

Marin City Comprehensive Watershed and Flood Mitigation Plan DRAFT PROPOSED SCOPE

Problem Statement: There is a long history of severe flooding that has led to the complete closure of the only road into and out of Marin City and partial closure of southbound U.S. Highway 101. At these times Marin City has been shut off from the rest of the community for hours at a time, including emergency responders. During floods children may be stranded at schools with their parents unable to protect, feed and comfort them. On December 3, 2014, the interchange and all but two lanes of southbound traffic on the highway were closed for several hours, causing a backup of traffic into Sonoma County spanning from the morning to evening rush hours and leading to considerable social, economic, and health impacts. While not directly measured, these impacts may include missed work hours, reduced sales at area businesses, and imposed difficulty for emergency first responders to reach those in need.

Flooding of the interchange and nearby roadways may be observed during times of intense stormwater runoff, which may be exacerbated by high water levels in the marsh, and also during extreme high tides alone. The last major drainage improvements to the interchange area occurred in the mid-1990s with the construction of the shopping center. Since that time the gradual settlement and deterioration of pipes and other drainage facilities, including tides gates, has hampered the ability of the interchange and connecting roads to function as originally designed. Even if the system was to be restored to its original design, the absence of stormwater pumping facilities limits the ability of the system to perform when high tides are present, and rising tides from sea-level introduce further challenges.

Flooding of roadways may be the result of one or a combination of the following factors:

- Limited capacity of the existing stormwater drainage system.
- Differential land settlement, which may affect storm drain pipe functionality and also create localized depressions - both of which could lead to areas of ponding water.
- Lack of maintenance of drainage facilities, including storm drains and tide gates, which have contributed to the facilities performing below their intended design.
- Improper and/or lack of operation of the tide gates at the marsh.
- Accumulation of sediment within the marsh which, if maintained below a certain level, may serve as a detention basin.
- Absence of stormwater pumping facilities.
- Lack of public right-of-way. (Much of Marin City's storm drain system and associated infrastructure lies outside of the public right-of-way and, as such, the type and frequency of maintenance is unknown.)
- Lack of pipes and condition of pipes

Objectives:

- 1) Write a Comprehensive Flood Mitigation Plan appendix for Marin City that elevates the profile of this underrepresented community in the Marin County Multi-Jurisdictional Local Hazard Mitigation Plan 2023 update. ([see 2018 plan here](#))**
- 2) Assemble a network of watershed partners to co-plan and pursue grant funding for multi-benefit hazard mitigation projects in Marin City's watershed.**
- 3) The Flood Mitigation plan will include a stormwater master plan for Marin City that protects existing homes, community assets, infrastructure, and businesses, and takes future development and sea level rise into account.**
- 4) Provides the whole community with resources to overcome barriers to meaningful participation in the planning process.**

DRAFT Scope of Work:

- 1) Review of Studies Conducted To-Date.** The District has previously developed a hydrology and hydraulics (H&H) model and Flood Study (Wood-Rodgers 2017) including preliminary design alternatives for improvements to the Marin City stormwater pond. These improvements include, among other things, a new culvert under Highway 101, inlet structure and outlet tide gate, a permanent sheet pile wall and various flood protection improvements, which are currently being designed as part of a FEMA grant. An engineering consultant (Consultant) shall review the Flood Study, and subsequent products associated with H&H modeling and geotechnical investigation. The consultant will also review other related studies (including results of tests of sediment, geotechnical, and water quality) in the watershed, including studies by Caltrans, the 2015 Marin City Community-Based Transportation Plan, the Marin County Multi-Jurisdictional Local Hazard Mitigation Plan, the Marin City People's Plan, 1992 Marin City Community Plan (to be updated soon) and associated EIR, 1984 Richardson Bay Special Area Plan, Sierra Club and Sausalito Historical Society mapping for the upper watershed. The purpose of this review is to build confidence in the community of existing studies and the outcome of this planning effort.

Consultant shall conduct a thorough review and confirmation of prior engineering and modeling work and identify in a memo to Flood District an inventory of what information is available and complete, and what data gaps or additional studies are needed to complete the tasks below, and estimated costs for the work to fill these data gaps. Consultant shall work with Marin City Climate Resilience and Health Justice to identify what stakeholders have been at the table in prior studies and who needs to be brought into the comprehensive planning process. The list of stakeholders should be included in the memo. While the original model was created in ICM, the files are exported to EPA SWMM so the District requests the consultant build their own model and make the refinements in PCSWMM or public model. If not already in the Wood Rodgers model, a summary of additional data collection required in order to map all drainpipes greater than 12" and ditches on public and private property within the watershed. Additionally, any existing drainage data not already in the model along Donahue to Waldo Point is to be incorporated. Consultant will be provided documentation of easements offered (most were not accepted) and data from People's Plan watershed tour in order to identify locations in the watershed where surveying of drainage facilities is needed.

Deliverable: Memo and estimated costs for additional studies, outside of this scope, needed in order to complete the tasks below, including the Comprehensive Watershed and Flood Mitigation Plan.

- 2) Refinement and Development of Alternatives.** The alternatives developed in the Wood Rodgers Marin City Drainage Study were optimized to provide the most cost-effective flood mitigation improvements and therefore much of the benefit in the FEMA-grant project currently being designed by others concentrated on the highway. After the completion of the Drainage Study, Marin City residents and the District requested a more extensive improvement alternative to reduce the flooding frequency and depth in the vicinity of Donahue Street, Drake Avenue, and Phillips Drive, as well as address unmet maintenance and rehabilitation needs of existing public and private facilities in these areas. Particularly, maintaining access through Donahue Street and Drake Avenue is critically important during 10-year floods. Additionally, the alternatives should address upland impacts of flooding, consider the effects of groundwater and sea level rise on the effectiveness of the alternatives, and address sources of sediment (measures to implement at the source) that enter the storm drain system. Because traditional hydraulic infrastructure typically is costly, has a limited design life, and offers very little benefit to water quality, green infrastructure, stormwater detention (like dual-use storage), and opportunities to reduce

stormwater pollution will be included in the alternatives when feasible. Field tests will likely be needed to support LID solution development and feasibility evaluation.

Consultant will work with a Task Force consisting of representatives from the District, County Public Works (Engineering or Roads) Marin City Climate Resilience and Health Justice, Play Marin, Marin City People's Plan, California Audubon, Caltrans, OneTam, National Park Service, Marin Municipal Water District, Marin City CSD, and Marin County Fire Department to 1) select and refine an improvement alternative already developed in the Marin City Drainage Study and also 2) develop a new alternative to meet goals to be identified by the Task Force. Each alternative is to consist of a suite of complementary "elements", which going forward will be referred to as potential "mitigation measures", and alternatives will include both new mitigation measures and elements already described in the 2017 Study. The alternatives will likely include the types of mitigation measures listed in section "C" of the Comprehensive Watershed and Flood Mitigation Plan outline below. The alternatives will acknowledge for each element/mitigation measure whether it appears to be, or does not appear to be, compatible with Marin City People's Plan's strategies which emphasize low-impact development best practices.

The hydraulic model originally developed in the Wood Rodgers Marin City Drainage Study will be modified by the consultant and optimized to provide the most effective (not necessarily cost-effective) flood mitigations for the refined and the new alternative. Documentation and capital cost estimates will be developed for the two alternatives. A summary of alternatives and cost estimates will be presented to the Task Force for feedback, then the Zone 3 advisory board for their input before proceeding to the next tasks. Public outreach and engagement through this process will be led by Marin City Climate Resilience and Health Justice which will coordinate with the consultant and share public feedback as part of Task Force meetings. Flood District staff will coordinate Task Force and Zone 3 advisory board meetings.

Mitigation measures will include projects physically outside of the Marin City or Zone 3 area that beneficially impact drainage and access to Marin City, e.g. new pipes across US 101 should be evaluated, such as new pipes along Donahue under the freeway to Waldo Point. Consider in evaluation of effectiveness for mitigation measures how current and future anticipated groundwater levels and sea level rise, referencing the State 2018 SLR Guidance, affect them (e.g. limiting detention capacity?). Consider future development potential and associated changes in project effectiveness.

Deliverable: Comprehensive Alternatives Model Technical Memorandum

- 3) Prioritization of Mitigation Measures Improvements/Maintenance/Rehabilitation.** Consultant will select a preferred alternative (which may be a hybrid of two alternatives) developed in the above task with input from the Task Force and Zone 3 advisory board, and then prioritize the mitigation measures within the preferred alternative. The mitigation measure prioritization/ranking will be based on criteria agreed upon by the Task Force, such as flooding extents, depths, durations, impacts to homes, public health, critical facilities, relative potential for contaminated stormwater (based on existing available data), as well as impacts to traffic and accessibility to the community. The mitigation measures may be grouped by phases that would be required for system functionality, and then assigned with different implementation schedules based on anticipated availability of funding. Recommended sequencing of mitigation measures will be described.

Deliverable: Mitigation Measure Prioritization Ranking List

4) Comprehensive Watershed and Flood Mitigation Plan Preparation. The consultant shall prepare a comprehensive report addressing the following topics, with information about the model, references, and documentation included as appendices:

A. Introduction

1. History of watershed pre- and post-development, including use by plants, animals, and Coastal Miwok.
2. Based on oral histories collected by Task Force, history of flooding and debris flow/landslides and impacts to safety and quality of life, including photos.
3. Describe existing Drainage Infrastructure and including all public and privately owned structures 12" or greater in diameter.
4. Summary of Existing Studies and Studies and Projects Underway
5. Task Force – list members, referring to appendix with meeting agendas and meeting notes.

B. Evaluation of Existing Conditions

1. Identify areas of recurrent and impactful flooding.
2. Identify known and potential stormwater pollution sources based on existing qualitative data and how project alternatives could protect stormwater from contamination (e.g. avoiding flow through these areas, cleaning and sealing stormwater systems, installing bioretention or other green infrastructure etc.). Qualitatively document known former dump sites in the upper and lower watershed as well as sanitary sewers, former gas stations, highway runoff, and pesticide use in the watershed.
3. Describe groundwater levels and their effects on existing homes, public health, and infrastructure based on interviews by local organizations.
4. Based on areas identified by local organizations where there is no/insufficient drainage infrastructure to protect groups of structures and/or reduce water pollution.
5. Prepare map of pipe system showing age/year installed/upgraded plus show available sewer and water supply pipeline data. Compare pipe materials to most up to date standards for materials.
6. Document alleged superfund sites based on interviews conducted by local organizations.

C. Potential Hazard Mitigation Measures and Evaluation of their Effectiveness

1. Upper Watershed Mitigation Measures (including GGNRA property) – including mitigation of debris flow and erosion risk, absence of drainage infrastructure, fire road armoring, address failing retaining walls.
2. Open channel (stream/ditch) mitigation measures – including addressing flooding, erosion risk, and vegetation overgrowth and other ditch maintenance needs.
3. Detention Based Mitigation Measures (e.g. dual use facilities, cisterns)
4. Storm Drain System Mitigation Measures Including New and Upgraded systems
 - a. Within Marin City
 - b. Donahue to Waldo Point or other point in or near the bay
5. Sediment Removal (dredging)
6. Tidal Flooding Mitigation Measures (e.g. floodwalls, gates)
7. Structure Elevation and/or Floodproofing
8. Green Infrastructure and open space preservation in the watershed, including but not limited to treating and slowing highway runoff

D. Recommendations for Hazard Mitigation Measures

1. Cost Estimates for Mitigation Measures

2. Prioritization of Mitigation Measures
3. Implementation Plan of Preferred Alternative – effectively a Marin City Storm Drain Master Plan

Deliverable: Marin City Comprehensive Watershed and Flood Mitigation Plan report

5) Capacity Building and Engagement Tasks in Partnership with Non-Profit Organizations

There was a community capacity building pilot program in Marin City that was implemented in 2018 by Shore Up Marin City and Permaculture + Social Equity Team (P+SET) as part of the Resilient By Design Bay Area Challenge. This scope is being presented with respect to P-SET’s principles for community partnership outlined below but other options for community engagement and capacity building models will be explored and considered.

| P+SET Principle | Background | Proposed Task Descriptions |
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| Seek an invitation | This comprehensive planning process was requested by the community organization Marin City Climate Resilience and Health Justice (“MCCRHJ” at the time Shore Up Marin City) at a Marin County Flood Control & Water Conservation District Zone 3 Advisory Board Meeting. They also requested the process be led by a Task Force of community members. | In coordination with the Marin County Flood Control & Water Conservation District, MCCRHJ will lead public engagement, planning, and implementation of flood mitigation in Marin City with support from additional local agencies. MCCRHJ will collaborate and manage the Task Force consisting of the Marin City People’s Plan and community members. Each organization chooses their own representative, and all have a seat at the table. |
| Build trust | African Americans came to Marin City to build ships during World War II. After the war, redlining prevented many Black people from integrating into other communities in Marin County. Systemic racism has long led to the underserving of Marin City by government and this track record leads to an understandable lack of trust of government organizations by the community. | Local governments will provide resources and capacity building opportunities to local organizations so they can engage directly with their own community on this effort as an equitable approach to building community trust and partnership. Due to concerns about pollutants, testing for quality of soil and water at locations identified by community members will be part of the scope as well as community meetings to discuss the results. |
| Embrace diversity and inclusion | Seniors, people with illness or disabilities, children, people for whom English is not their primary language, and people with low income are often unintentionally excluded from typical government planning processes. An important lesson learned is to make sure there are stipends for people’s participation. Stipends are typically minimum \$25 to \$50 maximum per meeting attended. | Childcare, accessibility, transportation, internet, and translation services (including communication specialists that can clarify technical terms) are tools to overcome barriers to diversity and inclusion. Public engagement will take place in Marin City at senior centers, recreation center, library, schools, churches, and daycares throughout the community and in partnership with local organizations. It will include stipends and childcare, and occur at varying times and in varying formats, so it |

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| | <p>MCCRHJ and all the participating local organizations consist of very diverse groups of community members. Government staff and technical consultants in the process will be provided racial justice training prior to participating in engagement events. For County staff, a training has been arranged with Dr. Alberto Ledesma for November 4, 2021 on Diversity, Inclusion, and Equity. Affirmative steps will be taken to ensure small, minority, and women owned businesses (disadvantaged business enterprises or “DBE”s) will be solicited for services and any subconsultants will be required to do the same. The goal is for the team working with the community – consisting of representatives of MCCRHJ, the Task Force, community organizations, County staff, and consultants – to strive to mimic the type of representation in the community of Marin City as far as makeup of race and gender.</p> | <p>doesn’t conflict with work schedules and mobility limitations. To minimize risk of COVID-19 engagement events will occur outdoors whenever possible or else have a virtual (Zoom) option or have doors/windows open to improve ventilation. Community surveys will be available both on paper and online, door to door, regarding issues and perspectives on solutions.</p> |
| Transfer skills | <p>Training events will be a large component of the public engagement. As P+SET describes there can be a cost savings over the long-term in government services when “communities have more skills and capacity to advocate and share in ways that are understandable and constructive...”</p> | <p>The focus of trainings will include Marin City history, equity, climate change, government and advocacy, green infrastructure and nature-based solutions, public health, understanding risk associated with pollutants, and examples of multi-benefit hazard mitigation solutions around the world. Provide a series of short kid-friendly training events and workshops with meals, duplicate on weekends and evenings.</p> |
| Forge mutually beneficial relationships | <p>Because at this time Marin City is not incorporated it has a large number of separate agencies and organizations that provide services. Because of “siloes” funding sources and objectives opportunities to realize synergies in efforts may be missed.</p> | <p>Partnering with local agencies and organizations through this study and planning process creates an opportunity to plan multi-benefit hazard mitigation projects. Network development and collaboration by the District with community and external stakeholders for social and environmental development within Marin City schools and community.</p> |
| Constantly seek feedback | <p>Updates on the planning, capacity building, and engagement process will be provided at monthly Isoji meetings will be an opportunity for regular Q&A from other organizations and community members in attendance. A Marin City Council of Organizations (MCCO) is being</p> | <p>Updates on planning will include both updates on the comprehensive planning process as well as related efforts like the interim flood response plan (short-term measures outside the scope of comprehensive plan), Emergency Action Plan development (also a separate planning effort from comprehensive plan), and design and</p> |

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| | <p>set up and will be leveraged for future regular feedback.</p> | <p>implementation of proposed projects at the Marin City pond. Various community stakeholders and groups will be met with to identify immediate flood-related community concerns and barriers to participation in flood mitigation planning, including Marin City Senior Center, Sausalito Marin City School District, Performing Stars, Bridge the Gap, Play Marin, Golden Gate Village, daycares, and Manzanita Recreation Center.</p> |
| <p>Be adaptive</p> | <p>As part of a transportation grant a prior study of flooding in Marin City was completed in a short timeline and some community members report feeling it was not complete.</p> | <p>In order to adjust to community needs and changes the anticipated schedule is 1-2 years. We initially plan for a 1-year process but will not rush to completion if additional resources and needs are identified by the community.</p> |