cherry Street near the intersection of Armstrong Avenue. The cover to the drainage structure at this crossing has been displaced during heavy storms causing the street and the intersection to become flooded. The current system drains approximately 50+/- acres of watershed area above Cherry Street and outlying neighborhood. With additional development, the problem will continue to be exacerbated unless a solution to the problem is provided

Basis for Cost Estimate: Currently, the basis of the cost estimate for the project will assume drainage structure addition and modification along with adding a parallel system to the existing 30" storm drain downstream of the crossing at Cherry Street near Armstrong Avenue. The estimate reflects current unit prices from previous projects of similar scope and magnitude.

Basis for Schedule: This project was scheduled for Project Development in FY 03/04, however, there will not be enough Development Impact Fees (Drainage) for construction until fiscal year 2005/2006, therefore, project development will be delayed until spring of 2005 and construction in the summer of 2005.

Revenue Considerations: Development Impact Fee Drainage will be utilized to fund this project.

Project Expenditure	Sub Objects	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	5,911	19,089					25,000
Acquisition	420	0						0
Construction	430	0		150,000				150,000
Construction Mgt	440	0		15,000				15,000
Equip/Furnish	450	0						
TOTAL		5,911	19,089	165,000	0	0	0	190,000

Funding Source	Sub Objects	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Dev Impact-Dra (327)	410	25,000						25,000
Dev Impact-Dra (327)	430	0		150,000				150,000
Dev Impact-Dra (327)	440	0		15,000				15,000
TOTAL		25,000	0	165,000	0	0	0	190,000

Cherry Street Drainage Project

Project No.: 03-007

Base Code: 431

Funded

Project Objective: To alleviate localized flooding on local streets.

Project Description and Background: There is 30" storm drain which currently conveys drainage flows down Cherry Street and outlets at U.S. Highway 101 where it is piped under the freeway by twin 36" culverts to a channel on the west side of the freeway which flows into Rush Creek near the Golden Gate Transit bus facility. The storm drain crosses Cherry Street near the intersection of Armstrong Avenue. The cover to the drainage structure at this crossing has been displaced during heavy storms causing the street and the intersection to become flooded. The current system drains approximately 50+/- acres of watershed area above Cherry Street and outlying neighborhood. With additional development, the problem will continue to be exacerbated unless a solution to the problem is provided

Basis for Cost Estimate: Project development costs are actural and an estimate to complete the design. Construction cost estimate for the project includes drainage structure addition and modification along with adding a parallel system to the existing 30" storm drain downstream of the crossing at Cherry Street near Armstrong Avenue and existing infrastructure that needs to be removed and replaced in install the drainage improvements. The estimate reflects current unit prices from previous projects of similar scope and magnitude. Construction management is an estimate based on inspection and quality control testing.

Basis for Schedule: This project is being scheduled with the Measure B Group 3 streets for pavement rehabilitation in the summer of 2005. The Measure B Group 3 project includes a portion of Cherry Street and Armstrong Drive for pavement rehabiliation which are in the general vicinity of the drainage improvements and combining the projects

Project Expenditure	Sub Objects	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	15,595						15,595
Acquisition	420	0						0
Construction	430	0	120,000					120,000
Construction Mgt	440	0	6,000					6,000
Equip/Furnish	450	0						0
TOTAL		15,595	126,000	0	0	0	0	141,595

Funding Source	Sub Objects	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Dev Impact-Dra (327)	410	25,000	(25,000)					0
Gas Tax (272)	410	0	15,595					15,595
Gas Tax (272)	430	0	120,000					120,000
Gas Tax (272)	440	0	6,000					6,000
TOTAL		25,000	116,595	0	0	0	0	141,595

Cypress Avenue Improvements Chapter 27 Assessment District

Project No.: 03-009

Base Code: 430

Funded

Project Objective: Repair pavement, provide drainage improvements and upgrade street with frontage improvements to current standards.

Project Description and Background: The project is located on the south side of Novato Boulevard just westerly of Diablo Avenue. The roadway is currently an unimproved street in an older neighborhood which residents have requested consideration for curbs and gutter and drainage improvements. The street is identified in the Measure "B" bond program.

Basis for Cost Estimate: Measure "B" engineering report for Measure "B" portion. The Measure "B" funding of $162,800 is based on November 1999 estimates in the February 2000 Measure "B" Report. Assessment district costs are based upon rough estimate of contract quantities and recent bid prices.

Basis for Schedule: The street was included in the Group 2 Pavement Rehabilitation Project tentatively scheduled for construction in the summer of 2003. Because it will now be considered as a stand alone project, design will occur in the fall and winter of 2004 and spring of 2005 and construction will be scheduled for the summer of 2005.

Revenue Considerations: Measure "B" is the primary source of revenue. Possible additional revenue may be generated through an Assessment District. For this to take place, an election, pursuant to Proposition 218, must be held and approved by majority vote. The assessment would provide for the curb and gutter improvements fronting the currently unimproved properties in the project limits. AB 2928 are being added to cover additional project development costs.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	67,378						67,378
Acquisition	420	0						0
Construction	430	0	199,074					199,074
Construction Mgt	440	0	13,396					13,396
Equip/Furnish	450	0						0
TOTAL		67,378	212,470	0	0	0	0	279,848

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
AB 2928 (274)	410	36,548						36,548
Bond "B" (307)	410	22,330						22,330
Bond "B" (307)	430	0	129,074					129,074
Bond "B" (307)	440	0	11,396					11,396
Chapter 27 (251)	410	8,500						8,500
Chapter 27 (251)	430	0	70,000					70,000
Chapter 27 (251)	440	0	2,000					2,000
TOTAL		67,378	212,470	0	0	0	0	279,848
CARRYOVER		0						

C-13

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Diablo Avenue Drainage Improvements and Diablo Avenue and Center Road Pavement Rehabilitation

Project No.: 93-002 — ***Funded*** — **Base Code:** 431

Project Objective: To improve the local drainage system between Center Road to Warner Creek. To rehabilitate the pavement on Diablo Avenue from Center Rd to Novato Blvd, on Center Road from South Novato Blvd to Diablo Ave and from Tamalpais Ave to Crescent Lane on Betty Lane from Center Road to northerly end on Plaza Amapola from Center Road to southerly end and on Villa Maria Court from Center Road to southerly end.

Project Description and Background: This project is needed to construct a "trunk" storm drain in Diablo Avenue between Center Road and Warner Creek as identified in the Local Storm Drainage Master Plan. The first phase of the drainage improvements (Diablo Avenue from Hill School to Center Road) was completed during the Bond Group 4 Pavement Rehabilitation Project funded by Measure "F." Measure "B" candidate streets Diablo Avenue and Center Road were added in FY 03/04 from group 2 and Betty Lane, Plaza Amapola and Villa Maria Court were added in FY 04/05 from group 3 for ease of construction and cost savings due to larger bid quantities.

In the spring of 2004 Staff applied for and received a Transportation For Clean Air (TFCA) 40% County Grant that would pay for bike lanes on Diablo Avenue from Center Rd to South Novato Blvd.

Basis for Cost Estimate: Project Development costs are a combination of actual and estimated to complete design. Construction costs are based on a preliminary estimate of contract quantities and recent bid prices. Construction Management costs are based on past projects.

Basis for Schedule: The project is scheduled for the summer of 2005 to comply with the TFCA bike grant and to allow the Novato Sanitary District to replace sewer lines down Center Road from South Novato Blvd and Diablo Ave in the spring or early summer of 2005. Once the Sanitary District project is nearing completion the City will advertise for bids for construction of this project.

Revenue Considerations: The cost of drainage improvements will be from Clean Storm Water, Development Impact Fees Drainage (24.4% of drainage cost per 2002 DIF update) and Measure B Revenue sources as previously budgeted for this project. Pavement Rehabilitation will be funded by Measure B.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	41,338	18,165					59,503
Acquisition	420	0						0
Construction	430	0	710,889					710,889
Construction Mgt	440	0	40,800					40,800
Equip/Furnish	450	0						
TOTAL		41,338	769,854	0	0	0	0	811,192

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Bond "B" (307)	410	62,944	(21,181)					41,763
Bond "B" (307)	430	77,956	504,633					582,589
Bond "B" (307)	440	6,882	23,940					30,822
Clean Storm Water (321)	410	10,324	(6,103)					4,221
Clean Storm Water (321)	430	0	42,208					42,208
Clean Storm Water (321)	440	0	2,110					2,110
DIF Drainage (327)	410	0	5,539					5,539
DIF Drainage (327)	430	0	29,792					29,792
DIF Drainage (327)	440	0	2,728					2,728
TFCA Grant	410	7,100						7,100
TFCA Grant	430	47,500						47,500
TFCA Grant	440	4,700						4,700
Utility Reimbursement	410	0	880					880
Utility Reimbursement	430	0	8,800					8,800
Utility Reimbursement	440	0	440					440
TOTAL		217,406	593,786	0	0	0	0	811,192
CARRYOVER		176,068						

Drainage Facilities - Minor Work, Various Locations (Citywide)

Project No.: 99-006 **Base Code:** 431

Funded

Project Objective: The general project objective is to enable the case-by-case improvement of key components of the storm drainage system. Work may include construction of new inlet structures, debris grates, backflow prevention devices (flap gates), sedimentation basins, and miscellaneous drainage structures. Relatively short segments of failed storm drain pipe may be replaced under this project.

Project Description and Background: The project is a reactivation of work originally budgeted as Project No. 90-013 (Miscellaneous Drainage Project) in the adopted FY 90/91 through FY 94/95 Capital Improvement Budget. It has been found that as problems are discovered through routine maintenance or from winter storm situations that an ongoing budget for this type of work is desirable. The project ties in with the "Storm Drain Master Plan (Project No. 98-008)" since the work was originally prioritized as a project eligible for Measure "F" bond funds. The ongoing linkage with the Storm Drainage Master Plan results from the continuing inventory of the storm drainage facilities for which the City of Novato is responsible.

This project will enable the improvement of existing drainage systems where the project scale does not justify a separate capital improvement project. A criteria or "matrix of factors" will be utilized to bring approval recommendations for specific projects back to the City Council. The Maintenance and Engineering Divisions of the Public Works Department will coordinate efforts so that the most cost-effective construction can be implemented. Where scope of projects is small and Maintenance personnel are available, the work will be done as a Maintenance Division force account project. Otherwise, projects will be bid out.

Basis for Cost Estimate: The recommended strategy is to fund projects on an as needed basis depending upon the urgency if beyond the scope of the Maintenance Division and to provide funding from Contingency Reserve if critical in nature.

Basis for Schedule: The project is scheduled for implementation on an annual and case by case basis. Additional funding sources will be needed should a multitude of projects requiring attention arises.

Revenue Considerations: Funding for this project was budgeted from the Measure "F" bond funds. The project is a project that would serve the public well in terms of localized flood prevention and the project is Citywide with specific locations identified by the Storm Drainage Master Plan project (98-008) or by the Maintenance Division. The remaining Measure F funds are being eliminated due to depleted funding. Funding to serve the project will be required from other sources such as the Street and Storm Drain Maintenance Fund interest earnings and Clean Storm Water Fund.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	3,411	3,068					6,479
Acquisition	420	0						0
Construction	430	0	15,000					15,000
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		3,411	18,068	0	0	0	0	21,479

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Bond "F" (305)	410	2,343						2,343
Clean Storm (321)	430	15,000						15,000
St/Storm Drain Maint. (322)	410	4,136						4,136
TOTAL		21,479	0	0	0	0	0	21,479
CARRYOVER		18,068						

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Partially Funded Projects

Mill Road Improvements (Trumbull Avenue to Sinaloa Court) and Measure B Pavement Rehabilitation Group (5)

Project No.: 02-009 **Base Code:** 430

Partially Funded

Project Objective: Repair pavement, provide drainage improvements and non Measure "B" upgrade street improvements to current standards.

Project Description and Background: The project is located adjacent to unincorporated (southerly side) and City of Novato (northerly side) lands. The roadway narrows in this block and the pavement is need of improvement to enhance safety, drainage, and road conditions. Mill Road and the other the street is identified in the Measure "B" bond program.

Basis for Cost Estimate: Project Development, Construction and Construction Management costs of $926,300 are for pavement rehabilitation and $15,000 for drainage on Mill Road only and are from the Measure "B" engineering report. The Measure "B" funding is based on November 1999 estimates in the February 2000 Measure "B" Report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis. Possible assessment costs and acquisition costs will not be estimated until FY 05/06 when preliminary design development occurs.

Basis for Schedule: The project will include Measure "B" Group 5 streets which are scheduled for the 2006/07 Fiscal Year. with Pavement Rehabilitation Group 5. For list of Group 5 streets see appendix 8-E.

Revenue Considerations: Measure "B" is the source of funds for the pavement rehabilitation work and drainage on Mill Road. Additional revenue may be generated through a future assessment district. For this to take place, an election, pursuant to Proposition 218, must be held and approved by majority vote. The assessment would provide for the curb, gutter and sidewalk construction fronting the currently unimproved properties in the project limits.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	0		127,030				127,030
Acquisition	420	0						0
Construction	430	0			734,428			734,428
Construction Mgt	440	0			64,842			64,842
Equip/Furnish	450	0						
TOTAL		0	0	127,030	799,270	0	0	926,300

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Bond "B" (307)	410	0		127,030	0			127,030
Bond "B" (307)	430	0			734,428			734,428
Bond "B" (307)	440	0			64,842			64,842
TOTAL		0	0	127,030	799,270	0	0	926,300

Hill Road and Indian Valley Road Improvements

Project No.: 04-002 **Base Code:** 431

Partially Funded

Project Objective: To restore the surface of Hill Road between Diablo Avenue and Indian Valley Road. To restore the surface of Indian Valley Road between Hill Road and the City Limits. To address bikeway, walkway, and drainage deficiencies.

Project Description and Background: These portions of Hill Road and Indian Valley Road are ready for timely pavement rehabilitation. Bikeway, walkway, and drainage needs should be addressed as part of the street project.

Basis for Cost Estimate: Measure "B" Engineer's Report. The Measure "B" funding of 363,600 and other funding $150,000 (Gas Tax in Measure "B" Report) are based on November 1999 estimates in the February 2000 Measure "B" Report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis. The current cost estimate does not include any funds for acquiring right of way or easements which may be needed for bikeway, walkway or drainage improvements. These costs would need to be funded, if necessary, by other funding than Measure "B".

Basis for Schedule: Measure "B" Implementation Report.

Revenue Considerations: The project is funded by Measure "B". Staff will apply for federal or state grant funding for the other funding and to supplement and/or replace Measure "B" funding. Additional revenue needed for right of way or easements will be determined during project development.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410			117,362				117,362
Acquisition	420							0
Construction	430				340,524			340,524
Construction Mgt	440				45,264			45,264
Equip/Furnish	450							0
TOTAL		0	0	117,362	385,788		0	503,150

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Bond "B" (307)	410			82,721				82,721
Bond "B" (307)	430				239,104			239,104
Bond "B" (307)	440				31,775			31,775
TOTAL		0	0	82,721	270,879	0	0	353,600

Rowland Boulevard/Rowland Way Intersection Capacity Improvements

Project No.: 98-025 **Base Code:** 431

Partially Funded

Project Objective: The project will develop a project study report with a preferred alternative to improve this critical intersection. The project will be expanded after adoption of the study report to include construction of the identified improvements.

Project Description and Background: Possible project components may include (1) traffic engineering analysises to determine viable alternatives for intersection improvements, (2) actual traffic engineering and civil engineering design work, and (3) construction of a preferred alternative to addressing the needs of the intersection.

Basis for Cost Estimate: Project costs will not be totally known until viable alternatives are developed. The project will require a traffic engineering consultant to identify viable alternatives to improve this critical intersection. Construction estimates would also be developed at that time.

Basis for Schedule: The schedule is indefinite pending selection of a preferred alternative and resource assurances as described below.

Revenue Considerations: The only revenue source is a $50,000 restricted revenue deposit paid in June 1988 to make traffic signal improvements required of the Rowland 101 Properties, the developer of the Rowland Plaza Project. The initial signalization work at this intersection was completed by the Vintage Oaks shopping center project. Currently, the restricted revenue amount including interest accruals totals approximately $129,000. This fund source will be used to develop project alternatives to improve traffic flow and capacity at this intersection. Developer contributions would also be required of the proposed Hanna Ranch project that will impact this intersection.

Project Expenditure	Sub Objects	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	1,614	129,000					130,614
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		1,614	129,000	0	0	0	0	130,614

Funding Source	Sub Objects	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Bond F (305)	410	1,614						1,614
Res Rev- Row 101 Pro(325)	410		129,000					129,000
TOTAL		1,614	129,000	0	0	0	0	130,614
Carryover		0						

Rush Creek Drainage Improvements

Project No.: 00-015 **Base Code:** 431

Partially Funded

Project Objective: To reduce flooding risk in the northeasterly area of Downtown Novato. Rush Creek runs generally along the railroad right of way northerly to the flood plain in the northern part of Downtown Novato and wetlands northerly of Atherton Avenue.

Project Description and Background: Flooding has been a recurring problem in Downtown Novato. This project will reduce flooding risk at the intersection of Reichert Avenue and Sweetser Avenue, which flooded most recently in 1/95, 2/98, and 11/98. In 1998, the U.S. Congress appropriated $350,000 for flood damage reduction in Novato and the Council adopted this project as the highest priority for those funds. The project, was to be designed by the U.S. Army Corps of Engineers (COE), and would install a culvert in Railroad Avenue, running north from Sweetser Avenue to Olive Avenue. The COE studies and preliminary design are complete. The COE determined that the project is non policy compliant under Section 205 Flood Control Act of 1948 and, therefore, they cannot participate in a construction project. A goal of the project is to involve the several public entities having jurisdiction over various segments of the creek and wetlands.

Basis for Cost Estimate: A detailed cost estimate has not yet been prepared. It is expected that the cost for the culvert between Sweetser and Olive will be approximately $420,000 because of the complex utility relocation, engineering design, and environmental compliance costs. The Measure "B" report allocated $330,000 for this project. The Measure "B" funding of $330,000 is based on November 1999 estimates in the February 2000 Measure "B" Report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis.

Basis for Schedule: The Corps of Engineers has administered the initial phase of this project. The City will be the lead agency in the project design and construction. The City will be retaining engineering consulting firms to perform environmental review and complete the design. Environmental review is scheduled for 2004 and construction in the summer of 2005.

Revenue Considerations: The remaining federal funds administered by the Corps of Engineers for this project will not be used due to eligibility criteria. The City of Novato is discussing the possibility of a loan with the County to fully fund the project. An allocation of $330,000 of Measure "B" funding is identified in the measure "B" Report. The Downtown Redevelopment Area is another potential source of funds to accomplish this project.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
								53,920
Proj Develop	410	13,643	40,277					20,000
Acquisition	420	0	20,000					330,000
Construction	430	0		330,000				15,000
Construction Mgt	440	0		15,000				0
Equip/Furnish	450	0						
TOTAL		13,643	60,277	345,000	0	0	0	418,920

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
								53,920
Bond "B" (307)	410	53,920						20,000
Bond "B" (307)	420	20,000						241,080
Bond "B" (307)	430	0		241,080				15,000
Bond "B" (307)	440	0		15,000				
TOTAL		73,920	0	256,080	0	0	0	330,000

Olive Avenue Improvements, Phase III
Between Redwood Boulevard and Railroad Avenue

Project No.: 97-001 Base Code: 431

Partially Funded

Project Objective: To repair pavement and drainage along Olive Avenue between Redwood Boulevard and Railroad Avenue.

Project Description and Background: This project was shown as a priority in the Measure "F" campaign literature, but full funding was not available since the expected costs exceed available balances. The project will rehabilitate the pavement along with improving the sight distance and providing a smoother transition across the railroad tracks. Widening the railroad crossing will require negotiations with SMART, owners of the tracks. The project originally would have built the frontage improvements along Olive Avenue as part of an assessment district, however, with the pending development at the corner of Redwood Boulevard and Olive Avenue those improvements would be built by the development. Anticipated right of way acquisitions may no longer be necessary and construction amounts may be reduced.

Basis for Cost Estimate: The total estimated cost of the project is $879,000 ($100,000 for Project Development, $110,000 for Acquisition, $620,000 for Construction, and $49,000 for Construction Management) including frontage improvement costs. Construction costs are based on a preliminary estimate of contract quantities and recent bid prices and do not include traffic signals or utility undergrounding. Project Development and Construction Management costs are based on past projects. Acquisition costs are based on a rough estimate in the absence of appraisals. The revenue for the project does not currently include the replacement of the railroad crossing safety arms. Once development is confirmed this projects scope and costs will be reevaluated.

Basis for Schedule: Project development is tentatively scheduled to start in fiscal year 2005/2006 to allow the City to coordinate the design of the railroad crossing with the development's frontage improvements. The project is not scheduled for construction until the summer of 2009 to allow the development to conclude and to allow the traffic signal at Redwood Boulevard and Olive Avenue (CIP project 02-011) to be completed. At least two years of Project Development work is needed for advance planning of the widened railroad crossing and obtaining the funding for that aspect of the project.

Revenue Considerations: Gas Tax is the funding source for this project. Project development is fully funded. Acquisition and construction costs are subject to the pending development northeast corner of Redwood Blvd and Olive Avenue. Construction and construction management are only partly funding. The frontage improvements on the northerly side of this street would be provided by the development.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	1,443	18,557	59,000				79,000
Acquisition	420	0		64,000	46,000			110,000
Construction	430	0				620,000		620,000
Construction Mgt	440	0				49,000		49,000
Equip/Furnish	450	0						0
TOTAL		1,443	18,557	123,000	46,000	669,000	0	858,000

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Gas Tax (272)	410	20,000		59,000				79,000
Gas Tax (272)	420	0		64,000	46,000			110,000
Gas Tax (272)	430	0				210,000		210,000
Gas Tax (272)	440	0				20,000		20,000
TOTAL		20,000	0	123,000	46,000	230,000	0	419,000
CARRYOVER		18,557						

Rush Creek Drainage Improvements

Project No.: 00-015 **Base Code:** 431

Partially Funded

Project Objective: To reduce flooding risk in the northeasterly area of Downtown Novato. Rush Creek runs generally along the railroad right of way northerly to the flood plain in the northern part of Downtown Novato and wetlands northerly of Atherton Avenue.

Project Description and Background: Flooding has been a recurring problem in Downtown Novato. This project will reduce flooding risk at the intersection of Reichert Avenue and Sweetser Avenue, which flooded most recently in 1/95, 2/98, and 11/98. In 1998, the U.S. Congress appropriated $350,000 for flood damage reduction in Novato and the Council adopted this project as the highest priority for those funds. The project, was to be designed by the U.S. Army Corps of Engineers (COE), and would install a culvert in Railroad Avenue, running north from Sweetser Avenue to Olive Avenue. The COE studies and preliminary design are complete. The COE determined that the project is non policy compliant under Section 205 Flood Control Act of 1948 and, therefore, they cannot participate in a construction project. A goal of the project is to involve the several public entities having jurisdiction over various segments of the creek and wetlands.

Basis for Cost Estimate: A detailed cost estimate has not yet been prepared. It is expected that the cost for the culvert between Sweetser and Olive will be approximately $420,000 because of the complex utility relocation, engineering design, and environmental compliance costs. The Measure "B" report allocated $330,000 for this project.

Basis for Schedule: The Corps of Engineers has administered the initial phase of this project. The City will be the lead agency in the project design and construction. The City will be retaining engineering consulting firms to perform environmental review and complete the design. Environmental review is scheduled for 2005 and the construction schedule will be determined once environmental review is completed. The potential development at the corner of Redwood Boulevard and Olive Avenue extends to the Railroad tracks on Olive Avenue and needs to also be coordinated with this project.

Revenue Considerations: The remaining federal funds administered by the Corps of Engineers for this project will not be used due to eligibility criteria. The City of Novato is discussing the possibility of a loan with the County to fully fund the project. An allocation of $330,000 of Measure "B" funding is identified in the measure "B" Report. The Downtown Redevelopment Area is another potential source of funds to accomplish this project. Development Impact Fees Drainage are eligible for this project since Railroad Avenue is a collector and are added here at the 20.2% future development share per the Development Impact Fees For Public Facilities 2002 Update. The project is approximately $170,000 under funded.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	0708	08/09	09/10	Total
Proj Develop	410	10,643	63,733	51,624				126,000
Acquisition	420	0		20,000				20,000
Construction	430	0		420,000				420,000
Construction Mgt	440	0		42,000				42,000
Equip/Furnish	450	0						0
TOTAL		10,643	63,733	533,624	0	0	0	608,000

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	0708	08/09	09/10	Total
Bond "B" (307)	410	53,920	3,488					57,408
Bond "B" (307)	420	20,000						20,000
Bond "B" (307)	430	0		229,630				229,630
Bond "B" (307)	440	0		22,963				22,963
DIF Drainage (327)	410	0	16,968					16,968
DIF Drainage (327)	430	0		84,840				84,840
DIF Drainage (327)	440	0		6,787				6,787
TOTAL		73,920	20,456	344,220	0	0	0	438,596

Hill Road and Indian Valley Road Improvements

Project No.: 04-002 **Base Code:** 431

Partially Funded

Project Objective: To restore the surface of Hill Road between Diablo Avenue and Indian Valley Road. To restore the surface of Indian Valley Road between Hill Road and the City Limits. To address bikeway, walkway, and drainage deficiencies.

Project Description and Background: These portions of Hill Road and Indian Valley Road are ready for timely pavement rehabilitation. Bikeway, walkway, and drainage needs should be addressed as part of the street project.

Basis for Cost Estimate: Measure "B" Engineer's Report. The Measure "B" funding of 363,600 and other funding $150,000 (Gas Tax in Measure "B" Report) are based on November 1999 estimates in the February 2000 Measure "B" Report. The current cost estimate does not include any funds for acquiring right of way or easements which may be needed for bikeway, walkway or drainage improvements. These costs would need to be funded, if necessary, by other funding than Measure "B".

Basis for Schedule: This project is being scheduled for project development in Fiscal Year 2006/2007.

Revenue Considerations: The project is funded by Measure "B". Staff will apply for federal or state grant funding for the other funding and to supplement and/or replace Measure "B" funding. Additional revenue needed for right of way or easements will be determined during project development.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	0		117,362				117,362
Acquisition	420	0						0
Construction	430	0			340,524			340,524
Construction Mgt	440	0			45,264			45,264
Equip/Furnish	450	0						0
TOTAL		0	0	117,362	385,788		0	503,150

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Bond "B" (307)	410	0		82,721				82,721
Bond "B" (307)	430	0			239,104			239,104
Bond "B" (307)	440	0			31,775			31,775
TOTAL		0	0	82,721	270,879	0	0	353,600
CARRYOVER		0						

Completed Projects

Bradley Avenue Improvements Between Hill Road and End

Project No.: 97-002 **Base Code:** 431

Completed

Project Objective: Reconstruct pavement and improve drainage.

Project Description and Background: The work included in this project was originally to have been performed at the same time as the improvements on Hill Road and Tamalpais Avenue but had to be deferred because it was more complex and costly than preliminary estimates had indicated.

Basis for Cost Estimate: Construction costs are actual. Project Development are actual and Construction Management Costs are actual. Clean storm water funds were applied in the 97/98 CIP Budget to pipe overland flows in conduit.

Basis for Schedule: The project was completed in the summer of 2002.

Revenue Considerations: The cost of driveway repairs was assessed to the individual property owner by the use of construction agreements to secure repayment to the City. Chapter 27 funds was used to fund this aspect of the project. AB 2928 funding was programmed for the project when the appropriation was secured in previous years. Clean Storm Water revenue was utilized to fund drainage improvements. This project was a hold over from the Measure "F" bond and was identified as committed capital improvement project in the Measure "B" Report. Measure "B" funding was needed for full funding of the street repairs and drainage improvements.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	97,402						97,402
Acquisition	420	0						0
Construction	430	242,908						242,908
Construction Mgt	440	57,626						57,626
Equip/Furnish	450							
TOTAL		397,936	0	0	0	0	0	397,936

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
AB 2928 (274)	410	88,920						88,920
Bond "B" (307)	410	157						157
Bond "B" (307)	430	71,928						71,928
Gas Tax (272)	430	120,071	(32,080)					87,991
Gas Tax (272)	440	25,783	(4,130)					21,653
Chapter 27 (251)	430	25,964	198					26,162
Chapter 27 (251)	440	3,895						3,895
Rest Rev (325)	430	2,450	(2,450)					0
Storm (321)	410	8,325						8,325
Storm (321)	430	50,293	(3,196)					47,097
Storm (321)	440	30,886						30,886
Util Reim	430	7,950	1,780					9,730
Util Reim	440	1,192						1,192
TOTAL		437,814	(39,878)	0	0	0	0	397,936
Carryover		39,878						

C-54 6/28/04

Bahia Neighborhood Street Improvements

Project No.: 01-014 **Base Code:** 431

Complete

Project Objective: To restore the surface of existing streets. To address existing drainage problems. To correct concrete/street tree problems. To correct accessibility problems.

Project Description and Background: This project focused on the list of Measure "B" candidate streets in the Bahia Area of Novato. The streets included: Albatross Drive from Laguna Vista to Topaz Drive, Baruna Court from Topaz Drive to the Southerly End; Bolero Court from Topaz Drive to Northerly end; Bugeia Lane from Atherton Avenue to "H" Lane; Circle Court from Topaz Drive to the Southerly End; Laguna Vista from Albatross Drive to the Westerly End; and River Vista Court from Albatross Drive to the Easterly End. Altogether, this project completed 1.6 miles of the 34 mile Measure "B" street resurfacing program.

Basis for Cost Estimate: Project development, construction and construction management costs are actual.

Basis for Schedule: The project was completed in the Winter of 2002/03.

Revenue Considerations: The project was fully funded by the Measure "B" bond in the amount of $518,900 per the Measure B report. City staff miscalculated the final construction cost in the fiscal year 2003/2004 budget and, therefore, needs to correct the final project costs this budget cycle. The final cost of the project results in a Measure B unused amount of $42,270 that will be returned to the fund and can be applied to other Measure B street projects.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	64,199						64,199
Acquisition	420	0						
Construction	430	388,776						388,776
Construction Mgt	440	23,355						23,355
Equip/Furnish	450							
TOTAL		476,330	0	0	0	0	0	476,330

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Bond "B" (307)	410	63,726	473					64,199
Bond "B" (307)	430	344,309	44,467					388,776
Bond "B" (307)	440	25,269	(1,914)					23,355
TOTAL		433,304	43,026	0	0	0	0	476,330
Carryover		(43,026)						

C-53

6/28/04

O'Hair Park Drainage Extension Project

Project No.: 00-010 **Base Code:** 431

Completed

Project Objective: To extend to Novato Creek the drainage system installed by the Brookside (Novato Chase) Development which is located on the north side of Novato Boulevard just westerly of San Marin High School.

Project Description and Background: As a condition of project approval, the Brookside Development was required to fund drainage improvements on O'Hair Park in the amount of $19,550. The project proposes to extend the drainage system from its present terminus on the south side of Novato Boulevard to Novato Creek. The storm drain will be easterly from the parking lot for the Novato Dog Park Project at O'Hair Park. Initial constructilon of an overland creek through O'Hair Park was completed in the winter of 2002. Plans to complete the project landscaping of the creekway will be complete in the summer of 2004.

Basis for Cost Estimate: Project costs will be based upon the contribution made by the developer for the extension of the drainage to Novato Creek.

Basis for Schedule: The project is scheduled for completion by the winter of 2004.

Revenue Considerations: The project construction is being funded from the transfer of developer contributions ($19,500) previously included in Project No. 96-011, Dog Park-Joint Project O'Hair Park. Interest accrued on the developer contributions are being added to the project.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	7,930						7,930
Acquisition	420	0						0
Construction	430	3,198	12,333					15,531
Construction Mgt	440	0	500					500
Equip/Furnish	450	0						
TOTAL		11,128	12,833	0	0	0	0	23,961

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Gas Tax (272)	410	8,500	(8,500)					0
Gas Tax (272)	440	2,000	(2,000)					0
Rest Rev-Brookside (325)	410	0	7,930					7,930
Rest Rev-Brookside (325)	430	23,830	(8,299)					15,531
Rest Rev-Brookside (325)	440	0	500					500
TOTAL		34,330	(10,369)	0	0	0	0	23,961

Measure "B" Bond Pavement Rehabilitation Program

Project No.: 01-002 **Base Code:** 431

Project Objective: To restore the surface of existing streets. To address existing drainage problems. To correct concrete repair/street tree problems. To correct accessibility problems.

Project Description and Background: This project will complete a significant percentage of the 34 miles of pavement work identified for Measure "B." Streets will be assigned to pavement rehabilitation groups on a "worst first" basis for the first grouping of streets Citywide. This group is comprised of streets with ratings typically greater than 6.7 on a scale of 1 to 10 with 1 being the best and 10 the worst. All of the Bel Marin Keys area streets were completed with this first group to reduce the construction impacts to this heavy traffic industrial complex. The other five groups consisting of streets with an average rating of 6 will then be completed. For listing of groups 2, 3 and 4 streets see appendix 8-E. Group 5 streets were added to Mill Road Improvements and Group 6 streets were added to Alameda Del Prado Improvements.

Basis for Cost Estimate: The Measure "B" Engineer's Report. The Measure "B" funding is based on November 1999 estimates in the February 2000 Measure "B" Report. It is anticipated that the recently completed Group 1 streets will have a total project cost of $1,935,893, total Measure "B" funding per the engineer report is $2,177,800, total Measure "B" funds utilized on Group 1 $1,828,693 for a potential savings of $349,107. The recently bid Group 2 streets has a projected total cost of $1,044,123 which is $159,523 over the November 1999 estimates in the February 2000 Measure "B" Report. Appendix APP-15 and APP-16 contains the Engineering News Record Construction Cost Index which tracks changes in construction costs on a monthly basis. Note: Measure "B" oversight committee recommended extending San Felipe limit beyond Measure "B" Report.

Basis for Schedule: The schedule for the projects are affected by the cash flow requirements of Measure "B" bond issuance's. The cash flow diagram is incorporated with the schedule of projects in the Measure B Implementation section. The Measure "B" Implementation Report is the reference document, subject to review to reflect current street rehabilitation needs. Group 1 streets were completed in the summer of 2003, the remainder of the streets to be rehabilitated in the plan will be completed in four main groups comprising the North, Central and South areas of the City.

Revenue Considerations: AB 2928 Traffic Congestion Relief funding was added to Group 1 in fiscal year 2000/2001 to meet spending deadlines. Gas Tax was added in fiscal year 2003/2004 to cover the pavement rehabilitation of a non Measure "B" street in Group 1. The unused Measure "B" funding for Group 1 streets is being returned to the fund this fiscal year. The funding for Groups 3 through 6 are per the Measure "B" engineer's report.

Project Expenditure	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
Proj Develop	410	222,086	298,784	152,118	0	0	0	672,988
Acquisition	420	0	0	0	0	0	0	0
Construction	430	1,532,663	1,264,350	1,488,292	658,438	0	0	4,943,743
Construction Mgt	440	248,917	97,000	131,624	58,644	0	0	536,185
Equip/Furnish	450	0	0	0	0	0	0	0
TOTAL		2,003,666	1,660,134	1,772,034	717,082	0	0	6,152,916

Funding Source	Sub Object	Prior to 04/05	04/05	05/06	06/07	07/08	08/09	Total
AB2928 (274)	410	100,000	0	0	0	0	0	100,000
Bond "B" (307)	410	478,368	(57,498)	152,118	0	0	0	572,988
Bond "B" (307)	430	2,357,698	432,115	1,488,292	658,438	0	0	4,936,543
Bond "B" (307)	440	225,794	120,123	131,624	58,644	0	0	536,185
Gas Tax (272)	430	7,200	0	0	0	0	0	7,200
TOTAL		3,169,060	494,740	1,772,034	717,082	0	0	6,152,916
CARRYOVER		1,165,394						

O'Hair Park Drainage Extension Project

Project No.: 00-010 **Base Code:** 431

Completed

Project Objective: To extend to Novato Creek the drainage system installed by the Brookside (Novato Chase) Development which is located on the north side of Novato Boulevard just westerly of San Marin High School.

Project Description and Background: As a condition of project approval, the Brookside Development was required to fund drainage improvements on O'Hair Park in the amount of $19,550. The project proposes to extend the drainage system from its present terminus on the south side of Novato Boulevard to Novato Creek. The storm drain will be easterly from the parking lot for the Novato Dog Park Project at O'Hair Park. Initial constructilon of an overland creek through O'Hair Park was completed in the winter of 2002. Plans to complete the project landscaping of the creekway will be complete in the summer of 2005.

Basis for Cost Estimate: Project costs will be based upon the contribution made by the developer for the extension of the drainage to Novato Creek.

Basis for Schedule: The project is scheduled for completion by the winter of 2005.

Revenue Considerations: The project construction is being funded from the transfer of developer contributions ($19,500) previously included in Project No. 96-011, Dog Park-Joint Project O'Hair Park. Interest accrued on the developer contributions have been and are being added to the project.

Project Expenditure	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Proj Develop	410	7,930						7,930
Acquisition	420	0						0
Construction	430	13,531						13,531
Construction Mgt	440	2,000	1,180					3,180
Equip/Furnish	450	0						0
TOTAL		23,461	1,180	0	0	0	0	24,641

Funding Source	Sub Object	Prior to 05/06	05/06	06/07	07/08	08/09	09/10	Total
Gas Tax (272)	410	0						0
Rest Rev-Brookside (325)	410	7,930						7,930
Rest Rev-Brookside (325)	430	15,531	(2,000)					13,531
Rest Rev-Brookside (325)	440	500	2,680					3,180
TOTAL		23,961	680	0	0	0	0	24,641
CARRYOVER		500						

Cherry Street Drainage Improvement

Program/Project Description	**Cherry Street Drainage Improvement**
Final Cost	**$103,918.00**
Responsible Department	**Public Works**
Financing **General Fund** **Grants** **Special**	**Public Works Project Funds for 6/07 and Gas Tax**
Goal Addressed	**Flooding**
Related Hazards Risks Addressed	**Transportation**

Davidson Street Area Subdrain System

Program/Project Description	**Davidson Street Area Subdrain System**
Final Cost	**$270,007.00**
Responsible Department	**Public Works**
Financing **General Fund** **Grants** **Special**	**Gas Tax** **TCRF (42)** **Utility Reimbursements**
Goal Addressed	**Flooding**
Related Hazards Risks Addressed	**Transportation**

Diablo Avenue Drainage Improvements and Rehabilitation Project

Program/Project Description	**Diablo Avenue Drainage Improvements and rehabilitation project**
Final Cost	**$1,045,838**
Responsible Department	**Public Works**
Financing **General Fund** **Grants** **Special**	**Bond B** **Clean Storm** **Grant BAAQD** **Dif Drainage** **Utility Reimbursements** **Ch 27**
Goal Addressed	**Flood Reduction**
Related Hazards Risks Addressed	**Transportation**

McKeon Court Wimac Drainage Project

Program/Project Description	**Mckeon Court Wilmac Drainage Project –** **Requested by Citizens for realignment of outlet piping to facilitate flow into the creek, and installation of positive shut off valve to prevent creek backflow into drainage system**
Final Cost	**$97,313**
Responsible Department	**Public Works**
Financing **General Fund** **Grants** **Special**	**General Fund**
Goal Addressed	**Flood Mitigation**
Related Hazards Risks Addressed	**None**

Hamilton Field Levee Improvements

Program/Project Description	Hamilton Field Flood Protection Levee Improvement
Final Cost	$1,324,281
Responsible Agency/Dept.	Public Works
Financing	Hamilton CFD
Goal(s) Addressed	Flood Mitigation
Related Hazard(s)	Earthquake

O'Hara Park Drainage Extension

Program/Project Description	O'Hara Park Drainage Extension Project
Final Cost	$33,828
Responsible Agency/Dept.	Public Works
Financing	Res Rev Gas Tax
Goal(s) Addressed	Flooding Mitigation and Transportation Enhancement
Related Hazard(s)	Flood

Studies

Wilmac Avenue – McKeon Court Flood Study for Marin County Flood and Water Conservation District – April 12, 2006

(Map available with study documents. Too large for this document.)

Wilmac-Avenue - McKeon Court, Novato
Flood Study

Area Studied

The area of this study was originally Vineyard Creek and nearby drainage bounded by Center Road, Wilson Avenue, Novato Boulevard and McClay Road. A major portion of the creek within this area runs between Wilmac Avenue and McKeon Court. After the study began, the homes at the northerly end of Arbor Circle were added to the study area.

See accompanying map which shows creeks, streets, homes , addresses, surveyed grades and elevations. This map also shows high water elevations at various locations during the peak of the December 31, 2005 flood.

Purposes of Study

1. Identify the probable causes of the flooding which occurred December 31, 2005 in and near homes on Wilmac Avenue and McKeon Court, Novato.

2. Recommend work and construction for the short-term alleviation or reduction of this flooding.

3. Make recommendations for long-term permanent solutions to alleviate this flooding if these solutions become apparent during the course of our work.

Work Performed

In accordance with an agreement with the Marin County Flood Control and Water Conservation District, we provided the following items of work.

1. Met with County personnel shortly after the storm and reviewed the impacts of the flooding.

2. Acquired maps from the City of Novato for our use in this study. These maps included: a) topographic maps with drainage features shown, b) orthophoto maps, and c) computer generated maps which show topography, property lines, addresses and street numbers.

3. Surveyed storm drainage elevations, street grades, wall grades, finished floor elevations, garage elevations, and other features. Added survey information to map.

2

4. Reviewed City of Novato Local Drainage Master Plan. Reviewed Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM).

5. Interviewed neighborhood residents, County personnel, and City personnel to acquire information concerning the recent flooding and past flooding.

6. Analyzed flooding based on maps, surveys and interviews.

This resultant study is divided into two parts. The first part consists of a flooding analysis and recommendations for work and improvements within entire area studied. The second part consists of flooding analyses and recommendations for work and improvements for local drainage sub-areas.

In general, costs and priority of work were not considered when making our recommendations. Costs will be considered and priorities of work will be assigned by the jurisdictions responsible for such work.

Entire Study Area

Flooding Analysis (Flood of December 31, 2005)

1. Vineyard Creek was too congested and possibly not wide enough to carry the high flows which resulted from this storm. The floodway was narrow with shrubs and vines on the banks. Trees with multiple trunks and low branches also obstructed the floodway. The entrance to the concrete box culvert at Center Road was partially blocked with silt and shrubs. We estimate that this blockage reduced the capacity of the culvert by approximately fifteen percent.

2. Movement and deposits of gravel and sediment from upstream created less flow capacity in the creek and possibly flatter slopes in the creek flow line.

3. The concrete box culvert at Center Road may not be adequate to accommodate high flows.

4. The concrete encased sewer lines which cross the creek near the McKeon Court cul de sac act as weirs. These sewer lines prevent the creek from seeking a more efficient, natural slope. The creek flowline drops approximately one foot immediately below the downstream sewer line crossing, thus indicating that the flood water surface would most likely be lower if not for the weir effect of the two concrete encased sewer crossings.

5. When flood levels rise above the banks in Vineyard Creek adjacent to Wilmac Avenue, the concrete wall along the westerly side of Wilmac Avenue parallel to the creek prevents flood water from spilling onto Wilmac Avenue, but also causes flood water to rise to elevations whereby adjacent homes and properties on McKeon Court are flooded. Originally there was a wood wall at this location which was placed sometime after the Wilmac Avenue Subdivision was constructed. The wood wall was replaced with a rock-faced concrete wall in 1996. We surveyed the top of this wall at the projections of the side property lines on McKeon Court. We compared the surveyed top of wall to the design grades for this wall shown on the County Improvement Plans for the wall replacement. We found that the wall as built is higher than the design grades by one and one-half inches to three inches. In order to determine adverse impacts, if any, due to the increase in height of the wall, we recommend that a hydrology/hydraulic study be made to analyze its effect on the flooding issue. The relationship of the top of this existing wall to the grades and elevations on adjacent properties on McKeon Court is given in the following Table A.

Table A

McKeon Court Address	Top of Wall at Center of Lot	Average Ground at Rear Fence	Approximate Ground at Back Yard	House Finished Floor	Garage Elevation at Entrance
10	45.80	44.05	44.40	46.13	44.19
20	45.10	43.35	43.80	45.52	43.97
30	44.65	43.05	43.20	44.57	43.16
40	44.35	42.80	43.00	44.44	42.97
50	44.15	42.75	43.00	44.11	42.64
60	43.95	42.35	42.50	43.87	42.57
70	43.65	42.00	42.50	43.72	42.30
80	43.25	41.85	41.90	43.52	41.95
90	42.90	41.40	42.00	43.50	41.95

Recommended Short-term Work and Improvements

1. Calculate the floodway cross-section needed for this creek to pass a 100-year storm.

2. Enlarge the creek, if needed. (The recent widening and cleaning during January, 2006 may have provided most, or all, the floodway needed.)

3. Maintain this floodway aggressively every year for its entire length between Center Road and McClay Avenue. Remove all debris and brush. Remove all new-growth tree saplings. Trim additional trunks from trees to create single-trunk trees within floodway. Trim lower limbs which would interfere with flood flows.

4. Remove silt and sediment if they interfere with the capacity of the creek.

5. Remove any barriers to the inlets and outlets of the concrete box culverts at Center Road and McClay Road.

Recommended Long-term Work and Improvements

1. Widen the creek, if needed, and maintain the creek yearly to accommodate the 100-year storm.

2. Lower the sewer lines which cross the creek.

3. Replace the concrete box culvert at Center Road, if warranted, to accommodate a 100-year storm. Consider lowering the flowline of this structure in order to reduce backup ponding on either side. This flowline lowering should be associated with dropping the sewer line crossings.

4. Study the installation of a wall or other barrier between the creek and the rear fences of the homes on McKeon Court. Provide for drainage from rear yards.

Local Study Areas

Center Road at Vineyard Creek - Flooding Analysis (Flood of December 31, 2005)

The flood water surface rose above the back of sidewalk at the upstream end of the concrete box culvert at Center Road. The top of sidewalk at this structure is higher than the adjoining street. The flood flows split at this point. Roughly half of the flood waters went down Wilmac Avenue and to the sump area approximately 120 feet southeasterly at 1958 Center Road. The other half flowed northwesterly to the intersection of Arbor Circle and Center Road. This flooding eventually overwhelmed both these sump areas. On the Arbor Circle side, flood water crossed Center Road and flowed down McKeon Court. On the southeasterly side, flood waters flowed from the street onto private property at 1958 Center Road.

Arbor Circle - Flooding Analysis

Water flooded from the creek, flowed between houses to the street and thence down Arbor Circle to pond at the intersection of Center Road. At this point the flood water joined with water backing out of the catch basins at this intersection. Ponding rose to a height where it flowed across Center Road and down McKeon Court.

Arbor Circle - Recommended Short-term Work and Improvements

1. Install a flap gate and a manually-operated gate in the storm drainage system between the Center Road box culvert and Arbor Circle in order to prevent storm water from backing out of Vineyard Creek and flooding the intersection.

2. During the times the gates are engaged, use a portable water pump to pump the local surface runoff into Vineyard Creek below the box culvert.

Arbor Circle - Recommended Long-term Work and Improvements

If feasible, install a storm drain bypass from the drainage system in the Arbor Circle sump area down McKeon Court; thence to Vineyard Creek. Combine this improvement with the recommended improvements for the McKeon Court cul de sac.

the lower area where Wilmac Avenue turns away from Vineyard Creek.

4. Where the rear yards of the homes on Wilmac Avenue adjoin the creek, storm water flowed from the creek between the houses to the street. Some garages and two portions of homes which had rooms converted from garages were flooded. Once the water reached the street, it flowed to the low point at the cul de sac.

5. At the cul de sac, storm water ponded to a depth which inundated garage floors, but did not flood finished floors of homes. The storm drain system at this cul de sac appeared to be working, but could not keep up with the flood volume. This system was probably not operating efficiently due to the high water surface elevation in the creek. One of the property owners at this location observed that the storm drain system at this location did not work at the peak of the 1982 and 1998 floods. During the 2005 storm, flood water flowed easterly between houses to get out of the cul de sac area.

Wilmac Avenue - Probable Causes of Flooding

1. The southerly end of the concrete flood wall in Wilmac Avenue was not connected to the back of sidewalk at the box culvert.

2. The garages along this street are only approximately 4 inches higher (average) than the adjacent curbs and sidewalks. Therefore, when flood flows cannot exit completely through the storm drainage system, the cul de sac and lower street area flood rapidly. The street was constructed using rolled curb and gutter and the pavement is fairly high, so there is minimal storage available in the street for extra storm water.

Wilmac Avenue - Recommended Short-term Work and Improvements

In the cul de sac area, remove any obstructions where flood waters need to move through. For example, the bottoms of fences should be at least 6 inches above adjacent ground. Any re-surfacing of the cul de sac pavement should be done in such a way that the pavement elevation does not become significantly higher.

Wilmac Avenue - Recommended Long-term Work and Improvements

1. Analyze the concrete flood wall. It may be possible to place a parallel wall to protect McKeon Court residences from high water in the creek, in which case the gap in the concrete wall just below the box culvert could be closed.

2. Construct a new catch basin on either side of the street just before the cul de sac and connect to the existing catch basin in a straight line with the existing storm drain line. This will allow more water to enter the storm drain system.

3. Replace the outlet storm drain pipe with a larger pipe.

Margory Court Cul de Sac - Flooding Analysis

The water surface rose to an elevation of approximately 38.5 feet and this cul de sac flooded. One garage may have had a couple of inches of water inside, but no other garages or finished floors of homes were affected. Probable causes of this flooding are as follows.

1. Storm water flowed overland from the sump area in the street at 1958 Center Road.

2. Water backed up from the Wilmac Avenue area to the north.

3. Flood waters were not able to exit immediately through the storm drain system because of possible system overload due to flooding at Margory Court and Wilmac Avenue. Additionally, high water surface elevation at the storm drain outlet in the creek may have helped prevent this discharge.

Margory Court Cul de Sac - Recommended Long-term Work and Improvements

1. Replace the existing 15 inch diameter storm drain with a larger pipe to help accommodate flood flows.

2. Analyze the storm drainage system at the easterly corner of 18 Margory Court. If possible, eliminate two of the three drainage structures at this location.

Other Studies and Plans

(Other studies and plans are outlined in the City of Novato/Novato Sanitary District Multi-jurisdictional Hazard Mitigation Plan)

Part 5 - Problem Assessment

Summary of Flooding Vulnerability & Impact

Business & Industry

The City of Novato successfully mixes corporate headquarters, state-of-the art technology companies and a variety of retail centers in its business community.

Fireman's Fund Insurance Company is the City's (and Marin County's) largest employer with 2,400 employees. Founded in 1863, Fireman's Fund has been providing premier business and personal insurance for over 135 years. In addition to Fireman's Fund, Novato is the corporate headquarters for footwear company Birkenstock Footprint Sandals, and Smith and Hawken, the nation's premier retailer for gardening enthusiasts. Novato is also a center of technology business as well. Known as the "home of the CD-ROM", Novato is home to such computer software and telecommunications companies as, IMSI, Inc. and Sonic Solutions.

Retail businesses in Novato take many forms. The Vintage Oaks Shopping Center is a regional mall that serves as home to Costco, Target, Macy's Furniture Center, Novato Toyota and Silveira Pontiac Buick GMC of Novato. There is an active retail area in downtown Novato with shops and restaurants as well as other shopping areas located throughout the City. Novato is also home to Travel Smith, a successful company that sells travel clothing and accessories throughout the world through its catalogue business and on the Internet. *Information provided by Chamber of Commerce*

Transportation

There are several modes of transportation within the Novato area. They include roadways, a municipal airport, bus service, and a rail line that has been deactivated. These modes of transportation have influence on the City of Novato and some can be affected or shut down in a flood event. The Novato Fire District also has a whole system of “fire roads” to allow access to the wildland and ranch properties that exist. These fire roads experience frequent washouts and flood-related damage. Most require four-wheel drive vehicles.

Traffic congestion is a significant problem in and around Novato. Detours necessitated by flooding contribute significantly to congestion. A long-term detour along any of the major roadways could impact traffic from the San Francisco Bay Bridge to Petaluma.

The Petaluma River, although not a significant commercial waterway, serves a large number of pleasure boaters and is home to some commercial fishing vessels. Flooding brings a significant amount of debris into the river making it dangerous for small vessel traffic.

Highways and Other Access

Primary access to the City of Novato is US Highway 101, the main north-south corridor in the West Bay Area. Novato is 12 miles north of Interstate Highway 580, a major east-west corridor serving the Bay Area. State Highway 37 joins US 101 at Novato making the area a hub for North Bay travel. State Highway 116 is ten miles north of Novato.

Numerous common carriers provide interstate and intrastate service. The Petaluma River and the Northwestern Pacific Railroad provide access via water and rail, respectively.

Table 9 - Transportation: Level of Service Definitions

Level of Service	Description
Free Flowing LOS A	Relatively free-flow. No restrictions to vehicle maneuverability or speed. Very sliqht delay.
Minimal Delays LOS B	Stable Flow. Some sliqht reduction in maneuverability and speed. Vehicle platoons form. Slight delay.
Acceptable Delays LOS C	Stable flow operation. Higher volumes. More restrictions on maneuverability and speed. Acceptable delay.
Tolerable Delays LOS D	Approachinq unstable flow operation. Queues develop. Little freedom to maneuver. Tolerable delays for short periods.
Significant Delays LOS E	Unstable flow or operation. Low operating speed; momentary stoppaqes. This condition is not uncommon in peak hours. Conqestion and lenqthy delays.
Excessive Delays LOS F	Forced flow or operation. There are many stoppaqes. The highway acts as a vehicle storage area. Jammed. Gridlock.

Level of Service (LOS) is normally used to describe peak-hour conditions, which occur during the early morning or late afternoon when traffic is the heaviest.

Traffic engineers and planners use LOS to evaluate the relative congestion of roads and highways. It is used to design where and what type of roadway improvements are required, such as the location and timing of traffic signals, the configuration of intersections, and the number of lanes for new streets. LOS is intended to provide an approximate measurement of roadway operations similar to the driver's perceptions of traffic conditions.

Marin Countywide Congestion Management Agency: Develops and administers a Countywide Congestion Management Plan (CMP) as required of every urbanized county in the State under the terms of a State referendum approved in 1990. The State law requires all State highways plus the principal arterials in Marin County to be on the designated CMP system. The following facilities in Novato are on the CMP designated system:

- US 101
- SR 37
- Bel Marin Keys Blvd from US 101 interchange to Commercial Blvd.
- South Novato Boulevard from Diablo Avenue to US 101
- Rowland Boulevard from South Novato Boulevard to US 101

- Novato Boulevard from Sutro Avenue to Diablo Avenue

County of Marin: Maintains and plans the county road system.

Golden Gate Bridge, Highway and Transportation District: Operates Golden Gate Transit with express and local bus service, ferry service and the Golden Gate Bridge linking Novato to Sonoma and Marin County cities, and San Francisco.

Metropolitan Transportation Commission: Prepares and carries out a Regional Transportation Plan, establishes priorities for federal and state funding, and conducts studies of transportation corridors.

The Marin Countywide Planning Agency: The City is a member of this agency, which is conducting a Sonoma/Marin multi-modal transportation and land use study.

Streets and Roads

The street system has shaped land use in Novato and continues to be the principal element of the City's transportation system. Streets and highways are classified according to their function.

Table 10 - Street Classification System

Freeway	A high-speed, limited-access roadway used primarily for long trips. California State Department of Transportation (CalTrans) controls the design, operation and maintenance of freeways.
Arterial	A medium-speed, medium capacity roadway typically averaging 10,000 to 35,000 trips daily that provides travel and access within the City and access to expressways and highways. Direct access to land fronting an arterial is usually prohibited.
Collector	A relatively low-speed, relatively low-volume street typically averaging 5,000 to 10,000 trips daily that provides access within and between neighborhoods. Collectors usually serve short trips and are intended for collecting trips from local streets and distributing them to arterial streets. Collector streets may have restricted access under certain circumstances, for safety reasons.
Local Street	A low-speed, low-volume street that provides access to adjacent properties. Local streets are designed for trips within neighborhoods and to collector and arterial streets, and not to serve through-traffic.
Rural Road	A relatively low-speed, low-volume roadway that provides access to adjacent land. Rural roads are designed for trips within low density areas where there is relatively little locally-generated traffic. The City has adopted special standards for rural roads.

1995 Traffic Levels of Service

During the non-commute hours of the day, traffic generally moves well, experiencing little delay. Most intersections are operating at a LOS of A to C, indicating that the street system is relatively non congested. Traffic congestion occurs, however, during the peak commute hours. Most of Highway

101 is currently operating at LOS F in the Novato area. During the morning commute-hours backups occur from the Alameda del Prado or Miller Creek interchanges to as far north as Atherton Avenue interchange, causing significant diversion of traffic onto City streets.

Local streets and roads generally remain at acceptable levels of service during the peak hours. The exceptions include Bel Marin Keys Boulevard and the Redwood Boulevard/Olive Avenue intersection. The latter operates at LOS E during the morning peak period.

Traffic congestion will continue to worsen as more development occurs in Marin and Sonoma Counties. In response, Novato is working to adopt innovative measures to reduce impacts of Highway 101 traffic on City streets, implement growth management programs, and emphasize alternatives to the single-occupant vehicle.

The traffic projections showed that the highways and roads in the Novato area in 1995 cannot accommodate all of the development projected to the year 2015, even with the roadway improvements that are under construction or funded. The projections confirm that there is currently no reserve capacity on Highway 101.

Table 11 - Committed Roadway Improvements

Project Name	Capacity Improvements	Status As of 11/02
Downtown traffic signal and intersection improvements	Coordination of the traffic signals on De Long Avenue from U.S. 101 to Diablo Avenue and coordination of the traffic signals on Redwood Boulevard from Lamont Avenue to Grant Avenue.	Design not yet started; fund allocation has been delayed
Highway 101	Auxiliary Lane improvements in San Rafael, none in the Novato Area of Interest.	Approved and partially funded by CalTrans

Following are the principal intersections, which will experience severe traffic congestion at build out if improvements are not constructed when travel demand increases.

- Novato Boulevard/Seventh Street/Tamalpais Avenue, which operates at a LOS D during the P.M. peak hour.
- Novato Boulevard/Diablo Avenue, which operates near capacity at LOS E in the P.M. peak hour.
- Redwood Blvd/Diablo Avenue/DeLong Avenue, which operates at mid LOS D in the P.M. peak hour.
- Ignacio Boulevard/Nave Drive/Northbound US 101 Ramp, which operates at low
- LOS D during the A.M. peak hour, and at capacity (LOS F) during the P.M. peak hour.
- DeLong Boulevard/Enfrente Road/US 101 Ramps southbound, which operate at mid-LOS D during the A. M. peak hour and at near capacity (high LOS E) during the P.M. peak hour.

- Novato Boulevard/Sunset Parkway, which operates at LOS E in the A.M. peak hour.
- Redwood Blvd/Olive Avenue, which operates at LOS F during the P.M. peak hour.
- Atherton Avenue/Bugeia Lane, which operates at LOS F during the P.M. peak hour.

Table 12 - Major Roadway Improvements

Novato Blvd./ Seventh Street/ Tamalpais Ave.	Add an additional through lane on the northbound and southbound approaches on Novato Boulevard
Redwood Boulevard/ Diablo Avenue/ DeLong Avenue	Change southbound Redwood Boulevard approach to include two left-turn lanes and a shared through/right-turn lane. Change eastbound Diablo Avenue approach to include two left-turn lanes, two through lanes, and a right-turn lane.
U.S. 101 North Ramp/Nave Drive/ Bel Marin Keys Blvd.	Change the eastbound Bel Marin Keys Boulevard approach to include a through lane, a shared through/right-turn lane.
Redwood Blvd./ Olive Avenue	Install a traffic signal.
Atherton Ave./ Bugeia Lane	Install a traffic signal.
Bel Marin Keys/HWY 37	Construct a connector.
Rowland Boulevard	Construct an extension to Highway 37. The extension may be limited to an emergency access way.
Redwood/San Marin Intersection and 101 South Ramps	Add turn lanes.

Airports

Gnoss Field is located in the County outside of Novato's Sphere of Influence. It is a general aviation airport owned by the County and has no scheduled commercial flights. It has, however, a significant number of private aircraft operations and an air taxi service. The County's Gnoss Field Master Plan describes the expected growth in airport operations and related development. It projects a doubling of based aircraft in the period 1986 to 2006, with an increase in operations (one landing or one take-off) from 189,000 in 1996 to 204,000 in 2006. The improvements called for in the Master Plan include facilities to maintain a fixed-based aviation operator.

Non-profit & Community-based Organizations

- City of Novato Historical Society
- City of Novato Host Lions Club
- City of Novato Police Association
- City of Novato Senior Citizen Club
- Friends of City of Novato Library
- City of Novato, Ca 91706
- Veterans of Foreign Wars
- City of Novato Education Association

City of Novato Chamber of Commerce

Nearly 20 percent of Marin County's senior citizen population lives in the Novato area. Between 1980 and 1990, the number of older people (60+) living in Northern Marin increased by 56 percent, the fastest rate of growth in the county. By the year 2010, the senior population (age 65 and over) is expected to double. With this aging of the population, the demand for elder care will grow. Often families in the "sandwich generation" are pressed by needs to care for both aging parents and their own children.

The following privately-owned housing complexes in the Novato area are assisted by the federal Department of Housing and Urban Development (HUD) or accept Section 8 certificates:

- La Casa Novato, located at 450 Entrada, Ignacio, contains 10 units for the elderly and disabled.
- Nova-Ro I Apartments, located at 1128 Olive Avenue, Novato, contains 30 units for the elderly.

- Nova-Ro II Apartments, located at 1130 Seventh Street, Novato, provides 56 units for the elderly.
- The Meadows, located at 1514 Hart Court, Novato, provides 20 units for the elderly and families.
- Marion Park Apartments, located at 1725 Marion Avenue, Novato, contains 34 units for the elderly, disabled, and families.
- Mackey Terrace, located on Owens Drive in Novato, contains 50 units for low-income seniors.

Community Care Homes

Community care homes are residential facilities that provide protective oversight but are not licensed as nursing homes. They provide room and board, housekeeping, personal hygiene care, and short-term basic bedside care for temporary illness. Some of the facilities may accept individuals with marginal resources, through Social Security and/or any State supplementary payments. Community care homes in Novato include:

- Crestwood, 1705 Center Road
- Family Manor, 830 Tamalpais Avenue
- Lensvelt Home, 2771 Center Road
- Maribel's Villa, 270 Fairway Drive
- Marin Pines, 625 Louise Avenue
- S. Alexander's Haven, 120 Kaden Drive
- St. James Residence, 1942 Center Road.

Retirement Homes

Retirement homes provide housing and special services for retired people. There are two retirement residences in Novato:

Deer Park, located at 646 Canyon Road, and Tamalpais Creek Retirement Community, located at 853 Tamalpais Avenue. Deer Park provides rooms, meals, and housekeeping services but no personal care assistance for seniors who are disabled. Tamalpais Creek does have units where personal care (also known as residential care or board and care) is also provided.

Convalescent Hospitals

Convalescent hospitals provide long-term, 24-hour nursing services or short-term respite care for the elderly, the chronically ill, or convalescing patients. The Marin County Department of Health and Human Services provides assistance and information to those needing help in planning for convalescent care. There is only one convalescent hospital in Novato, the Novato Convalescent Hospital at 1665 Hill Road. *Novato General Plan*

Parks and Recreation, Trails, and Cultural Facilities

The City of Novato owns over 59 acres of developed parks and 169 acres of undeveloped future park lands The 700-acre Olompali State Historic Park, north of the District and west of Highway 101, was established in 1981. The park contains sites once occupied by the Coastal Miwok people, as well as the Burdell House, which was built in the 1860s. The Olompali State Historic Park General Plan, adopted by the State Park and Recreation Commission in 1988, calls for improvements to historical resources and trails. Capacity of the park is currently limited to 225 visitors at any one time because of parking availability.

Table 20 - Publicly Owned Developed and Undeveloped Parks in Novato

Park Site	
Developed Parks	**Number of Acres**
Hill Recreation Area	13.00
Hillside Park (Aaron & Highland)	1.00
Pioneer Memorial	8.75
Josef Hoog	9.94
Miwok	6.14
Marin Highlands	4.07
Slade	3.10
Marion/Stafford Grove	2.75
Lee Gerner	1.88
Arroyo Avichi	0.58
Bahia Mini Parks (6)	1.00
Partridge Knolls	0.50
Olive/Elmwood	0.25
Joyce Street	0.25
Pansy Tong Lo	0.75
Robinhood	0.25
Pacheco Valle/Creekside	4.65
Fairway - Alameda	0.30
Total - Developed Parks	**59.16**
Undeveloped Parks	
O'Hair/Fuchs	100.00
Lynwood Hill	13.30
San Andreas Park Site	4.43
Scottsdale Pond and Marsh	40.63
Pacheco Valle	2.37
Park Novato	1.30
Pell	0.88
Terry Circle	0.60
Spyglass Park	1.00
Hamilton Parks	4.50
Total - Undeveloped Parks	**69.01**
Total Park Acreage	**228.77**

Source: Community Profile, 1994, City of Novato

Novato has many cultural facilities which include The Marin Museum of American Indian located at 2200 Novato Boulevard. The museum focuses on all of the Native American cultures on our continent, especially the Miwok Indians. The museum includes many exhibits and hands on displays.

The Novato History Museum, located at 815 Delong, is in a Victorian home built in 1850. The museum provides an overview of Novato's history. The Hamilton Field History Museum is under construction and will showcase the significant impact of Hamilton Air Force Base on Novato and California. The museum is housed in an abandoned firehouse constructed in 1934, one of two servicing the airbase. The Novato Theatre, located at 924 Grant Avenue, opened in 1946 and replaced the Pini Mercantile building that was destroyed by fire. The Novato Theatre Restoration plan will transform the defunct movie theatre into a performing arts center for live performances including music, dance, theatre, and film. *City of Novato Community Profile 1994*

Neighborhood Parks

Neighborhood parks generally are located near the center of neighborhoods. Many of the facilities located within neighborhood parks are associated with active recreation. Neighborhood parks should contain consolidated parcels with appropriate area devoted to active recreation such as ball fields, recreation centers, multi-purpose fields and open turf, game courts, tot lots, picnic facilities and on-site parking.

Mini-Parks

Mini-parks are small, passive, local parks generally less than one acre in size. Most mini-parks are established in higher density areas as a substitute for backyards. Size and location are usually determined by the availability of vacant land.

Number & Types of Buildings Subject to Flood Hazards

For purposes of this Repetitive Loss Plan, only those areas of the City where structures have historically suffered damage from flooding shall be considered. Specifically, these areas are designated as Zone AO (Depth 1& 2) and AE (Elev. 7-19) and are located immediately upstream of the confluence of Novato, Warner and Arroyo Avichi Creeks.

The above areas compromise a total of approximately 248 acres containing approximately 650 parcels. The majority of these parcels contain single-family residences. Approximately 10% of the parcels are occupied by businesses, including small business offices, retail buildings and strip malls. To our knowledge, none of these structures contains a basement area.

Section III - Mitigation Strategies

Part 6 – Goals

General Flood Mitigation Goals have been identified as follows:

- To reduce flooding and flood insurance costs by raising the City of Novato's CRS Program rating. The City of Novato entered the CRS Program with a class 9 rating. Class 10 is the lowest. Each CRS rating class is worth a 5 percent discount off flood insurance premiums. Novato attained a CRS Class 7 rating in 2000, which means that each of the City's 1,300+ flood insurance policyholders now enjoys a 15 percent discount off their annual premiums. In 1999, these savings totaled approximately $80,000 for the $177 million of flood insurance in force. (Novato Public Works Department)

- To identify beneficial flood prevention mitigation for short and long term implementation by working with the City staff, the public and interested stakeholders.

- To educate the public on the implementation of individual flood mitigation strategies to reduce flooding and protect their lives and property.

- To educate the public and business community on flood risk in the City of Novato and the availability of Flood Insurance assistance.

The majority of structures in the City's Repetitive Loss Area were constructed in the 1950s, before the City's incorporation in 1960. These structures, predominantly residential, were not required to meet the stringent flood zone restrictions that exist today. Homes in this area are valued in the mid price range for Marin County/.

In April, 1981, the Department of the Army Corps of Engineers, San Francisco District, published a Review Report for Flood Control on Novato Creek. The report investigated six alternatives for channel improvements on both Novato and Warner Creeks, examined in detail the environmental and economic aspects of each plan. The Corps of Engineers concluded that "…All of the alternative plans investigated for flood control on Novato Creek were found to be environmentally and/or economically infeasible and not in the Federal interest to pursue further…"

The Repetitive Loss Plan approved by the Novato City Council, serves as the Flood Hazard Mitigation program for structures located in the Flood Hazard Area (FHA). It reviewed the possible Flood Hazard Mitigation Activities and concluded that Public Education and Emergency Response were the only activities that the City could afford to offer at the time. The City anticipates that an informed public will be motivated to protect their vested interest in their property, if at all possible, and within reason. Public education and public involvement in Mitigation Planning contribute significantly to this Plan as described earlier.

The most effective long-term opportunity to mitigate the flood hazard in the Repetitive Loss Area is to elevate those existing older structures as they are renovated by their owners. Current City regulations reflect this.

Part 7 - Possible Activities

Preventative

Building, Planning, Zoning Ordinance limit the use and development flood-prone areas. The City's Streets Maintenance Division follows a comprehensive drainage system inspection and maintenance program throughout the year. At the beginning of winter rainy season, and whenever significant storms are predicted, historically hazardous drainage ways are quickly inspected to ensure that they work with Flood Control. The MCFC&WCD performs periodic maintenance dredging on the lower reaches of Novato Creek in order to maintain channel capacity.

Property Protection

City staff has identified all 34 repetitive loss properties and continued the auditing process for these properties. All repetitive loss property owners will receive information on flood preparedness and how to reduce flood losses.

The City continues to provide residents located within designated floodplain areas with annual notices. This notice is published annually in Novato's Activity Guide, which is mailed to all Novato residences. The notice provides information regarding protective measures to minimize flood damage to their property.

Natural Resource Protection

The City's Stormwater Best Management Practices (BMP) Ordinance is enforced to ensure onsite erosion and sediment control, which serves to enhance wetlands protection.

Emergency Services

City staff regularly meets with local emergency service authorities and implement storm and flood prevention and maintenance operations for the coming rain season (See Attachment D). The City continues to implement the current flood-warning program via Radio AM 530 and Storm Patrol operations, which is part of the Emergency Response Plan that meets the State's Standard Emergency Management System (SEMS) requirements. The Public Notice provides information on available flood-emergency services.

The City of Novato has hired an Emergency Services Manager who is actively participating in floodplain management activities such as flood-warning, flood response, critical facilities protection, and health and safety maintenance. The City continues to provide sand, sandbags and sand bagging procedures to residents to flood proof or impede floodwaters from entering their properties as part of the routine storm and flood operations.

Structural Projects

The City has a capital improvement program that progressively addresses flooding in all areas of Novato. Recently completed projects include the Cherry Street Drainage Project (at Highway 101) and the Diablo Avenue Drainage Improvements (near Warner Creek and Center Boulevard). The Rush Creek drainage project (Sweetser Ave. to Olive Ave. along the railroad right-of-way) is currently in the design phase with construction anticipated for 2008-2009 pending final funding. The Rush Creek drainage improvements will reduce flooding in the downtown on lower Grant Ave, Reichart, Sweetser and Vallejo.

Both the Marin County Flood Control District and the City of Novato are constructing a flood control project Vineyard Creek near Center Road. To increase channel capacity and reduce flood levels. The project includes channel grading, bank stabilization, and a bridge retrofit. Deepening of channel, stabilizing bank, smoothing out flow, purchasing land for easements along areas of Novato Boulevard are being discussed to support Marin County Flood Control Projects. Other future projects include the Kenden Lane Drainage, Partridge Garden Drain Repair, and Railroad Bridge Dredging.

Public Information

The City has continued to acquire current FEMA forms and literature and has made this information available to the public in all our City Facilities. We have also installed 75% of our drainage information on our GIS AutoCAD files. Web based GIS application is available to all City Staff and public via our Intranet. The application includes the current FIRM maps including all LOMA's and LOMAR's. Property can be queried through any number of ways to determine if it is within a Special Flood Hazard Area. This includes drainage structures, pipes outfalls and other drainage facilities for both City and the County of Marin. This resource provides instant information about public and private drainage systems for quick reference.

Natural Resource Protection

Wildlife, Vegetation, and Habitats

The Novato Area of Interest contains a wide range of plant and animal communities, including:

Diked Baylands, which are those lands that were historically tidal marsh and were diked for agricultural use. These lands contain seasonal wetlands and some sloughs, which have important habitat value. These lands also filter runoff to the Bay thereby improving water quality, and they serve as ponding basins for runoff.

Saltwater and Brackish Water Marshland, found along the lower reaches of Novato Creek, the Petaluma River, and the shoreline of San Pablo Bay, where fresh water mixes with Bay saltwater. The marshes in the area, in combination with other marshland communities in the San Francisco Bay Area, represent by far the largest estuary still existing along California's coastline, and provide essential resting, feeding, and wintering habitat for millions of birds of the Pacific Flyway extending from Canada to Mexico, as well as providing habitat for a range of species.

Freshwater Wetlands, which are found where fresh stream water or storm water runoff permanently or seasonally inundates low-lying areas. Freshwater wetlands are typically among the most productive wildlife habitats in California, supporting a variety of birds, small mammals, reptiles, and amphibians.

Riparian Habitat, which is found along the upper portions of Novato Creek and its tributaries. The complex structure and diversity of vegetation within riparian areas, as well as their close proximity to water, creates an extremely productive habitat for numerous mammal, bird, and reptile species. Riparian habitat is scarce because it only forms along watercourses and lakes, and because in California much of this habitat has been lost to agricultural uses, urbanization, and channelization for flood control. Shade provided by trees along watercourses helps maintain cooler water temperatures, retarding algae growth and enhancing fish habitat.

Oak Woodlands, are found on north-facing slopes and in canyons and ravines on more exposed, slopes. In the Novato area, the proximity of oak woodland to open grassland and riparian habitat provides shelter and cover located close to feeding areas. This promotes a great diversity of wildlife, including a wide variety of animal, bird, reptile, and insect species. There are also forested areas, including redwood groves, within the oak woodlands.

Grassland/Oak Savannah, in drier upland areas, interspersed with oak woodland, in the northern portion of the area. Most oak savannah lands in the area have been developed with urban uses, and few oaks have survived. The deep root system of oak trees makes the savannah community particularly valuable for erosion control on slopes that otherwise support only grassland.

Agricultural Land, in valley areas and bayside plains that have been leveed. Important agricultural crops grown in the area include nut crops, vineyards, fruit orchards, and field crops. Agricultural land can also provide valuable wildlife habitat, including critical habitat for migrating waterfowl and shorebirds during the winter. The State Department of Conservation has classified much of Novato's agricultural land, particularly bay front land, as Farmland of Local Importance (i.e., land currently in agricultural production that meets the criteria for Prime Farmland or Farmland of Statewide Importance, but is not irrigated). Some lands along the Bay produce oat hay, an important animal food source for ranches in Central and West Marin.

Urban Landscaped Areas, concentrated in the Novato Valley where they occupy former grassland, oak woodland, and savannah areas. Exotic trees, shrubs, flowers, and vegetables in these areas have replaced native plants, providing habitat for many birds, rodents, mammals, reptiles, and insects.

Wetlands

Wetlands in the area include saltwater and brackish water-marshland, and freshwater wetland. The marshes and much of the freshwater wetlands habitat are part of the San Francisco Bay Estuary. Saltwater marsh communities occur in the upper inter-tidal zone of protected shallow bays, estuaries, and coastal lagoons. Brackish-water marshes occur at the mouth of large streams, which enter northern San Pablo Bay, creating a gradual transition zone between salt marsh and riparian vegetation communities.

Marshlands are very productive ecosystems which provide food, cover, nesting and roosting habitat, generate organic matter to fuel aquatic food chains, and function as natural flood control and pollution filtration systems. The bayside plains adjacent to Novato Creek east of Highway 101, and those along the lower reaches of the Petaluma River and Miller Creek, are subject to tidal action and support saltwater marsh and brackish-water marsh biotic communities.

Many of the wetlands in the Novato area are seasonal freshwater wetlands occurring in areas that were once part of the Bay and have been diked off to provide agricultural land. Freshwater wetlands are typically among the most productive wildlife habitats in California. Their functions include providing food chain support, providing habitat for waterfowl, fish, and other wildlife, and moderating hydrologic processes.

Ridgelines and Other Scenic Resources

Ridgelines surrounding Novato generally enhance the community's visual resources. Mt. Burdell, located north of the City of Novato, is a significant landmark in the open space network surrounding the District. Pinheiro Ridge functions as a ridge and upland greenbelt separator between the Atherton area and Gnoss Field. Big Rock Ridge, with a high point of about 1,400 feet, forms the western and southern edge of the Area of Interest, with an eastward extension to San Pablo Bay separating Hamilton Field from the St. Vincent's Silveira property. A series of canyons stretches into the western edges of the Area of Interest, following creek corridors. Small ridgelines also have a role in providing visual barriers from one residential area to another. Other scenic resources are hillsides, Bay plains, and Bay shorelines. Hillsides, whether open and grassy like southern Mt. Burdell, or heavily wooded, provide a backdrop for developed areas. Bay plains provide expansive views to the east and south and are important to maintain the scenic qualities along Highways 101 and 37. The Bay shoreline is a scenic resource that would be of greater value if more public access were provided.

Open Space for Environmental Protection

In 1972, Marin County voters established the Marin County Open Space District and approved the assessment of a property tax for the purpose of acquiring and managing open space in the County. The District works cooperatively with federal agencies, the State Parks Department, and local communities to acquire open space in the eastern part of the County. Open space areas in the Novato area that are identified in the Marin Countywide Plan include:

Community Separators

Big Rock Ridge, separating the Novato basin from the Lucas Valley/Marinwood Communities, extending to Stafford Lake Park and bordering the Indian Valley Campus. (6,400 acres, of which 4,512 have been publicly acquired.)

Hills East of Highway 101 south of Hamilton Field, separating Novato from the St. Vincent's property and extending to San Pablo Bay. (1,070 acres, of which 263 are publicly owned.)

Pinheiro Ridge, the northern boundary of urban development east of the freeway, separating the Atherton area from Gnoss Field. (970 acres, of which 109 are publicly owned).

Mount Burdell, a major landmark of North Marin. (1,400 acres, all publicly owned. The Olompali State Historic Park borders to the north.) Water Edge Lowlands

San Pablo Bay Front, extending from Gallinas Creek to Novato Creek and containing McInnis County Park. (1,850 acres, 788 in public ownership.)

Novato Creek to Black Point, including the entire tidal marsh and flood ponding area. (1,808 acres, publicly owned.)

Petaluma River (950 acres, of which 196 acres of wetlands between Rush Creek and Basalt Creek are publicly owned.)

Deer Island Open Space Preserve (120 acres northeast of the intersection of Novato Creek and Highway 37, owned by the Marin County Open Space District.) Stream and Creek Reserves

Arroyo San Jose, extending through the Novato Golf and Country Club and Rafael Village.

Novato and Warner Creeks, among the few remaining natural streams in East Marin.

The City of Novato also owns approximately 200 acres of open space, obtained through acquisition or dedication, and located throughout the City. There is approximately 4,000 acres of open space land in public ownership (state, county, and city) in the City limits with another 1,000 acres in the Sphere of Influence.

Hamilton Field, Hamilton is a planned Novato community in northern Marin County, California and is one of the first communities of its kind in the Bay Area. The community is on the site of the former Hamilton Air Force Base and is now a blend of both neighborhoods and commercial developments.

Novato Community Partners, a partnership of Shea Homes and Centex Homes, are developing the former Hamilton Field Navy Properties at Rafael Village (along Ignacio Boulevard) as well as the Capehart and Hillside Housing developments on the base itself. The former Rafael Village site is market rate housing and the former Capehart/Hillside site is a mixture of affordable, workforce housing. Site work at both sites continues. Models at the former Rafael Village were completed in early, 2002, with homes selling by mid-2002.

Part 8 - Action Plan

Ongoing Programs & Actions

The following activities include ongoing programs, future projects and programs to reduce flooding impacts in the City of Novato. Most of these activities were identified in the DMA 2000 Plan. These activities have been prioritized into six floodplain management categories.

Preventative

- The City Engineer's staff enforces flood plain management, ordinances and applies all flood plain requirements in its flood hazard areas. Additional support is received from the Planning staff and from the City's Code Enforcement staff.
- The City Public Works Maintenance Superintendent's staff and contractors inspect the Hamilton levee and associated flood control pump stations on a regular basis.
- The City practices balancing housing needs of residents against the risk from potential flood related hazards by enforcing flood plain management and building and code requirements.
- The City works closely with real estate developers to ensure the enforcement of real estate disclosure requirements and the resources to keep those disclosures current.
- The Public Works Director will participate in the completion of the County's Watershed Stewardship Plan.
- The Publics Works Director will update the Novato Drainage Master Plan.

Property Protection

- The City encourages and requires some homes and apartments to implement home elevation projects, particularly with new construction.
- The Floodplain Administrator will mail FEMA literature to property owners and residents in the SFHA to assist in educating the public about property protection.

Natural Resource Protection

- The Planning Director ensures that projects comply with the California Environmental Quality Act.
- The Community Development Director requires a Stream Management Plan for projects near a watercourse to minimize adverse impacts to riparian resources and flood levels.
- The City has a comprehensive watershed maintenance and pollution control plan.

- The Stormwater Coordinator will implement a tracking system to facilitate review of stormwater control facility installed by private developments to ensure any stormwater quality and flood control benefits are retained.

Emergency Services

- The City Public Works Maintenance Superintendent's staff provides emergency flood control resources such as plastic sheeting and sand bags to businesses and residents during emergencies.

- The Public Work Director will ensure that they key personnel are trained in flood response techniques.

Structural Projects

- The Community Development Director charges developer fees to provide for the construction of drainage improvements.

- The City Engineer will meet annually with all agencies involved in Marin County Flood Control projects.

Public Information

- The Floodplain Administrator addresses repetitive losses and continues to participate in the CRS Program.

- The Floodplain Administrator informs its employees and citizens of risks related to the hazards in City of Novato.

- The City has public information program that encourages citizens to keep storm drains free of debris.

- The City maintains an up to date and accurate GIS mapping system for use in planning and practices within the City.

- The City conducts storm drain public information programs to prevent clogging of the drains and hazardous materials pollution.

The above activities were prioritized based on the following factors:

1. Ensure the activity is feasible and affordable

2. Ensure that the benefits outweigh the costs

3. Reduce repetitive loss

Action Plan

Each activity was evaluated based on the above criteria. The following five action items was selected with the first four being top priorities.

1. The Public Work Director will ensure that they key personnel are trained in flood response techniques. Training for emergency services will be attended by appropriate staff from Public Works, Police, and Fire.

Action: Provide Training by February 2009

Budget: Staff Time (operating funds)

2. The Stormwater Coordinator will implement a tracking system to facilitate review of stormwater control facility installed by private developments, to ensure any stormwater quality and flood control benfits are retained, and that the protection of the natural resources is maintained.

Action: Implement CRW Program for tracking by July 2009.

Budget: Staff Time and Permit Automation Surcharge Account

3. The City Engineer will meet annually with all agencies involved in Marin County Flood Control projects. These meetings will include attendance at County Flood Control Zone 1 Advisory Board meetings to ensure that structural projects are considered.

Action: City Engineer or designee to attend meetings in 2008/2009.

Budget: Staff Time (operating funds)

4. The Public Works Director will participate in the completion of the County's Watershed Stewardship Plan. The Plan's multi-benefit projects will address preventative measures to mitigate flood impacts.

Action: Present comments to county staff for plan approval by December 2009.

Budget: Staff Time (operating funds)

5. The Floodplain Administrator will mail FEMA literature to property owners and residents in the SFHA to assist in educating the public about property protection.

Action: Floodplain Administrator will mail FEMA literature by July 2009.

Budget: Stormwater Fund

Marin County Flood Control District

Actions on Record

BOARD OF SUPERVISORS OF THE MARIN COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

RESOLUTION NO. 70-328

RESOLUTION ESTABLISHING POLICY WITH REGARD TO
DRAINAGE SYSTEMS IN FLOOD CONTROL ZONE #1

WHEREAS, Section 68-8 of the Marin County Flood Control and Water Conservation District Act is the authority for establishing policy with regard to drainage systems within the District; and

WHEREAS, the District must direct its efforts and resources in the most efficient manner possible;

NOW, THEREFORE, BE IT RESOLVED, THAT:

1. The District intends to consider the drainage systems delineated in Exhibit "A" attached, and by this reference incorporated herein, as being the major drainage systems within Flood Control Zone No. 1; and

2. The District shall direct its primary efforts and resources toward the efficient control of these systems.

PASSED AND ADOPTED at the regular meeting of the Board of Supervisors of the Marin County Flood Control and Water Conservation District held on the 22nd day of September, 1970, by the following vote:

AYES: SUPERVISORS William A. Gnoss, Peter R. Arrigoni, Michael Wornum, Louis H. Baar

NOES: SUPERVISORS -

ABSENT: SUPERVISORS John F. McInnis

Attachment: Exhibit "A"

PRO-TEM Chairman, Board of Supervisors
of the Marin County Flood Control
and Water Conservation District

ATTEST:

Clerk

EXHIBIT "A"

The major drainage systems and their limits for which the Marin County Flood Control and Water Conservation District shall direct its primary efforts and resources pursuant to this resolution are as follows:

Name of Drainage System	Limits of Drainage System
Novato Creek	San Pablo Bay to its origin
Simmons Slough	Confluence with Novato Creek to Olive Avenue
Arroyo San Jose	Confluence with Novato Creek to its origin
Pacheco Creek	Confluence with San Jose Creek to its origin
Ignacio Creek	Confluence with San Jose Creek to its origin
Cheda Creek	Confluence with Novato Creek to South Novato Blvd.
Lynwood Slough	Confluence with Novato Creek to South Novato Blvd.
Arroyo Avichi	Confluence with Novato Creek to its origin
Warner Creek	Confluence with Novato Creek to Rena Court
Wilson Creek	Confluence with Warner Creek to its origin
Vineyard Creek	Confluence with Warner Creek to its origin
Simmons Creek	Confluence with Novato Creek to its origin
San Marin Creek (East) San Marin Creek (West)	Confluence with Novato Creek to its origin
Bowman Creek	Confluence with Novato Creek to its origin
Petaluma River	San Pablo Bay to Black John Slough
Black John Slough	Confluence with Petaluma River to its origin
Rush Creek	Confluence with Black John Slough to Sweetser Avenue

Name of Drainage System	Limits of Drainage System
Basalt Creek	Confluence with Rush Creek to State Highway 101
Reservoirs (General)	All Reservoirs and their outlet channels
Miscellaneous Systems	All land which is below elevation 7 (MSL) and all facilities which require pondage and/or pumping

Past City of Novato Flood Projects

Grant Avenue Improvements Between Seventh Street and Scott Court

Project No.: 93-012 **Base Code: 431**

Complete

Project Objective: To reconstruct pavement and damaged sidewalks and improve Downtown Novato's main street as indicated in the adopted Downtown Specific Plan and utilizing available funding.

Project Description and Background: The project involved Grant Avenue from Scott Court to Seventh Street. With the input of the Council, the public and staff during project development, different levels of improvements were identified and are being undertaken in accordance with available funding. The project improvements are as indicated in the Downtown Specific Plan and the various grants for the project. These improvements include new storm drains, new street paving, new sidewalks, "bulb-outs" at intersections, historic-style light standards, street furniture, transit center shelter improvements on Redwood Boulevard, and new street trees. The City has applied for a low interest loan with the California Infrastructure and Economic Development Bank (CIEDB). The CIEDB program, available through the Department of Commerce, provides loans for qualified economic development projects. Two Measure "B" candidate streets for pavement rehabilitation, Logan Street and Scorn Lane, have been added to the project as they are in the immediate project area.

Basis for Cost Estimate: Construction costs are actual constructed amounts and estimates to close out the project. Project Development costs are actual and Construction Management costs are a combination of actual costs and estimates to complete the project.

Basis for Schedule: The design process started in 2000. The concept design was completed in late November 2001 and involved an extensive community participation process. The construction schedule and staging has received careful attention, including tight contract time limits and thorough investigation of underground utilities. Construction was completed in early June 2005 final project costs to be determined after staff completes documentation for grant funding and billing.

Revenue Considerations: Measure "B" per the engineer's report. CIEDB Loan. Development Impact Fees per the 1999 and 2002 updates. State Transportation Improvement Program, Transportation for Livable Communities and Surface Transportation Program (additional cycle 1) grants. Loan from the Vehicle and Equipment Replacement Fund is being reduced by $370,182 and the Community Center Performing Arts Fund is being removed due to other added funding. Utility reimbursements are being increased to reflect the total amount received. Redevelopment Agency (RDA) contribution of $1,038,186.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	1,996,756						1,996,756
Acquisition	420	1,345						1,345
Construction	430	7,217,835						7,217,835
Construction Mgt	440	808,399						808,399
Equip/Furnish	450							0
TOTAL		10,024,335	0	0	0	0	0	10,024,335

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Bond "B" (307)	410	235,135						235,135
Bond "B" (307)	430	255,517						255,517
Bond "B" (307)	440	265,564						265,564
CIEDB Loan	410	54,350						54,350
CIEDB Loan	430	3,645,650						3,645,650
Dev Impact-Civic (327)	430	4,371						4,371
Dev Impact-Civic (327)	440	219						219
Dev Impact-Drainage (327)	410	46,097						46,097
Dev Impact-Drainage (327)	430	166,637						166,637
Dev Impact-Drainage (327)	440	18,701						18,701
Dev Impact-St/Int (327)	410	79,169						79,169
Dev Impact-St/Int (327)	420	1,345						1,345
Dev Impact-St/Int (327)	430	422,722						422,722
Dev Impact-St/Int (327)	440	56,599						56,599
Equip/Vehicle Repl Loan (605)	410	508,885						508,885
Gas Tax (272)	410	255,156						255,156
Gas Tax (272)	430	0						0
Gas Tax (272)	440	22,669						22,669
Res Rev (325)	410	2,052						2,052
RDA Contribution (400)	410	685,912						685,912
RDA Contribution (400)	440	352,274						352,274
STIP Grant	410	130,000						130,000
STIP Grant	430	500,000						500,000
STP Grant	430	250,000						250,000
SB 300 (271)	410	0						0
TLC Grants	430	1,130,000						1,130,000
Utility Reim	430	842,938						842,938
Utility Reim	440	92,373						92,373
TOTAL		10,024,335	0	0	0	0	0	10,024,335
CARRYOVER		(0)						

Simmons Lane Pedestrian Bridge Replacement and Rehabilitation

Project No.: 96-003 **Base Code: 431**

Construction

Project Objective: To replace nonstandard guardrails and the two separate bicycle/pedestrian bridges that span Novato Creek alongside Simmons Lane. The existing concrete vehicular bridge will be widened to meet Caltrans minimum design standards in order to qualify for federal highway safety funding. To rehabilitate the existing pavement on Simmons Lane between Novato Boulevard and Kristen Lane.

Project Description and Background: This project was selected for funding on 5/5/95 by Caltrans Highway Bridge Replacement and Rehabilitation (HBRR) program. The City Council approved the project concept plan in 4/99. Environmental clearance was obtained in late September 2004. Final design is complete and construction is scheduled for August 2006. Right of way acquisition was completed. The City's environmental consultant obtained the necessary construction permits to work in Novato Creek. Measure B street, Simmons Lane, was added to this project for ease of construction and cost savings. The project widened the existing vehicle bridge to provide separate facilities for bicycles and pedestrians and a bridge rail that will prevent vehicles from accidentally entering Novato Creek.

Basis for Cost Estimate: Project Development and Construction costs are actual. Construction management costs are a combination of actual and estimates to finalize the project.

Basis for Schedule: Construction was completed in the January of 2007.

Revenue Considerations: Federal funding will covered 80% of the eligible project development and right-of-way costs and 88.53% of eligible construction and construction management costs. Measure B funding covered pavement rehabilitation costs on Simmons Lane. Development Impact Fees Transit Bicycle covered the required matching bridge costs since the widening provided a separate bicycle facility on the bridge. SB300 funding is being removed.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	200,628.25						200,628
Acquisition	420	21,580.77						21,581
Construction	430	987,820.09						987,820
Construction Mgt	440	110,669.80						110,670
Equip/Furnish	450	0.00						0
TOTAL		1,320,698.91	0	0	0	0	0	1,320,699

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Bond "B" (307)	410	20,789						20,789
Bond "B" (307)	430	257,274						257,274
Bond "B" (307)	440	26,321						26,321
DIF Tran/Bike (327)	410	21,890						21,890
DIF Tran/Bike (327)	420	4,317						4,317
DIF Tran/Bike (327)	430	81,957						81,957
DIF Tran/Bike (327)	440	10,828						10,828
HBRR Grant	410	142,906						142,906

Olive Avenue Improvements, Phase III
Between Redwood Boulevard and Railroad Avenue

Project No.: 97-001 **Base Code: 431**

Funded

Project Objective: To improve the sight distance across the railroad tracks and to rehabilitate the pavement along Olive Avenue between Redwood Boulevard and Railroad Avenue.

Project Description and Background: This project was shown as a priority in the Measure "F" campaign literature, but full funding was not available since the expected costs exceed available balances. The northerly side of Olive Avenue improvements between Redwood Blvd and the railroad tracks will be constructed by the developer of the property at the northeast corner of Redwood Boulevard and Olive Avenue. The City project will rehabilitate the pavement not done by the developer, improve the sight distance, while providing a smoother transition across the railroad tracks, and drainage enhancements. Drainage enhancements will include a new storm drain that will cross under the railroad tracks, include abandonment of the existing crossing, replacement of corrugated metal pipe storm drain, and installation of a storm water treatment outfall structure in accordance with storm water quality standards. Widening the railroad crossing, rebuilding the tracks across Olive Avenue, and replacing the storm drain crossing, will require negotiations with the Sonoma Marin Area Rail Transit (SMART), owners of the tracks. The rebuilding of the railroad tracks may be accomplished by SMART if they receive funding and their construction occurs prior to the City's project.

Basis for Cost Estimate: Project development costs are based on actual amounts and an estimate to complete the design. Construction costs are based on a preliminary estimate of contract quantities and recent bid prices, and do not include costs to rebuild the tracks across Olive Avenue for the high speed rail that is estimated to be $160,000. Construction management costs are composed of estimates for inspection and material testing. Once development is confirmed, this project's scope and costs will be re-evaluated.

Basis for Schedule: Project development is far enough along to allow the City to coordinate the design of the railroad crossing with the development's frontage improvements. The project will be on hold until the developer moves forward with their improvements. The project is tentatively scheduled for construction in the spring/summer of 2009 to follow the developer's construction. The project will be constructed with the Traffic Signal project (02-011) at the Redwood Blvd and Olive Avenue intersection.

Revenue Considerations: Gas Tax is the main funding source for this project. Clean Storm Water and Development Impact Fees Drainage are being added to fund the drainage improvements. Clean Storm Water will funds be used for the storm water treatment outfall structure. Federal or State grants will be sought for the railroad crossings improvements.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	36,704	53,090					89,794
Acquisition	420	0						0
Construction	430	0	182,076	364,151				546,227
Construction Mgt	440	0	22,090	44,181				66,271
Equip/Furnish	450	0						0
TOTAL		36,704	257,256	408,332	0	0	0	702,292

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Gas Tax (272)	410	80,000	(13,591)					66,409
Gas Tax (272)	430	0	134,171	268,342				402,513
Gas Tax (272)	440	0	16,333	32,667				49,000
Clean Storm Water (321)	410	0	9,789					9,789

Storm Drainage Master Plan

Project No.: 98-008 ***Funded*** **Base Code: 431**

Project Objective: Continue work on the City of Novato's Storm Drainage Master Plan in conjunction with current pollutant discharge elimination programs (NPDES, MCSTOPPP, BMP).

Project Description and Background: The initial master plan work was done during 1986-89 and supported the Measure "F" bond funding component for storm drainage improvements. The focus at that time was to identify areas where existing local storm drains (as opposed to Flood Control District facilities) warranted upgrades in capacity to convey design flows. New work includes compiling all the previous work done, into a comprehensive computerized model of the Novato basins studied previously. Also, mapping will be produced to aid the Clean Storm Water program and the drainage component of the Development Impact Fee program.

The information obtained will be integrated with the existing storm drain inventory. The work product will also focus on the creation of a GIS database which will serve as a key to "facilities management" work in the City of Novato with respect to the NPDES mandate requiring the monitoring of flows throughout the City's network of storm drains.

The Master Plan work will assist creek inspections and pollution complaint investigations. The maps produced will show all pipe outfalls into creeks and will help fulfill the outfall monitoring task required by the "Goals 2000" Clean Storm Water Program (MCSTOPPP).

Basis for Cost Estimate: Costs are based on actual expenditures and estimates for annual and ongoing work by staff and/or consultants to complete the master plan.

Basis for Schedule: Completion of the master plan is scheduled for FY 09/10. Staff will work with the NPDES and MCSTOPPP programs, in conjunction with the current point discharge pollutant elimination program, to formulate a treatment program and monitoring system useful to all agencies. Due to work loads on other higher priority projects, staff hired a consultant for portions of the master plan.

Revenue Considerations: The use of Clean Storm Water and Development Impact Fees (DIF) Drainage funds, will be utilized to perform the project objectives. The storm drain master plan update was a needed drainage improvement in the Development Impact Fees for Public Facilities 2002 Update. DIF fund allocations are limited to 20.2% and require the remaining balance to be composed of other City funds.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	14,244	42,878	42,878				100,000
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		14,244	42,878	42,878	0	0	0	100,000

Rowland Boulevard/Rowland Way Intersection Capacity Improvements

Project No.: 98-025 **Base Code: 431**

Funded

Project Objective: The project will develop a project study report with a preferred alternative to improve this critical intersection. The project will be expanded after adoption of the study report to include construction of the identified improvements.

Project Description and Background: Possible project components may include (1) traffic engineering analyses to determine viable alternatives for intersection improvements; (2) actual traffic engineering and civil engineering design work; and (3) construction of a preferred alternative to address the needs of the intersection.

Basis for Cost Estimate: Project costs will not be totally known until viable alternatives are developed. The project will require a traffic engineering consultant to identify viable alternatives to improve this critical intersection. Construction estimates will also be developed at that time.

Basis for Schedule: The schedule is indefinite pending selection of a preferred alternative and resource assurances as described below. May be combined with Development Impact Fee Streets and Intersection project 06-002 for construction depending on availability of funds.

Revenue Considerations: The only revenue source is a $50,000 restricted revenue deposit (plus accrued interest) paid in June 1988 to make traffic signal improvements required of the Rowland 101 Properties, (the developer of the Rowland Plaza Project). The initial signalization work at this intersection was completed by the Vintage Oaks shopping center project. This fund source will be used to develop project alternatives to improve traffic flow and capacity at this intersection. Developer contributions will also be required of the proposed Hanna Ranch project that will impact this intersection.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	1,614	22,830					24,444
Acquisition	420	0						0
Construction	430	0		122,220				122,220
Construction Mgt	440	0		12,222				12,222
Equip/Furnish	450	0						0
TOTAL		1,614	22,830	134,442	0	0	0	158,886

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Res Rev- Row 101 Pro(3	410	144,606	(120,162)					24,444
Res Rev- Row 101 Pro(3	430	0		122,220				122,220
Res Rev- Row 101 Pro(3	440	0		12,222				12,222
TOTAL		144,606	(120,162)	134,442	0	0	0	158,886
CARRYOVER		142,992						

Commuter Bike Connection (Westerly Side of Highway 101, Enfrente Road to South Novato Boulevard)

Project No.: 98-028 **Base Code: 431**

Funded

Project Objective: Complete a gap in the bicycle facilities between South Novato Boulevard and the Ignacio/Bel Marin Keys neighborhoods.

Project Description and Background: The project will construct a Class I bike path from Redwood Boulevard to Enfrente Road. A portion of the bike path from Redwood Boulevard to the Caltran's on-ramp was built with the City's South Novato Boulevard Improvements between U.S. 101 and Rowland Boulevard. The remaining portion will parallel the on-ramp and freeway and will replace the existing two-way bike path along the shoulder of the on-ramp and freeway. The remaining portion along the on-ramp and freeway requires Caltrans coordination and approval in conjunction with the Sonoma Marin Narrows freeway project which will include improvements to the on-ramp from South Novato Boulevard. The Construction has been delayed several times due to Caltrans not being far enough along in their design on the freeway project to approve the City's bike lane plan.

Since 1991 the City has applied to various granting agencies in order to fund this project. A commitment of $200,000 of Bay Area Air Quality Management (BAAQM) District funds was secured in 1998. In winter of 2004 the City learned that the BAAQM grant would not be extended and the City temporarily lost that funding. In April of 2005 the City reapplied to BAAQM for a new grant for the same amount and was granted the funds. In April of 2007 the City received notice of a Non Motorized Transportation Pilot Program federal grant approval for $1,400,000. The City applied for and received a $300,000 Transportation Enhancement federal funds grant in the spring of 2008.

Basis for Cost Estimate: Project development costs are a combination of actual and estimated costs to complete the design and award a construction contract. The construction estimate for the remainder of the bike path is $1,850,000. Construction costs also include the cost of the completed portion. Construction management costs are a combination of actuals for the completed portion, and estimates for construction of the remaining portion.

Basis for Schedule: Construction is scheduled for spring/summer 2009 as the federal funds need to be expended by October of 2009. With the addition of the federal funding the project will now need to obtain National Environmental Protection Agency (NEPA) environmental documentation to go with the California Environmental Quality Agency (CEQA) determination already obtained.

Revenue Considerations: The Transportation for Clean Air grant ($200,000), Non-Motorized Transportation Pilot Program federal grant ($1,400,000) and Transportation Enhancements grant ($300,000) will fund $60,000 for project development and $1,840,000 of construction. The remaining funding will come from Development Impact Fees-transit/bicycle, and Restricted Revenue (interest accrual from Ignacio Boulevard Improvements).

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	142,700.00	36,899					179,599
Acquisition	420	0.00						0
Construction	430	35,225.61	462,500	1,387,500				1,885,226
Construction Mgt	440	10,554.23	25,000	75,000				110,554
Equip/Furnish	450	0.00						0
TOTAL		188,479.84	524,399	1,462,500	0	0	0	2,175,379

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Dev. Imp. Tran/Bike (327)	410	113,000						113,000

Drainage Facilities - Minor Work, Various Locations (Citywide)

Project No.: 99-006 **Base Code: 431**

Funded

Project Objective: The general project objective is to enable the case-by-case improvement of key components of the storm drainage system. Work may include construction of new inlet structures, debris grates, backflow prevention devices (flap gates), sedimentation basins, and miscellaneous drainage structures. Relatively short segments of failed storm drain pipe may be replaced under this project.

Project Description and Background: The project is being discontinued. Originally it was anticipated that as problems were discovered through routine maintenance or as a result of winter storm situations, it would be desirable to have a project to address those problems. However, since the creation of this project only one facility has been identified and addressed. With only one project in nine years it has become apparent that this project is not needed on an annual basis.

Basis for Cost Estimate: Project development and construction costs are actual. Unutilized project funding is being removed for use on other projects.

Basis for Schedule: The project is being discontinued.

Revenue Considerations: Gas Tax, Street and Storm Drain Maintenance Fund interest earnings and Clean Storm Water Fund were used on this project.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	15,113						15,113
Acquisition	420	0						0
Construction	430	10,000						10,000
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		25,113	0	0	0	0	0	25,113

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Gas Tax (272)	410	6,480	(1,166)					5,314
Gas Tax (272)	430	11,334	(4,667)					6,667
Clean Storm (321)	410	6,480	(1,167)					5,313
Clean Storm (321)	430	11,334	(8,001)					3,333
St/Storm Drain Maint. (322)	410	6,478	(1,992)					4,486
St/Storm Drain Maint. (322)	430	11,333	(11,333)					0
TOTAL		53,439	(28,326)	0	0	0	0	25,113
CARRYOVER		28,326						

Improvements to Redwood Boulevard and U.S. 101 Southbound Ramps at San Marin Drive (AGP-5 & NP-1)

Project No.: 99-007 **Base Code: 431**

Partial Funding

Project Objective: To improve safety and reduce traffic congestion.

Project Description and Background: This project is listed in the General Plan as one of the improvements needed to accommodate future growth, and is also part of the City of Novato's establishment of development traffic impact fees. Additional lane capacity is needed at these two intersections. The project will modify the southbound, eastbound and westbound approaches at Redwood Blvd and San Marin Drive, and the eastbound right turn lane onto the southbound U.S. 101 on-ramp, including ramp widening. The work could require widening the San Marin Drive bridge over the SMART railroad tracks.

Basis for Cost Estimate: Costs are based on the 2002 update of the Development Impact Fees for Public Facilities for AGP-5 and NP-1 traffic mitigation. Total anticipated costs are $6,032,203.

Basis for Schedule: The project will be scheduled to occur at the time the proposed San Marin Business Park project located in the vicinity of Wood Hollow Drive and Meadow Crest Road proceeds with development. Project Development was funded in FY 06/07 to allow coordination between the City and Caltrans for the Marin Sonoma Narrows freeway project. Construction schedule will be based on Caltrans, private development of business park, and available funding.

Revenue Considerations: Citywide Development Impact Fees Streets/Intersections is the funding source for these improvements. Traffic in-lieu fees deposited on 1/03/96 and 9/30/99 from the Buck Center, and accrued interest, are the Restricted Revenue sources for this project. Grant funding is another possible fund source for this project.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop (410)	410	100				719,900		720,000
Acquisition (420)	420	0						0
Construction (430)	430	0					4,832,203	4,832,203
Construction Mgt (440)	440	0					480,000	480,000
Equip/Furnish (450)	450	0						0
TOTAL		100	0	0	0	719,900	5,312,203	6,032,203

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Dev Impact-St/Int (327)	410	26,000				353,011		379,011
Dev Impact-St/Int (327)	430	0					2,353,409	2,353,409
Dev Impact-St/Int (327)	440	0					235,341	235,341
Rest Rev - Buck Center (325)	430	26,455					5,748	32,203
TOTAL		52,455	0	0	0	353,011	2,594,498	2,999,964
CARRYOVER		52,355						

Grant Avenue Bridge at Novato Creek Scour Mitigation

Project No.: 07-005 **Base Code: 431**

Construction

Project Objective: To provide temporary scour protection on the upstream approach to the Grant Avenue Bridge over Novato Creek near the intersection of Grant Avenue and Virginia Street.

Project Description and Background: In December of 2005 the City was notified by Caltrans that the Grant Avenue bridge over Novato Creek was considered a scour-critical bridge. The bridge was determined to be scour-critical due to erosion around the northeast abutment on the upstream side of the bridge. The City was required to submit a plan of action to mitigate this scouring. The City's plan of action calls for temporary rock rip rap to be placed in the area of erosion to stabilize the back and resist the scouring. The City will be applying for a Federal Highway Bridge Rehabilitation and Replacement grant to modernize the bridge and install permanent scour measures.

Basis for Cost Estimate: Project Development costs are a combination of actual and estimates to complete design and award a construction contract. Construction costs are based on an estimate developed by the engineer and maintenance staff, with a ten percent contingency. Construction management costs are an estimate for inspection and quality assurance.

Basis for Schedule: The project was originally scheduled for the fall of 2006, however, the City was unable to obtain the necessary permits for work in Novato Creek and the project had to be delayed until the summer of 2007.

Revenue Considerations: Gas tax is the fund source utilized for this project.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop (410)	410	11,718						11,718
Acquisition (420)	420	0						0
Construction (430)	430	44,900						44,900
Construction Mgt (440)	440	14,289						14,289
Equip/Furnish (450)	450	0						0
TOTAL		70,907	0	0	0	0	0	70,907

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Gas Tax (272)	410	11,718						11,718
Gas Tax (272)	430	30,577						30,577
Gas Tax (272)	440	14,289						14,289
DIF DRA (327)	430	14,323						14,323
TOTAL		70,907	0	0	0	0	0	70,907

McKeon Court/Wilmac Court Drainage Modifications

Project No.: 07-006 **Base Code: 431**

Construction

Project Objective: To alleviate localized flooding on local streets.

Project Description and Background: Flooding has occurred in this area adjacent to Vineyard Creek over the years. At the end of 2005, the area experienced the most severe flooding within the City. As a result, the County undertook significant efforts to clean the creek and engaged a consultant to evaluate the situation and propose solutions to observed problems. City staff reviewed the report and was in basic agreement that some effort should be made to improve the drainage situation. As a result several short term improvements have been proposed: realignment of outlet piping to facilitate flow into the creek; installation of positive shut-off valves to prevent creek backflow into the drainage system; purchase of small pumps to eliminate surface water ponding when the positive shut-off valves are employed; and replacement of the rotten corrugated metal pipe from Wilmac Court to the creek. The success of these efforts will be a result of combined City and property owner teamwork.

Basis for Cost Estimate: Project development costs are actual. Construction costs are a combination of actual and estimates to complete the improvements. Construction management costs are a combination of actual and estimates to close out the project.

Basis for Schedule: Project is being constructed in the winter/spring/summer of 2007.

Revenue Considerations: The project is funded with general fund dollars.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	10,872						10,872
Acquisition	420	0						0
Construction	430	66,600						66,600
Construction Mgt	440	14,370						14,370
Equip/Furnish	450	5,531						5,531
TOTAL		97,373	0	0	0	0	0	97,373
Funding Source	**Sub Objects**	**Prior to 08/09**	**08/09**	**09/10**	**10/11**	**11/12**	**12/13**	**Total**
Gen Fd (101)	410	10,872						10,872

Canyon Road Roadside Ditch Replacement

Project No.: 07-007 **Base Code: 431**

Construction

Project Objective: To stabilize the roadway by installing a storm drain in an existing roadside drainage ditch.

Project Description and Background: The City's maintenance division has observed severe erosion along the northern face of Canyon Road. In some areas, no more than two to three feet remain before the drainage ditch, and in one case, the erosion has spread to the paved asphalt. One measurement of the pavement was marked at 17 ft. The following improvements are proposed: installation of approximately 800 ft. of twenty-four inch (24") drainage pipe running the length of 621 Canyon Road and 651 Canyon Road; replacement of three 12-inch drainage pipes; installation of three catch basins or turning structures, including one that will connect a 12" pipe which crosses the roadway, with the new 24" pipe; roadway extension and restoration, and vegetation control. The new drainage pipe will be covered and paved over with asphalt approximately five ft. from the edge of pavement. The asphalt paving will be done by City crews after the pipe installation is completed by the selected contractor. The completed drainage work will reduce any surface water that overflows from the current ditch. The widened and restored section of road will also increase safety for pedestrians and vehicles.

Basis for Cost Estimate: Project development costs are a combination of actual and estimates to complete the design and award a construction contract. Construction costs are based on an engineer's estimate for the work. Construction management costs are an estimate for inspection, surveying and quality control.

Basis for Schedule: The project is scheduled for construction in the summer or fall of 200.

Revenue Considerations: Gas tax is budgeted for this project.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	28,197						28,197
Acquisition	420	0						0
Construction	430	179,360						179,360
Construction Mgt	440	12,911						12,911
Equip/Furnish	450	0						0
TOTAL		220,468	0	0	0	0	0	220,468

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Gas Tax (272)	410	28,198						28,198
Gas Tax (272)	430	179,360						179,360
Gas Tax (272)	440	12,910						12,910
TOTAL		220,468	0	0	0	0	0	220,468

Safe Routes To School Safety Improvements

Project No.: 07-008 **Base Code: 431**

Complete

Project Objective: To install safety improvements for routes to seven schools.

Project Description and Background: In June 2005 an application for a Safe Routes to School Grant was submitted to the California Department of Transportation. In 2006 the grant was awarded. The project installed school area traffic control signing and pavement markings at seven (7) schools participating in the City's Safe Routes to School program. The seven schools were Hamilton Elementary, Hill Middle, Lu Sutton, Lynwood Elementary, Olive Elementary, Pleasant Valley Elementary and Rancho Elementary. The project also enhanced an existing asphalt concrete path on Vineyard Road between Bear Creek Road and Angelica Court, and installed a bulb-out and ADA compliant ramps at Angelica Court, along with markings and signing on this stretch of Vineyard Road.

Basis for Cost Estimate: Project development and construction costs are actual. Construction management costs are a combination of actual costs and an estimate to close out the project.

Basis for Schedule: The project is complete.

Revenue Considerations: A Safe Routes to School grant and gas tax were utilized for this project.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	18,804						18,804
Acquisition	420	0						0
Construction	430	137,267						137,267
Construction Mgt	440	34,886						34,886
Equip/Furnish	450	0						0
TOTAL		190,957	0	0	0	0	0	190,957

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Gas Tax (272)	410	3,609	(805)					2,804
Gas Tax (272)	430	65,200	(7,933)					57,267
Gas Tax (272)	440	1,535	21,351					22,886
Grant SR2SL	410	16,000						16,000
Grant SR2SL	430	80,000						80,000
Grant SR2SL	440	12,000						12,000
TOTAL		178,344	12,613	0	0	0	0	190,957
CARRYOVER		(12,613)						

Hamilton Wetlands Access Road

Project No.: 07-009 **Base Code: 431**

Potential Partially Funded

Project Objective: To study the feasibility of constructing an alternate access road from Hamilton Parkway to the inactive runway area of the former air force base.

Project Description and Background: The existing access road from Hamilton Parkway to the inactive runways is adjacent to and parallels a new subdivision. The existing access road is used primarily by the Corps of Engineers (COE) and Coastal Conservatory for construction of the Wetlands Restoration project at the runway areas of the former air force base. The access road is also used by City maintenance personnel and utility companies' maintenance personnel. The residents of the subdivision paralleling the access road have expressed their concerns over the noise and dust generated by the construction vehicles. The Corps of Engineers, Coastal Conservatory and the City have agreed to analyze the feasibility of relocating the access road away from the subdivision. The City and County of Marin contributed $50,000 to the analysis, and the Coastal Conservatory agreed to provide the environmental review.

Basis for Cost Estimate: Costs are for feasibility studies only. Estimated construction costs will be determined from the feasibility analysis. The cost of the environmental review is being borne by the Coastal Conservatory.

Basis for Schedule: The feasibility study began in winter of 2006/2007. The environmental review being conducted by the coastal conservatory is scheduled for completion in the summer of 2008. Construction schedules will not be developed until environmental review is completed and funding is determined.

Revenue Considerations: $50,000 has been allocated from the General Fund and $50,000 from the County of Marin which was deposited into the Restricted Revenue Fund for use on this project. No funds have been identified for construction.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	30,539	72,189					102,728
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		30,539	72,189	0	0	0	0	102,728

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

City of Novato Future Flood Projects

Safe Routes to School Improvments State Cycle 7

Project No.: 08-004 **Base Code: 431**

Funded

Project Objective: To provide safety improvements around three schools, Lynwood, Olive and San Ramon.

Project Description and Background: In November 2007 the City applied for and was granted a California Safe Routes to School Program Cycle 7 grant. At Lynwood Elementary School the improvements include curb extension bulb-outs at the north and east corners of the intersection of Lynwood Drive and Sunset Parkway and the restriping of crosswalks with high-visibility ladder style design. At the intersection of Sunset Parkway and South Novato Boulevard the project will provide a left turn phase on the existing traffic signal for Sunset Parkway approaches, eliminating the conflict with pedestrians and left turning vehicles. At Olive elementary school the traffic lanes will be restriped to a narrower width in the vicinity of the school. Curb extension bulb-outs will be installed at the intersection of Summers Avenue and Olive Avenue and the crosswalk in front of the school will be restriped with a high-visibility ladder style design. A raised median pedestrian refuge will be placed at the crosswalk. The San Ramon elementary school segment will include restriping of six school area crosswalks with high-visibility ladder style crosswalks, curb extension bulb-outs at the two intersections of San Ramon Way and San Benito Way, and San Juan Court, widening of the sidewalk to 10 feet in front of the school,and installation of permanent signs at the driveway entrance, to prohibit vehicles from entering to drop-off children during morning drop-off hours, and the refreshing of school area curb striping.

Basis for Cost Estimate: Estimate was prepared for the Safe Routes to School grant application which was based on plans prepared by Parsi and Associates, a consultant hired by the Transportation Authority of Marin for that purpose.

Basis for Schedule: Project development will begin with the start of the 2008/2009 fiscal year. Construction is scheduled for the spring/summer of 2009.

Revenue Considerations: California Safe Routes to School Cycle 7 grant and General Fund as matching.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0	92,308					92,308
Acquisition	420	0						0
Construction	430	0		521,539				521,539
Construction Mgt	440	0		46,153				46,153
Equip/Furnish	450	0						0
TOTAL		0	92,308	567,692	0	0	0	660,000

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

Center Road Bridge Replacement at Vineyard Creek

Project No.: 08-005 **Base Code: 431**

Funded

Project Objective: Replace the existing box culvert with a free standing bridge in conjunction with the Marin County Flood Control project on Vineyard Creek

Project Description and Background: After the flooding during the winter storms in 2005/2006 the Marin County Flood Control District undertook a study of Vineyard Creek between the southerly end of Arbor Circle to McClay Road. The study was to determine the capacity of this stretch of creek and what improvements would be needed to reduce the potential for flooding. The analysis indicated that the existing box culvert crossing under Center Road along Vineyard Creek was not sufficient and needed to be upgraded to allow passage of storm waters during a 50-year storm. The County hired Kamman and Associates to design the creek improvements and Winzler and Kelly Consulting Engineers to design the box culvert replacement. The box culvert will be replaced with a bridge structure. Replacing the box culvert with a bridge structure will require modifications to the street infrastructure around the bridge. Storm drains will be realigned, utilities will need relocation, new bridge railings will be installed, and curb, gutter, sidewalk and asphalt concrete will be reconstructed to conform to the bridge.

Basis for Cost Estimate: The City and County are sharing the cost of the bridge work. The City share is 57.6% of the bridge cost. Construction costs are based on estimates prepared by the designers Winzler and Kelly. Construction management costs are based on estimates for inspection, material testing and consultant services provided by bridge designers Winzler and Kelly.

Basis for Schedule: The project is being advertised for bids in May/June 2008. Bid opening is June 13, 2008. Construction is anticipated to begin in July and be complete by mid-October.

Revenue Considerations: General Fund monies deposited in the Restricted Revenue account are to be utilized on this project.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0						0
Acquisition	420	0						0
Construction	430	0	550,000					550,000
Construction Mgt	440	0	50,000					50,000
Equip/Furnish	450	0						0
TOTAL		0	600,000	0	0	0	0	600,000

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

Underground Utility District Novato Boulevard between Eucalyptus Avenue to City Limits (West)

Project No.: 09-001 **Base Code: 431**

Funded

Project Objective: To remove all overhead wires and supporting poles on Novato Boulevard between Eucalyptus Avenue and City limits (west).

Project Description and Background: This project was established to create an underground utility district in accordance with rule 20A of the State Public Utility Commission (PUC). The utility companies that were expected to participate were PG&E, Verizon and Comcast. Formation of the district would have required all utility companies and property owners to convert from overhead to underground installation. After holding a public work shop which no one from the public attended, and meeting with the utility companies, it was determined that an underground district was not feasible at this time. Also, by proceeding with this underground district there may not have been enough funds remaining for undergrounding the section of Novato Boulevard between Diablo Avenue and Boulevard Terrace which is more of a priority than this section. Therefore, this project is being discontinued.

Basis for Cost Estimate: The project is being discontinued. Project development costs are actual.

Basis for Schedule: The project is being discontinued.

Revenue Considerations: Measure A Regional Major Roads is the funding source for the City's portion of the underground district. Unused funds are being removed for use on other projects.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	6,391						6,391
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		6,391	0	0	0	0	0	6,391

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

Grant Avenue Parking Improvements

Project No.: 09-002 **Base Code: 431**

Funded

Project Objective: To create accessible parking stalls on Grant Avenue west of Redwood Boulevard and install truncated dome warning strip along the north side of the four Old Town blocks (at the flush curb east of Redwood Boulevard).

Project Description and Background: The Grant Avenue Improvement project was completed in 2006; however, the accessible parking, which was added to the project scope during construction, was not completed due to a material supply issue with the truncated domes, and the inability of the City and contractor to agree on a reasonable price for converting newly constructed parking stalls into accessible parking stalls.

Basis for Cost Estimate: Construction costs are based on the engineer's estimate prepared at the time a cost proposal was requested from the Grant Avenue contractor. Project development costs are estimates to complete a design and award a construction contract. Construction management costs are estimates for inspection and quality assurance testing.

Basis for Schedule: The project is scheduled for construction in the summer of 2009.

Revenue Considerations: Gas tax is the funding source for this project.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0	18,000					18,000
Acquisition	420	0						0
Construction	430	0	180,000					180,000
Construction Mgt	440	0	9,000					9,000
Equip/Furnish	450	0						0
TOTAL		0	207,000	0	0	0	0	207,000

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

Grant Avenue Bridge Rehabilitation

Project No.: 09-003 **Base Code: 431**

Funded

Project Objective: To rehabilitate the existing vehicle bridge to provide separate bicycle and pedestrian facilities and replace substandard railings.

Project Description and Background: The existing bridge on Grant Avenue over Novato Creek near the intersection with Virginia Avenue was built in 1932 and by today's standards is not wide enough to carry both vehicle and bicycle traffic. Pedestrian traffic is now only on the northerly side of the bridge (via a separate bridge adjacent to the vehicle bridge). The pedestrian bridge on the southerly side was removed in 2005 as it had deteriorated beyond repair. Both the vehicle bridge and remaining pedestrian bridge are structurally sound and do not need to be replaced. It is anticipated that the vehicle bridge will be widened to provide bicycle facilities and new bridge railings. It is uncertain whether or not the existing pedestrian bridge can be used in its current location or will need to be relocated, or removed and discarded.

Basis for Cost Estimate: A cost estimate for construction has yet to be developed. Project development costs are being partly funded to apply to FHWA for federal funds for bridge rehabilitation, and to hire a structural consultant to prepare a concept design to base estimates on.

Basis for Schedule: Project development began late in FY 07/08 to initiate the project and develop a concept plan. Concept plan should be complete by the end of 2008 along with request for federal funds. Once the concept plan is developed cost estimates will be generated along with a project schedule for construction.

Revenue Considerations: Development Impact Fees Transit/Bicycle are being used for project development since this project will provide bicycle facilities across the bridge and Grant Avenue is a collector.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	1,814	48,186					50,000
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		1,814	48,186	0	0	0	0	50,000

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

Vallejo Avenue Improvements Between Seventh Street and First Street

Project No.: 09-004 **Base Code: 431**

Funded

Project Objective: To rehabilitate the distressed pavement on Vallejo Avenue between First Street and Seventh Street.

Project Description and Background: In the spring of 2008 the City was notified by the Transportation Authority of Marin (TAM) of additional Measure A funds available through a federal funding swap. Marin County was able to secure additional Surface Transportation Program (STP) federal funds for use on freeway projects in Marin which replaced Measure A funds allocated to the freeway projects. These Measure A funds were then divided between the municipalities in Marin for use on local arterial or collector streets. This stretch of Vallejo is a collector and is eligible for use of the funds. The project will rehabilitate asphalt concrete pavement, upgrade existing ADA ramps to current guidelines, install any missing ADA ramps, and replace street tree damaged curb, gutter and sidewalk.

Basis for Cost Estimate: Project costs are based on rough estimates derived in the process of applying to TAM for creation of this project.

Basis for Schedule: Project development is scheduled to begin in July of 2008 and construction is scheduled for summer of 2009.

Revenue Considerations: Measure A STP swap funds, and Measure A local streets funds.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0	49,000					49,000
Acquisition	420	0						0
Construction	430	0		312,000				312,000
Construction Mgt	440	0		31,000				31,000
Equip/Furnish	450	0						0
TOTAL		0	49,000	343,000	0	0	0	392,000

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

MTC Pavement Management System

Project No.: 09-005 **Base Code: 431**

Funded

Project Objective: Maintain the City's Pavement Management System based upon the program (Streetsaver) developed by the Metropolitan Transportation Commission (MTC) thereby keeping Novato's certification as an MTC Pavement Management System (PMS) user.

Project Description and Background: The project provides a measure of the pavement life of a street pavement after construction, reconstruction or rehabilitation of its structural section, and develops the most cost effective rehabilitation strategies for pavement maintenance and repair. By maintaining Novato's certifications as an MTC PMS user, Novato remains eligible and improves its ability to apply for and be awarded transportation grants. The pavement management data base needs to be maintained on a regular basis by inputting new streets into the system, entering maintenance treatments applied to streets, rating streets that do not receive maintenance treatments within the five year cycle, updating the unit costs for maintenance treatments, updating the GIS interface, and entering available funding. To remain certified with MTC the City must submit an annual report or make the database available through the internet for MTC to view.

Basis for Cost Estimate: Project development costs are for the annual rating of City streets and to maintain the database used by Streetsaver.

Basis for Schedule: Residential streets are to be rated every five years and arterial and collectors every two years. A new pavement management rating project will be initiated every five years to coincide with the rating cycle. This project will last for four years, as the first year of ratings was completed under Pavement Management project 00-016. Establishing a 5 year project cycle will allow the City to develop costs for maintaining the database.

Revenue Considerations: Gas Tax will be utilized for this project.

Project Expenditure	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0	75,000	75,000	75,000	75,000		300,000
Acquisition	420	0						0
Construction	430	0						0
Construction Mgt	440	0						0
Equip/Furnish	450	0						0
TOTAL		0	75,000	75,000	75,000	75,000	0	300,000

Funding Source	Sub Objects	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

Streetlight Assessment and Replacement

Project No.: 09-006 **Base Code: 431**

Funded

Project Objective: To analyze the existing wood streetlight poles and create a replacement strategy.

Project Description and Background: Novato has a number of different areas around town in which wood streetlight poles are used to support the light fixtures that illuminate City streets. Wood poles have a shorter life span than metal poles and therefor require replacement more often. Some of the poles have been in the ground for 30 to 40 years and need to have their condition assessed. In some cases individual streetlights may be replaced in kind if the majority of poles are in good condition. Another possibility would be to replace wood poles with metal poles. This would require a lighting study to determine the ideal location for poles. Another aspect of the City streetlight system involves the older streetlights inherited from PG&E, and the condition of the direct buried conductors that may need replacement to avoid possible failure.

Basis for Cost Estimate: The costs are based on the available funding in the City's equipment vehicle replacement fund. Costs will be reevaluated after the initial assessment is completed. The fund receives $11,000 annually from the general fund and also accrues interest.

Basis for Schedule: In fiscal year 2008/2009, as staffing allows, the assessment will begin. Replacements could begin in the spring of 2009, depending on the assessment.

Revenue Considerations: Equipment and Vehicle replacement fund in which $11,000 of general fund is deposited annually for use on streetlighting.

Project Expenditure	Sub Objects	Prior to 07/08	07/08	08/09	09/10	10/11	11/12	Total
Proj Develop	410	0	28,527					28,527
Acquisition	420	0						0
Construction	430	0	57,054	171,162				228,216
Construction Mgt	440	0	4,564	13,693				18,257
Equip/Furnish	450	0						0
TOTAL		0	90,145	184,855	0	0	0	275,000

Funding Source	Sub Objects	Prior to 07/08	07/08	08/09	09/10	10/11	11/12	Total

Measure A Group 2 Propositon 1B Pavement Rehabilitation

Project No.: 10-001 **Base Code: 431**

Funded

Project Objective: To rehabilitate the pavement on non-Bond F and Bond B streets.

Project Description and Background: In November of 2003 the County voters approved Measure A transportation sales tax. One component of the sales tax is local infrastructure. This project will rehabilitate pavement on City streets that are not part of the Major Roads. The streets to be rehabilitated will be determined in FY 07/08 from non-Measure F and Measure B streets, and based on the City's Pavement Management System. See appendix pages 18a through 18i for a list of streets. The proposition 1B funds will be used partially on early Bond F streets that are in need of preventative maintenance based on the City's pavement management system and the remainder will be applied along with Measure A funds for pavement rehabilitation. The improvements could include upgrading or installing ADA compliant ramps, replace street tree damaged curb, gutter and sidewalk, asphalt concrete dig out and patch, asphalt concrete grinding, asphalt concrete overlay, rejuvenating scrub seal and microsurfacing. A candidate list will be approved by Street Improvement Oversight Committee in June of 2008 and as many of those streets will be rehabilitated as funding allows.

Basis for Cost Estimate: Costs are based on the estimated amount of Measure A Local Streets funds and Prop 1B funds that will be available in FYs 08/09 and 09/10.

Basis for Schedule: Project development will begin in July of 2008. Construction is scheduled for the spring/summer of 2009.

Revenue Considerations: The voter approved Measure A transportation sales tax and Prop 1B funds.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0	147,328					147,328
Acquisition	420	0						0
Construction	430	0	491,091	982,182				1,473,273
Construction Mgt	440	0	43,216	86,432				129,648
Equip/Furnish	450	0						0
TOTAL		0	681,635	1,068,614	0	0	0	1,750,249

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Measue "A" (309)	410	0	74,195					74,195
Measue "A" (309)	430	0	247,316	494,631				741,947

Measure A Pavement Rehabilitation Group 3

Project No.: 12-001 **Base Code: 431**

Project Objective: To rehabilitate the pavement on non-Measure F and non-Measure B streets.

Project Description and Background: In November of 2003 the County voters approved Measure A transportation sales tax. One component of the sales tax is local infrastructure. This project will rehabilitate pavement on City streets that are not part of the major roads. The streets to be rehabilitated will be determined from non-Measure F and non-Measure B streets, and based on the City's Pavement Management System. See Appendix pages 18a through 18i for a list of potential streets.

Basis for Cost Estimate: Costs are based on the estimated amount of Measure A Local Streets funds that will be available in FY 10/11 and FY 11/12. The City's portion of Measure A funds for local streets is estimated to be between $372,000 and $450,000 per fiscal year.

Basis for Schedule: Pavement rehabilitation groups are currently planned every two years in order to allow sufficient funds to accumulate in order to realize an economy of scale. If other funding becomes available the frequency may be increased to fund project(s) every year.

Revenue Considerations: The voter approved Measure A transportation sales tax.

Project Expenditure	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total
Proj Develop	410	0			76,335			76,335
Acquisition	420	0						0
Construction	430	0			254,448	508,897		763,345
Construction Mgt	440	0			22,391	44,783		67,174
Equip/Furnish	450	0						0
TOTAL		0	0	0	353,174	553,680	0	906,854

Funding Source	Sub Object	Prior to 08/09	08/09	09/10	10/11	11/12	12/13	Total

City of Novato Flood Mitigation Strategies

Vineyard Creek Improvement Project

The Vineyard Creek Improvement Project is located in Novato, California between the end of Arbor Circle and McClay Road. Extensive flooding occurred in this reach during the December 31, 2005 storm event. In response, the District undertook emergency measures to clear the reach of sediment, debris and vegetation downstream of Center Road. In addition, the District hired Kamman Hydrology & Engineering Inc. (KHE) to conduct a hydraulics study and make recommendations for creek improvements, revegetation planting scheme and long term maintenance and monitoring needs.

The reach has been divided into three sections:

- Reach A from Arbor Circle downstream to Center Road;
- Reach B from Center Road downstream to Rena Court
- Reach C from Rena Court downstream to McClay Road

EXHIBIT "B" FEES AND PAYMENT SCHEDULE[1]

Contract Component	Cost
Task 1 - Vineyard Creek - Arbor Circle to McClay Road[2]	
1.1 Review of Existing Studies	$2,480
1.2 Field Site Visits & Geotechnical Investigations	$30,104
1.3 Hydraulic Modeling	$22,808
1.4 Hydraulic Modeling - Existing Conditions	$2,996
1.5 Develop Improvement Alternatives & Associated Modeling	$14,680
1.6 Design Surveys	$12,332
SUBTOTAL TASK 1	$85,400
Task 2 - Vineyard Creek - Year 2 Construction[2]	
Reach A (includes Culvert Crossing)	
Reach C -350 FT Narrows Reconstruction	
2.1 Prepare Draft Project Study Report	$8,340
2.2 Prepare Final Project Study Report	$4,002
2.3 Prepare 30% Contract Documents	$19,236
2.4 Prepare 95% Contract Documents	$28,412
2.5 Prepare Final Contract Documents	$9,658
SUBTOTAL TASK 2	$69,648
Task 3 - Vineyard Creek - Year 1 Construction[2]	
Reach B & C Revegetation/Minor Bank Stabilization	
3.1 Prepare Draft Project Study Report	$5,720
3.2 Prepare Final Project Study Report	$2,682
3.3 Prepare 30% Contract Documents	$6,648
3.5 Prepare 95%.Contract Documents	$8,362
3.6 Prepare Final Contract Documents	$3,782
SUBTOTAL TASK 3	$27,194
Task 4 - CEQA & Permits[2]	
4.1 Kickoff Meeting	$2,156
4.2 Prepare CEQA Documentation	$27,188
4.3 Prepare Permits	$23,479
SUBTOTAL TASK 4	$52,823
Task 5 - Project Management[2]	
5.1 Kickoff Meeting	$3,472
5.2 Project Management/QA-QC	$9,300
5.3 Meetings	$13,448
5.4 Bid Phase Assistance	$3,608
SUBTOTAL TASK 6	$29,828
Task 6 - Project Support (As Assigned)[2]	
6.1 Additional Analysis or Tasks[3]	$15,107
TOTAL COST[2]	**$280,000**

[1] Note: This is a time and materials contract; the contractor shall bill the District based on its current Fee Schedule. The current Fee Schedule is attached and made a part of this agreement.
[2] Costs for individual tasks orders may vary above or below as shown but the total for all tasks will not exceed the total cost.
[3] Additional analysis or tasks may be required to complete project. If so, additional services will be requested in writing by District staff.

Flood Control Project Support

Program/Project Description	Support Marin County Flood Control Projects by Deepening Channel, Stabilizing Bank, Smoothing out Flow, Purchasing land for easements along area of Novato Blvd.
Estimated Cost	To be determined
Timeline/Schedule	1 to 5 years
Responsible Agency/Dept.	Marin County Flood Control & Water Conservation District City of Novato
Financing	Marin County Flood Control District Capital Funds Grants Taxes
Goal(s) Addressed	Reduce Flooding
Related Hazard(s)	Flood
Constraints	Budgetary

Kenden Lane Drainage

Program/Project Description	Work with Marin County Flood Control District on specific projects in Novato Kenden Lane – 4 year clean up and clean out of drains
Estimated Cost	To be determined
Timeline/Schedule	Every 4 years
Responsible Agency/Dept.	Novato Creek Flood Control
Financing	Taxes through Flood Control District
Goal(s) Addressed	Reduce Flooding
Related Hazard(s)	Flood
Constraints	Budgetary

Partridge Gardens Drain Repair

Program/Project Description	Repair separation in drainage pipes at Partridge Gardens There is a video of the damage and a plan has been formulated to do the repairs. The detailed repair description for this project is in the White/Prescott Report and will be defined in the actual grant application.
Estimated Cost	$50,000.00
Timeline/Schedule	1 to 5 years
Responsible Agency/Dept.	City of Novato
Financing	To be determined City Funds Grants
Goal(s) Addressed	Flood Control
Related Hazard(s)	Flood
Constraints	Budgetary

Railroad Bridge Dredging

Program/Project Description	Widening channel, Dredging, Expanding secondary channel at Railroad Bridge. (see Rush Creek Drainage Project).
Estimated Cost	$587,000
Timeline/Schedule	1-15 years long term project scheduled to begin in July 2008
Responsible Agency/Dept.	City of Novato
Financing	Bond B DIF Drainage Clean Sotrm
Goal(s) Addressed	Flood control
Related Hazard(s)	Flood
Constraints	Funding available $448,594

Storm Sewer Inspections

Program/Project Description	Conduct Storm Sewer Inspection Annually
Estimated Cost	$65,000
Timeline/Schedule	Annual Project
Responsible Agency/Dept.	Public Works
Financing	City of Novato Budget
Goal(s) Addressed	Respond to inspection findings of repair and upgrade
Related Hazard(s)	Flood and secondary earthquake
Constraints	Funding

Program Project Description

Public Information Program for flood insurance and home elevation projects.

The City of Novato Plans to inform and encourage the Public throughout flood threatened areas on an annual basis to:

1. Purchase and maintain flood insurance
2. Consider elevation of structures to avoid flood damages. The City would consider supporting these elevations through hazard mitigation grant applications.
3. Formulate a personal flood protection plan which includes
4. Formulate a person emergency response and evacuation plan for your family, and rehearse this plan with your family members
5. Rake up and bag leaves as often as possible before storms
6. Clean drains around your home
7. Work with the Community Development Department before making changes to your property

Program Implementation: Annually by the Community Development Department

Responsible Agency and Financing

Program Budget: General funding through the community development department.

Related Hazard: Flood

Constraints: Budgetary

Section IV - Plan Maintenance

Part 9 - Plan Adoption

City of Novato Resolution No. 63-08 formally adopted on July 22, 2008:

CITY COUNCIL OF THE CITY OF NOVATO

RESOLUTION NO. 63-08

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NOVATO ADOPTING THE CITY OF NOVATO LOCAL HAZARD MITIGATION PLAN AND AUTHORIZING THE CITY MANAGER TO IMPLEMENT THE PLAN

WHEREAS, the City Council of the City of Novato adopted Budget Resolution No. 19-06 amending Budget Resolution No. 79-05 to revise revenues and appropriations upon acceptance of a $44,444.00 Flood Mitigation Planning Grant (FMA04-PL04) to authorize the city manager to amend consultant services agreement No. 3857 with Dimensions Unlimited, Inc. to update the City of Novato Local Flood Hazard Mitigation Plan for an amount not to exceed $49,999.00; and

WHEREAS, $49,999.50 represents the federal share reimbursable under the grant with a non-federal share of $16,666.50 (City soft match), which represents our contributing local share for the project; and

WHEREAS, the non-federal share of $16,666.50 will be contributed by the city as in-kind resources and will be covered within current and future operating budget allocations for the various programs affected; and

WHEREAS, the City of Novato's All Hazard Disaster Mitigation Plan (DMA 2000), includes a mitigation strategy to review and update the City of Novato Local Flood Hazard Mitigation Plan; and

WHEREAS, the City Council of the City of Novato adopted Budget Resolution No. 20-06 accepting the Flood Mitigation Assistance Planning Grant (FMA04-PL04) requesting funding for the updating of the City of Novato Flood Mitigation Plan; and

WHEREAS, the City Council authorized and directed the City Manager or a designee, on behalf of the City of Novato and in its name, to execute and deliver such documents, and to do such acts as may be necessary or appropriate to implement said consultant services agreement and complete the project, including, but not limited to, negotiations, execution and submittal of documents, applications, agreements, amendments, reports, and payment requests.

WHEREAS, the City of Novato Flood Mitigation Plan has been completed and submitted to the City of Novato and satisfies all the requirements under the law.

NOW, THEREFORE, BE IT RESOLVED that the City of Novato Local Flood Hazard Mitigation Plan as submitted to the Novato City Council is approved.

BE IT FURTHER RESOLVED that the City Council of the City of Novato hereby authorizes the:

1. City Manager, or a designee, to submit the Plan and all necessary documents to the State Office of Emergency Services (OES), and any other appropriate government entity. In the event changes or modifications are requested bu any agency, the City Manager, or a designee, is authorized to make such changes and resubmit the Plan and/or documents.

2. City Manager or a designee to implement the Plan once accepted by the appropriate government agencies and to evaluate the Plan annually and perform updates as necessary/

* * * * * *

I HEREBY CERTIFY that the foregoing resolution was duly and regularly adopted by the City Council of the City of Novato, Marin County, California, at a meeting hereof, held on the 22nd day of July, 2008, by the following vote, to wit:

AYES:	Councilmembers	Dillon-Knutson, Kellner, Leland, MacLeamy, Eklund
NOES:	Councilmembers	None
ABSTAIN:	Councilmembers	None
ABSENT:	Councilmembers	None

Shirley Gremmer

City Clerk of the City of Novato

Part 10 - Implementation, Evaluation and Revision

It is the intent of the document to tie the Multi-Hazard Mitigation Plan and the CRS program into a annual update cycle, utilizing mutually applicable information to update each plan. In the future this Plan will be an annex to the City of Novato and Novato Sanitary District Multi-Hazard Mitigation Plan as well as a part of the Community Rating System Program. All three of these documents will be reviewed annually by the respective planning committees and updated on a 5 year cycle.

The process will document the annual public outreach activities as well as the public and stakeholder review process involved in the joint update efforts.

The Plan will be distributed to the committee to review, comment, and submit changes in their respective departments, district, or jurisdiction. The Public Works GIS Coordinator will be the Chairperson for this review and will reconvene the committee after an agreed upon time to collaborate and adopt appropriate updates.

The Plan updates will include information on:

- The progress of mitigation programs/projects.
- Develop, if necessary, new mitigation strategies to reduce loss or damage to facilities and potential loss of lives.
- Identify, if any, hazard vulnerability to the City of Novato through data from expert sources.
- Budgetary reports and grant opportunities, to identify funding constraints or funding opportunities.
- Reevaluate their Capability Assessment for technical, political, legal, or services abilities.
- Review and incorporate public involvement.

The City of Novato will have the opportunity to implement recommended action items through existing programs and procedures that are deemed appropriate

Every five years after initial approval, the Committee shall be re-convene to conduct a plan update after which the Plan shall be submitted through proper channels for re-approval.

The hazard mitigation strategies will be reviewed for implementation and effectiveness on an annual basis and a progress report will be included in the 5 year update on the status of the mitigation strategies and programs.