Attachment 2:
M.R. Wolfe & Associates Letter

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& associates, p.c.
attorneys-at-law

December 10, 2020

By E-Mail

City of Sausalito
Attn: Lilly Whalen, Community Development Director
420 Litho Street
Sausalito, CA 94965
deircomments@sausalito.com

Re: Revised Draft Environmental Impact Report for City of Sausalito 2040 General Plan

Dear Ms. Whalen:

On behalf of Community Venture Partners, Inc. (CVP) and Sausalito residents John Flavin and Patricia Zuch, please accept the following comments on the Revised Draft Environmental Impact Report (Revised Draft EIR) for the Sausalito 2040 General Plan update. By way of introduction, CVP is a Marin County-based 501(c)(3) non-profit organization dedicated to assisting community-based initiatives that support social equity, environmental sustainability, and government transparency. CVP's officers, board members, and/or donors use, frequent, and enjoy the facilities and resources of Sausalito's Marinship area and are potentially adversely affected by the policies and programs proposed in the Sausalito 2040 General Plan Update. 1

We previously reviewed and submitted comments on the original Revised Draft EIR and public review draft of the 2040 General Plan on August 5, 2020 (copy attached). The Notice of Availability for the Revised Draft EIR indicates that in accordance with Section 15088.5(f)(1) of the CEQA Guidelines, the City will not be responding to our earlier comments in writing, and instead will be responding only to written comments received on the current Revised Draft. The Notice further states that the Revised Draft EIR does not identify any new significant unmitigated environmental impacts beyond those identified in the original Revised Draft EIR. To our knowledge, the original Revised Draft EIR identified no significant unmitigated impacts, and the Revised Draft now follows suit. Accordingly, this letter re-asserts most of the comments and concerns raised in our August 5 letter. 2

Please note we once again engaged Laurel Collins of the consulting firm Watershed Sciences to review and comment on the both the revised General Plan and Revised Draft EIR's consideration of the potential future consequences of

climate change-induced sea level rise and increased land subsidence on the buildout scenarios envisioned by the General Plan, with a focus on impacts to the Marinship. Ms. Collins is a geomorphologist with over 40 years of experience in riverine, tidal wetland, and hillslope geomorphic processes, hydrology, and landslide analysis, having consulted for numerous federal, state, and local agencies including Marin County Public Works, Marin County Flood Control and Water Conservation District, U.S. Geological Survey, and Lawrence Berkeley Laboratory. Her comments and qualifications accompany this letter.

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Although mindful of the additional mitigation measures that the Revised Draft EIR now includes, including those requiring health risk assessments for projects emitting toxic air contaminants within 1,000 feet of sensitive receptors and "special" biological resource studies for new discretionary projects, we continue to believe the City's disclosure, analysis, and mitigation of potentially significant impacts from buildout under the General Plan is inadequate under the California Environmental Quality Act (CEQA). Our reasoning is set forth below.

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Introduction

The Revised Draft EIR states that it is a Program EIR prepared in accordance with Section 15168 of the CEQA Guidelines, Title 14 Cal.Code.Regs. § 15000 et seq. (hereafter "Guidelines"). A Program EIR is appropriate for broad planning actions such as the adoption of a general plan, particularly where site-specific, project-level information is not available or may not be feasibly obtained. CEQA is clear, however, that the choice to prepare a Program EIR does not excuse a lead agency from making a good-faith effort to investigate and disclose all it reasonably can, nor does it allow the City here to defer an analysis of reasonably foreseeable significant environmental impacts to a later stage of review to avoid addressing those impacts in a first-tier EIR.

The Revised Draft EIR for the 2040 General Plan is, frankly, striking in its omission of actual disclosure and analysis of foreseeable environmental impacts that will result from the future development it both envisions and enables. Repeatedly throughout the document, the Revised Draft EIR simply asserts that because future development projects will comply with applicable environmental laws and regulations, there necessarily will be no significant impacts resulting from physical buildout, and that no specific mitigation measures are necessary to formulate or implement before the Plan is adopted. While it may be reasonable to a limited extent to presume that future projects will receive some measure of scrutiny under CEQA, or will be required to adhere to governing development standards, it is not reasonable to declare categorically that this will occur in all cases, so as to avoid substantive, meaningful, present analysis of potential impacts.

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As this letter and the accompanying review by Ms. Collins will explain, the Revised Draft EIR's summary conclusion that all impacts from General Plan buildout will be adequately mitigated simply by virtue of compliance with applicable laws, ordinances, and regulations is not supportable. This is particularly the case in the context of the acknowledged foreseeability of inundation of low lying areas due to sea level rise and land subsidence, including within the Marinship, together with other foreseeable seismic, toxin, and geologic hazards. While the 2040 General Plan acknowledges the need for future studies to gauge these risks, and to devise physical solutions to mitigate them, it improperly defers this process to unspecified future periods. Both as a matter of law under CEQA and as a matter of sound planning policy, the City should complete the necessary studies now, or as soon as practicable, so that it may devise General Plan policies and programs that implement their recommendations, or at the very least factor their findings into future buildout scenarios, taking into account future infrastructure needs. Until this occurs, the Revised Draft EIR cannot comply with CEQA's requirements.

Standards of Adequacy for a Program EIR Under CEQA

When a lead agency is preparing an EIR for a broad planning action such as adoption of a general plan, development of detailed, site-specific information may not be feasible. The City may to some extent leave a detailed analysis to later EIRs prepared for projects that implement the plan or policy, *e.g.*, for the future zoning code update and/or for individual development projects. Guidelines, § 15152(c). *See, e.g., Chaparral Greens v City of Chula Vista* (1996) 50 Cal.App.4th 1134; *Koster v County of San Joaquin* (1996) 47 Cal.App.4th 29. This approach does not, however, permit the City to defer an analysis of reasonably foreseeable significant environmental impacts to a later stage of review to avoid addressing those impacts in a first-tier EIR. Guidelines, §15152(b). While a program EIR allows the lead agency to defer analysis of some of the details of later phases of long-term projects until they come up for approval, CEQA's information disclosure requirements are not satisfied by simply asserting that analysis will be undertaken at some point in the future. *Vineyard Area Citizens for Responsible Growth v City of Rancho Cordova* (2007) 40 Cal.4th 412, 431; *Santa Clarita Org. for Planning the Env't v County of Los Angeles* (2003) 106 Cal.App.4th 715, 723.

3a Cont.

A potentially significant environmental impact is ripe for evaluation in a Program EIR when it is a "reasonably foreseeable consequence of the action proposed for approval," and the agency has "sufficient reliable data to permit preparation of a meaningful and accurate report on the impact." *Los Angeles Unified Sch. Dist. v City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1028. *See Vineyard Area Citizens*, 40 Cal.4th at 431 (analysis of future water sources for large community plan that would be developed over several decades and environmental effects of exploiting

those water sources are not type of information that may be deferred for later analysis). *See also Stanislaus Natural Heritage Project v County of Stanislaus* (1996) 48 Cal.App.4th 182 (analysis of future water sources to supply development under specific plan cannot be deferred for later analysis).

A program EIR that is prepared to support approval of an overall program, and to simplify later environmental review as activities within the program are considered, may focus on program-wide issues and leave to later EIRs detailed analysis of issues specific to particular program components. Guidelines, §15168(d)(2), (3). *See e.g., City of Hayward v Board of Trustees of Cal. State Univ.* (2015) 242 Cal.App.4th 833, 849; *Town of Atherton v California High-Speed Rail Auth.* (2014) 228 Cal.App.4th 314, 345. By contrast, a program EIR that is designed to allow approval activities within the program without the need for further CEQA review should provide description of the activities that would implement the program and a specific and comprehensive evaluation of the program's foreseeable environmental impacts, so that later activities can be approved on the basis of the program EIR. Guidelines, §15168(c)(1)–(2), (5); *Center for Biological Diversity v Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 237. Program EIRs may also combine the two approaches, examining the program as a whole at a programmatic level of detail, while also examining some activities within the program at a project-specific level of detail. *See, e.g., Mission Bay Alliance v Office of Community Inv. & Infrastructure* (2016) 6 Cal.App.5th 160.

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As with any EIR, a program EIR must provide decision-makers with "sufficient analysis to intelligently consider the environmental consequences of the project," and designating the EIR as a program EIR in itself does not decrease the level of analysis otherwise required. *Cleveland Nat'l Forest Found. v San Diego Ass'n of Gov'ts* (2017) 17 Cal.App.5th 413, 426. A lead agency preparing a program EIR must disclose what it reasonably can, and <u>any determinations that it is not feasible to provide specific information must be supported by substantial evidence</u>. *Id.* at 440 (rejecting air quality baseline discussion and impact analysis because substantial evidence did not support agency decision to omit more detailed analysis). *See generally Center for Biological Diversity v Department of Conserv.* (2019) 36 Cal.App.5th 210, 231, *citing Sierra Club v County of Fresno* (2018) 6 Cal.5th 502, 516, and stating that a program EIR must include enough detail "to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project."

A Program EIR may include mitigation measures that address broad impacts at a programmatic level; because project-specific specific mitigation measures often cannot be formulated early in the planning process, a Program EIR may also include policies, standards, or performance criteria governing mitigation measures to be

included in later environmental documents. *See Koster v County of San Joaquin* (1996) 47 Cal.App.4th 29; *Rio Vista Farm Bureau Ctr. v County of Solano* (1992) 5 Cal.App.4th 351, 377. *See also* Guidelines, §15126.4(a)(2) (in the case of a plan, policy, or regulation, mitigation measures can be incorporated into the plan, policy, regulation, or project design); *Sacramento Old City Ass'n v City Council* (1991) 229 Cal.App.3d 1011, 1023. Although the Program EIR approach may allow the details of mitigation measures to be deferred, it does not excuse a failure to adopt adequate policies, standards, or performance criteria defining those measures. *California Clean Energy Comm. v City of Woodland* (2014) 225 Cal.App.4th 173, 201.

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Note that when a Program EIR does not provide a detailed evaluation of project-level impacts, EIRs on subsequent projects will have to provide an independent analysis of the significant environmental impacts specific to those later projects. *See In re Bay-Delta Programmatic Envt'l Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1173.

The 2040 General Plan Revised Draft EIR Omits Necessary Impact Analysis

Here, the EIR is notable for its nearly complete lack of any analysis whatsoever of potential impacts from buildout under the 2040 General Plan. The EIR's seems to have applied a cookie-cutter approach for each topic, reciting the applicable laws, regulations, and ordinances, noting the potential for a significant impact, and then simply declaring that any impacts would be mitigated to less-than-significant levels simply by complying the applicable laws, ordinances or regulations.

The EIR does acknowledge its limited analysis to some extent, stating:

> This Revised Draft EIR will be used to evaluate subsequent projects and activities under the proposed 2040 General Plan. This Revised Draft EIR is intended to provide the information and environmental analysis necessary to assist public agency decision-makers in considering approval of the proposed 2040 General Plan, but not to the level of detail to consider approval of subsequent development projects that may occur after adoption of the proposed 2040 General Plan.

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However it goes on to state:

> Additional environmental review under CEQA <u>may</u> be required for subsequent projects and would be generally based on the subsequent project's consistency with the proposed 2040 General Plan and the analysis in this Revised Draft EIR, as required under CEQA. <u>It may also be determined that some future projects or infrastructure improvements may be exempt from</u>

> environmental review. When individual subsequent projects or activities are proposed under the proposed 2040 General Plan, the lead agency that would approve and/or implement the individual project would examine the projects or activities to determine whether their effects were adequately analyzed in this Program EIR (CEQA Guidelines § 15168. Revised Draft EIR, p. 1-2, underline added.

It is axiomatic under CEQA's tiering provisions that the less analysis is undertaken at the program level, the more will be required at the project level. The EIR should acknowledge this expressly. Stating that additional review "may" be required at the project level, while invoking the possibility that future projects may be CEQA-exempt and thus evade environmental review, does not assure the public that the City has committed to taking the requisite "hard look" at the program's environmental effects. 3b Cont.

The City should explicitly acknowledge that the Revised Draft EIR contains no detailed analysis whatsoever that could be relied upon for future project-level environmental review, and correspondingly commit to detailed review of individual projects as they are brought forward.

Project Description

The Revised Draft EIR projects growth under General Plan buildout in terms of additional number of housing units for residential uses, and additional square footage for non-residential uses. Table 2-2, 2-3. The Revised Draft EIR also includes the land use map from the General Plan. What is missing is information showing where precisely in the City the new development may or will occur. Therefore:

- Please indicate on a map the undeveloped or greenfield parcels within the City that may be developed at buildout, showing the applicable land use designation for each.
- To the extent not already depicted in Figure 7-11 *100 Year Flood Map with Geological Inventory, p*lease overlay this map onto the maps currently included in the Revised Draft EIR showing areas of seismic risk, liquefaction hazards, sea level rise, and tribal/cultural resource locations.
- Please overlay the 2040 Land Use map onto the current General Plan's land use map so that the differences are apparent.
- Please overlay a map showing the locations of sensitive receptors (for purposes of future health risk assessment).

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The Revised Draft EIR and 2040 General Plan project 146,124 new square feet for industrial uses and 340,061 for waterfront uses. All or most presumably will

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be within the Marinship. "Industrial" is an extremely broad category of land use that encompasses a variety of different enterprises with different types of magnitudes of potential environmental impact. *See* Table 10.26-1 in Sausalito's Zoning Ordinance. Some industrial uses generate more air pollution than others, while others employ more people per square foot, increasing VMT.

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- To the extent reasonably foreseeable, please indicate the types of industrial uses that will be expanded at buildout
- Please indicate the likely geographic location for each new or enlarged sub-category of industrial land use

The Revised Draft EIR's findings that all impacts under General Plan buildout will be mitigate to less-than-significant levels depends in great part on the assumption that future projects will require discretionary approvals from the City that in turn will trigger environmental review under CEQA. However, as the Revised Draft EIR acknowledges (p. 1….), some future projects may be exempt from CEQA based one or more statutory or categorical exemptions. Thus, future environmentally impactful projects that the Revised Draft EIR assumes will be subject to mitigation requirements in fact may not be.

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- Please indicate which industrial uses would in the future be permissible "by right," i.e., without the need for any discretionary approval from the City.
- Please indicate which commercial uses would in the future be permissible "by right," i.e., without the need for any discretionary approval from the City.
- Please indicate where such uses that will be permissible "by right" will be situated relative to sensitive receptors

Air Quality

The Revised Draft EIR acknowledges that buildout under the General Plan could expose sensitive receptors to unhealthy concentrations of air pollutant emissions. The Revised Draft EIR states:

> Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Revised Draft EIR at p. 3.2-15

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The Revised Draft EIR adds new mitigation MM AQ-3, requiring preparation of a health risk assessment for new projects that may result in additional toxic air contaminant (TAC) exposure to receptors within 1,000 feet.

- Please indicate whether and how mitigation measure MM AQ-3 exceeds of otherwise differs from existing regulatory requirements of the Bay Area Air Quality Management District (BAAQMD) or California Air Resources Board (CARB) or the CEQA Guidelines
- Please indicate on a map the locations within the City where sensitive receptor populations are currently located.
- Please also indicate where future additional sensitive receptor populations may be located at General Plan buildout
- Please indicate any existing or proposed future truck routes within the City, where heavy trucks emitting diesel particulate matter (DPM) are likely to travel on a regular basis

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The Revised Draft EIR relies on CalEEMod to estimate air pollutant emissions for the project buildout year 2040. The modeling files in Appendix B indicate that the City used the model's "Industrial Park" land use category to calculate emissions from all industrial sources; and "Strip Mall" to calculate commercial emissions. According to documentation developed by the California Air Pollution Control Officers Association (CAPCOA), CalEEMod incorporates land use categories "that are mainly based on ITE land use classifications."[1] ITE's Trip Generation Manual (10th Ed.) includes eleven other industrial land use classifications in addition to "Industrial Park," including "General Light Industrial," "Warehousing," and "Specialty Trade Contractor." *See* Land Use Codes 100-199. For commercial/retail uses, the ITE Manual includes over 40 distinct land use classifications. *See* Land Use Codes 800-899.

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- Please provide documentation or otherwise explain why the use of a single industrial land use classification for "Industrial Park" accurately reflects the industrial land use mix within the City at General Plan buildout, and/or is otherwise suitable as the industrial land use input for CalEEMod
- Please likewise document or explain why the use of the single commercial land use classification for "Strip Mall" accurately reflects the commercial/retail land use mix within the City at General Plan buildout, and/or is otherwise suitable as the industrial land use input for CalEEMod.

[1] CAPCOA (2013). *CalEEMod, Appx. A (Calculation Details)*, p. 4.

Biological Resources

The Revised Draft EIR reports that five special-status plant species and six special status animal species have been recorded to occur within the Sausalito Planning Area, namely two bird species, one fish species, two invertebrate species, and one mammal species. The Revised Draft EIR states that subsequent development under the proposed 2040 General Plan could result in the direct/indirect loss or indirect disturbance of special-status plant or animal species or their habitats that are known to occur, or have potential to occur, in the region. The Revised Draft EIR adds new mitigation measures MM Bio-1a, BIO-2a, BIO-2b, and BIO-3, which require studies of, respectively, special-status species, threatened plant habitat, eelgrass and red algae resources, and wildlife movement corridors for all new discretionary projects, and implementation of any impact mitigation requirements identified therein. 9

- Please indicate whether and how mitigation measures MM Bio-1a, BIO-2a, BIO-2b, and BIO-3 exceed or otherwise differ from existing regulatory requirements under CEQA, the CEQA Guidelines, the State Fish & Game Code, or the State and Federal Endangered Species Acts.
- Please indicate on a map the locations of special-status plan or animal species and/or their terrestrial or aquatic habitat areas that may be lost under General Plan buildout
- Please explain the basis for the Revised Draft EIR's categorical conclusion (p. 3.3-18) that future development under the proposed 2040 General Plan would necessarily comply with the various federal, State, and local laws and regulations that protect special-status plant and animal species, including FESA and CESA, such that it would not result in significant adverse effects to biological resources.

Soils/Geotechnical Impacts

The DEIR states:

The Landslide Task Force made recommendations to the Sausalito City Council regarding unstable geologic units, some of which have been incorporated into the proposed 2040 General Plan. One of the recommendations was to map local geology and geologic hazards for both slope stability and seismic hazards. The hazard maps would assist the city in identifying public drainage systems that need updates and repairs. The maps are also likely to identify open space areas upslope of city infrastructure or residential structures that have a potential for failure. Such areas could then be prioritized for stabilization measures to minimize or eliminate future failures. 10

> Other task force recommendations included creating a mechanism for residents to report emerging landslide risks, the development of new building and remodeling guidelines, and the formation of a GHAD. Revised Draft EIR, p. 3.6-14.

From a planning policy standpoint, it is critical to understand the locations and relative risk levels of geologic hazards within the City if future development is to proceed safely. The referenced hazards map should therefore be developed and incorporated into the General Plan. The Revised Draft EIR has provided no explanation or justification for its omission.

- Please describe the status or progress of creating the hazard maps recommended by the Landslide Task Force.
- Please provide whatever information is currently in the City's possession that identifies public drainage systems that need updates and repairs.
- Please provide similar information that identifies open space areas upslope of city infrastructure or residential structures that have a potential for failure.

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The Revised Draft EIR further states that "[t]he proposed 2040 General Plan also includes programs to delineate geologic hazards and mitigation plans for those hazards." Revised Draft EIR, p. 3.6-14.

- Please identify the programs in the 2040 General Plan that delineate geologic hazards
- Please provide the mitigation plans for the geologic hazards delineated by these programs.

The Revised Draft EIR further states that: "[t]he proposed 2040 General Plan includes policies and programs to map areas with high susceptibility to erosion and protect water quality, which also address soil erosion. Program HS-1.2.7 requires the city to develop a citywide GIS layer that maps the city's drainage and erosion hot spots related to geologic weathering." Revised Draft EIR, p. 3.6-15.

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- Please indicate the status of the City's development of a citywide GIS layer that maps the city's drainage and erosion hot spots related to geologic weathering
- Please explain why the GIS layer cannot be incorporated into the Revised Draft EIR's analysis of geology, soils, and seismicity impacts.

Greenhouse Gas Emissions

The Revised Draft EIR concludes that buildout under the 2040 General Plan would have no significant impacts with respect to greenhouse gas (GHG) emissions because future development would comply with the requirements of the proposed General Plan itself, applicable BAAQMD regulations, the City's Climate Action Plan, and the Sausalito Municipal Code, that aim to reduce GHG emissions levels in the Planning Area. Revised Draft EIR, p. 3.7-31. The Revised Draft EIR specifically references several programs and policies contained in the 2040 General Plan's Environmental Quality Element and Sustainability Element that are crafted for this purpose. Revised Draft EIR, pp. 3.7-13 – 3.7-19.

- Please indicate the status of the City's Climate Action Plan (CAP) in terms of updating it with "new data as well as updated policies and programs" as described in Policy EQ-5.1.1. Please provide a schedule or similar information to apprise the public as to the frequency of past and future updates.
- Please provide "the most ambitious County, State, or Federal [GHG] emissions targets" with which the City intends to align its own targets, as required under Policy EQ-5.1.3. 12
- Please describe what means the City will use to "promote local, county, State, and federal standards among Sausalito residents and businesses, informing them of the short- and long term effects of reducing emissions and improving air quality," as required under Policy EQ-5.2.7.
- Please list the City facilities deemed suitable for the installation of solar energy systems in accordance with Program S-2.3.10.
- Please describe the membership criteria for the "climate-focused City committee to recommend creative and cutting-edge projects that will cost-effectively reduce greenhouse gases and other emissions in the City," as required under Program S-2.11.
- Please describe the current status of the development of the City's database for tracking community-wide and City operation [sic] greenhouse gas and other emissions, as well as solid waste, energy, environmental, and economic data, as required under Program S-2.3.15.

Sea Level Rise & Subsidence

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The 2040 General Plan's Sustainability Element states:

> "BayWAVE projects that Marin County could experience 10 inches of sea level rise by 2030, 20 inches by 2050, and 60 inches by 2100. Sea level rise will exacerbate the impacts of other coastal hazards, such as storms, flooding, and erosion. [¶] BayWAVE's estimates show Sausalito with as much as 149 acres, or 11 percent of the City's land area, exposed by the end of the century. This would include most of the industrial land in Sausalito, which could lead to serious financial problems – particularly as many of those industrial sites may require expensive cleanup in order to prevent contaminants from entering Richardson Bay. Sea level rise could be understood as an existential issue for Sausalito." HS-5.

The Health, Safety, and Community Resilience Element similarly provides:

> "Subsidence is an issue throughout the city, but it is of concern in the Marinship which is sinking at a rate of 0.5 to 0.75 inches per year according to the Waterfront and Marinship Committee's 2010 Sausalito Waterfront and Marinship Vision. Subsidence can lead to groundwater intrusion and intensify flooding and the effects of sea level rise, making development and infrastructure in these areas more vulnerable." HS-18.

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The impacts of future development in the Marinship against this backdrop of inevitable sea level rise and ground subsidence is of paramount importance to Community Venture Partners, Mr. Flavin, Ms. Zuch, and numerous other business owners and operators that will be most directly affected. The Marinship is, as the General Plan acknowledges, the City's principal employment engine and a major source of tax revenue.

To its credit, the Revised Draft EIR underscores the concern of sea level rise by including the following as express Project objectives: [1] "Safeguard the natural environment and ensure community health, safety, and resilience, including addressing the inherent risks of climate change, sea level rise, and subsidence;" and [2] "Seek innovative and sustainable solutions to sea level rise in collaboration with County and regional agencies and innovators, to sustain the quality of life in Sausalito and its active waterfront uses." Revised Draft EIR, p. 2-4. However, while it is of course reasonably foreseeable that sea level rise will by 2040 require "innovative and sustainable solutions" in the form of physical infrastructure projects to prevent inundation of waterfront areas, the financial and technical feasibility of such projects is an open question that the General Plan and Revised Draft EIR do not address.

As Ms. Collins explains in her letter, the Revised Draft EIR, like its predecessor, does not evaluate how the altered environment resulting from sea level rise and subsidence will affect future existing infrastructure, buildings, and safety of

people in the Marinship, nor does it identity particular mitigation strategies that will be necessary to reduce potential hazard. Neither does the Revised Draft EIR evaluate the potentially major environmental impacts of the mitigation strategies themselves, which will almost take the form of large-scale infrastructure projects. *See* Guidelines, §15126.4(a)(1)(D); *Stevens v City of Glendale* (1981) 125 Cal.App.3d 986. Future increased development will require continued and increased large-scale mitigation to make it a viable environment for existing and proposed development. Sea Level Rise accommodation, subsidence remediation, and other necessary infrastructure repair/relocation projects are therefore also plainly foreseeable but have not been evaluated in the Revised Draft EIR.

Although the General Plan includes programs and policies calling for future studies to "monitor the rise in sea level" (Program HS-1.9.1), and to "identif[y] local improvements in low lying areas to minimize current effects of sea level rise" (Program HS-1.9.2), this is not adequate from a current planning perspective. As Ms. Collins notes, even if the precise details of necessary accommodation projects may not be known at this point, the Revised Draft EIR can identify the category or types of projects that will likely be required (sea walls, levees, dredge/fill etc.), and also the most likely locations of the projects based on projected flood areas.

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In the absence of evidence and analysis of both the financial feasibility and the technical efficacy of such "local improvements," it is improper for the City to adopt a General Plan that assumes, without evidentiary basis, that buildout can be protected from the impacts of sea level rise. At the very least, the Revised Draft EIR should disclose to Sausalito residents generally, and the Marinship community in particular, what kinds of major sea level rise accommodation projects they can expect to endure over the next two decades. Ms. Collins identifies dredging, replacement of deteriorated storm drains and sewers, relocation of underground utilities, construction of levees and pump systems, and reconfiguration of evacuation routes during flood events. All such projects will create both temporary and permanent environmental impacts that are reasonably foreseeable and that should therefore be discussed in the Revised Draft EIR.

Accordingly:

- Please provide a list of potential "innovative and sustainable solutions to sea level rise" that the City has considered or will consider "to sustain the quality of life in Sausalito and its active waterfront uses" from the effects of sea level rise between 2020 and 2040.

- Please provide a list of potential "local improvements in low lying areas to minimize the current effects of sea level rise. Please include in the

> list the geographic location of each potential improvement, a description of the improvement, and likely funding source.

The General Plan also vaguely calls for the City to "to support studies by appropriate State agencies which monitor the rise in sea level," and to "consider initiating and implementing a localized seas level rise study that identifies local improvements in low lying areas to minimize current effects of sea level rise. (Program HS-1.9.1, and 1.9.2). Studying an environmental impact does not reduce or avoid it. Thus, such studies must be part of the Revised Draft EIR's analysis of impacts, and not characterized as mitigation for impacts that may be identified in the future. Future studies of potential impacts are permissible only when coupled with mitigation measures designed to address impacts identified by the study. See *Defend the Bay v City of Irvine* (2004) 119 Cal.App.4th 1261, 1275; *Save Panoche Valley v San Benito County* (2013) 217 Cal.App.4th 503, 524. Since that cannot occur at this time, these studies should be undertaken as soon as practicable, and their results incorporated into the General Plan before it is adopted. In their absence, the General Plan's buildout assumptions with respect to low lying areas are effectively meaningless. Thus:

- Please describe the current status of the development of the "localized sea level rise study," including the identify of any consultant(s) that have been retained
- Please list any "local improvement in low lying areas to minimize current effects of sea level rise" that have been identified by the City to date.

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The General Plan's Waterfront Element includes the Policy W-4.2: Bay Waters. Preserve and enhance the wetlands, open waters, and ecosystem of Richardson's and San Francisco Bays and utilize these landscapes for sea level rise mitigation.

- Please identify the wetlands, open water, and ecosystem locations within Richardson's and San Francisco Bays that can be utilized for sea level rise mitigation.
- Please identify the sea level rise mitigation measures that can be utilized at each of these locations.

The 2040 General Plan's Waterfront Element in turn provides:

> "The City will implement measures from the 2015 Climate Action Plan, which includes greenhouse gas emissions reduction strategies as well as strategies to adapt to climate change. Sea level rise adaptation will be incorporated into the

> Capital Improvement Plan and design standards by, focusing on the communities which will realize the impacts of sea level rise the soonest."
>
> and:
>
> "Marinship Waterfront. Sea level rise infrastructure improvements include both green (such as stormwater basins in MLK Park and daylighting of Willow Creek) and traditional infrastructure projects."

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Please identify:

- the measures from the 2015 Climate Action Plan that the City will implement.
- the timeframe for implementation of each measure
- the likely source of funding for each measure.

Consistency with Housing Element

As CVP has pointed out in its comment letter submitted under separate cover, the City appears to be considering allowing housing development on eight potential sites, including three in the Marinship. A staff report prepared for an on October 13, 2020, City Council hearing on the General Plan's Housing Element ("Housing Element 2023") attached and referenced a "Map of Potential Housing Sites" that could "provide permanent supportive housing for the anchor-out community in addition to senior housing and/or workforce housing." Site # 6 is labeled on the map as waterfront private property, and is evidently designated "Water-Based Housing Only." Site # 7 is an existing "RV Parking Area" at 2340 Marinship Way that bears no similar designation, nor does Site #2, "Sausalito Post Office."

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Regardless of the policy merits of introducing housing as a new permissible land use in the historically and currently industrial Marinship, such action could, and based on the information CVP presents likely would, result in indirect growth-inducing impacts that require disclosure and analysis under CEQA. Guidelines, § 15126(d). The Revised Draft EIR's discussion of growth-inducing impacts is silent with respect to whether allowing housing in the Marinship would result in pressure to develop or redevelop nearby parcels for housing and housing-supportive non-industrial, non-maritime land uses.

- Please state whether, in the City's view, designating any portion of the Marinship for any residential uses in the future would be consistent with the General Plan, including its Waterfront & Marinship Element,
- Please indicate whether any future zoning actions, including the adoption of new provisions or amendments to existing provisions of

the City's Zoning Code, to designate any parcel(s) within the Marinship as allowing residential housing as a primary, ancillary, or accessory use would require an amendment to the General Plan, should the Plan be adopted in its current form.

14 Cont.

Conclusion

We continue to assert that the Revised Draft EIR does not fulfill the information disclosure mandates of CEQA, even for a Program EIR. Buildout under the 2040 General Plan will itself generate potentially significant environmental impacts that the Revised Draft EIR does not adequately evaluate or mitigate. Urban development in Sausalito, now and in the future, faces substantial risks from sea level rise, ground subsidence, and other foreseeable geologic and geomorphic hazards. This is especially true in the Marinship. It is therefore surprising and disappointing that the City is poised to adopt a General Plan to govern development over the next 20 years that only vaguely commits to studying these problems in the future to some undefined extent. While there are of course several unknowns about the timing, extent, and magnitude of future sea level rise in Sausalito, a great volume of technical and scientific information exists today, as Ms. Collins's letter documents. The City has simply chosen not to include or consider it in the Revised Draft EIR. From both a land use planning policy perspective, and a public safety perspective, this is folly.

15

The City should therefore undertake a substantial overhaul of the 2040 General Plan and Revised Draft EIR to include a thorough, meaningful disclosure and evaluation of what will foreseeably be necessary to protect existing and future development from the impacts of sea level rise, subsidence, and other geologic risks. The City should then release this information for further public review and comment. We respectfully submit that the 2040 General Plan cannot be adopted in any form unless and until this occurs.

Thank you for your consideration of these comments.

Most sincerely,

M. R. WOLFE & ASSOCIATES, P.C

Mark R. Wolfe
On behalf of Community Venture Partners,
John Flavin and Patricia Zuch

ATTACHMENT 1

ATTACHMENT 1

ATTACHMENT 1

ATTACHMENT 1

ATTACHMENT 1

ATTACHMENT 1

Date: December 01, 2020

To: Community Venture Partners, Inc.
73 Surrey Avenue
Mill Valley, CA 94941
Attn: Robert Silvestri, President
Email: communityventurepartners@comcast.net

From: Laurel Collins, Watershed Sciences
8038 Mary Ave NW
Seattle WA 98117
Email: laurelgene@comcast.net

Subject: Review of the October 27, 2020 Revised General Environmental Impact Report (SCH # 201910322) of the Sausalito Draft General Plan Update

Dear Mr. Silvestri,

Below please find an enumerated list of comments based on my review of the Revised and Recirculated General Plan Environmental Impact Report (RGEIR). Overall, I did not find any significant new studies, assessment, data, research or new citations in the RGEIR that caused me to want to retract or alter any of my original comments made in my August 5, 2020 review letter of the Draft Environmental Impact Report of the Sausalito Draft General Plan Update. 17

COMMENT 1.

The RGPEIR states that:

> "RGPEIR P 3.4-18
>
> "Archaeological Sensitivity Zones
>
> "Three archaeological sensitivity zones have been identified in the Environmental Quality Element of the General Plan. The potential of discovering archaeological materials would be very high within any of the three sensitivity zones. The three sensitivity zones are listed below and shown on Exhibit 3.4-1." 18

Zone 3 along the Marinship area is described as follows:

> "RGPEIR P 3.4-18
>
> "Zone 3. This area includes the original shoreline between Dunphy Park and Martin

Luther King School. The construction of the Marinship facility to build supply ships during World War II caused a massive filling of the marshlands found on the bay side of Bridgeway in this area. Bridgeway, which occupies high ground from its intersection with Napa Street to the west as far as approximately the intersection of Bridgeway and Nevada Street, probably marked the extent of any indigenous site placement. From Nevada Street to the Martin Luther King Park, archaeological site placement may have continued as far as Tomales Street behind the former distillery, now an area of housing (Willow and Cypress Lanes)."

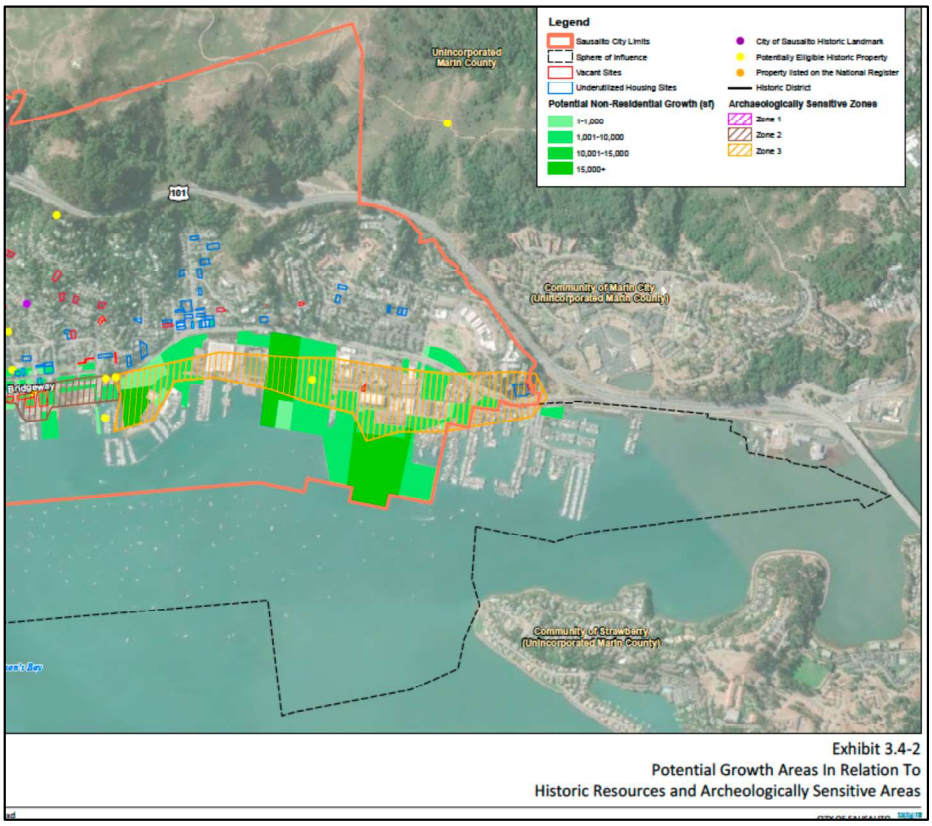


Exhibit 3.4-2
Potential Growth Areas In Relation To
Historic Resources and Archeologically Sensitive Areas

18

Cont.

The above reference describes the area of Zone 3 as the original shoreline". The statement and mapping is the same in both the DIER and the RGPEIR. Based upon my review of historical hydrographic and topographic maps, the yellow boundary shown in RGPEIR Exhibit 3.4-2 (detail shown below) that is reported to depict the "original" shoreline is inaccurately delineated. It should be shown as I depicted it as Figure 2 (also shown below) in my August review letter.

The RGPEIR states that the potential is very high of discovering archeological materials in any of these zones. The shoreline that I mapped that is shown as a dark pink line on Figure 2 below (and that is also included in my August review letter) is based upon the earliest circa mid 1800 Coast and Geodetic Surveys Charts of hydrographic and topographic conditions. This information was compiled by the San Francisco Estuary Institute. The entire historical bay shoreline was delineated from these early charts and is available online at SFEI EcoAtlas. I have

also attached digital copies of some of the earlier Coast and Geodetic Surveys that verify the mapping they show.

18

Cont.

As can be seen in Figure 2, both the upper and lower extent of the marsh shoreline (marsh is assumed to be at MHHW and therefore exposed at low tides and inundated at higher high tides) is located west of Bridgeway, not east of it as shown in the RGPEIR Exhibit 3.4-2. If the original shoreline boundary is wrong, how can Sausalito be sure that there has been adequate assessment of the significance of impacts?

This raises the question about whether the boundaries of Zones 1 and 2 are inaccurately mapped.

The RGPEIR stated:

> "RGPEIR P3.4-34
>
> "As with prehistoric archaeological resources, the waterfront has the greatest potential for buried tribal cultural resources to be present (see Exhibit 3.4-1)."

If this is the case, the shoreline (upper and lower extent relative to MHHW) needs to be adequately defined and assessed relative to the policies and protections that might exist for the sensitivity zones. 18 Cont.

COMMENT 2.

The RGPEIR has changed the document, throughout, by adding lines at the end of each impact assessment to state the level of significance and whether mitigation is required or proposed (example given below). In almost all cases, the RDEIR concludes without evidence or appropriate assessment that no mitigation is required for potential impacts related to geology, soils, seismicity, hydrology, water quality, utilities, wildfire, Hazards and Hazardous Materials. This does not change my perspective that foreseeable and extensive mitigation will be needed to implement proposed development in the plan, and that it should be adequately assessed and evaluated ahead of time to establish whether further development is physically and economically feasible given future issues of SLR, subsidence, groundwater, storm drain, sewer, emergency egress, toxics, as well as potential impacts of excessive filling on other SLR adaptation projects along the Richardson Bay shoreline. Furthermore, the implementation of such necessary mitigation measures will itself foreseeably cause significant additional impacts. 19

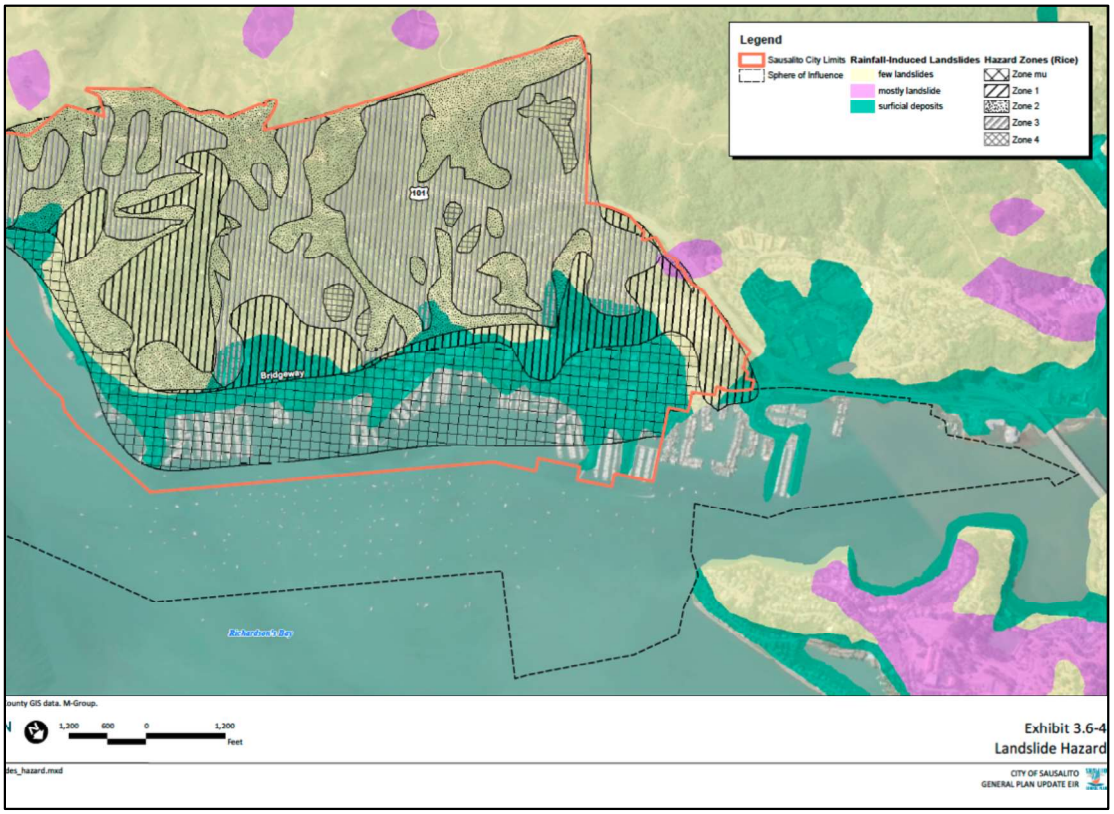
The RGPEIR does not appear to have provided or added any additional evidence, data, studies, or citations that would substantiate the claims that impacts, including impacts of required mitigation or remedial activities, will be less than significant. The RGPEIR is simply filled with unsupported assertions about existing policies and programs that would make mitigation in all cases either unnecessary or impacts less than significant, which is impossible to accept if the mitigations have not even been described.

A generic example of new RGPEIR added text that follows impact discussions is as follows:

> "Level of Significance before Mitigation
> Less than Significant
>
> "Mitigation Measures
> None Required"

COMMENT 3.

Additional information has been added to Exhibit 3.6-4 that includes more detailed landslide mapping by Rice within the Sausalito City limits. Note that the RGPEIR introduction does not mention the changes in this Exhibit. The close proximity and high density of landslide areas to Marinship further verifies my concerns that post fire erosion of streams and subsequent increased runoff, flooding, and sediment supply to Marinship is substantiated. 20



20

Cont.

COMMENT 4.

Exhibits 3.16-1 and 3.16-2 have been revised to include additional Wildfire Hazard Mapping (shown below), however, the RGPEIR Introduction only mentions the latter exhibit.

In addition to the close proximity and high density of landslide areas to Marinship, their apparent location within high and very high fire hazard zones, as delineated by the new revised Wildfire Hazard Maps (shown below), further verifies concerns about significant post fire erosion hazards to Marinship that will be associated with stream erosion and increased runoff, flooding, and high sediment supply. The capacity of the storm drain conveyance system will likely be overwhelmed, creating significant hazards to people, emergency egress, and property that has still not been adequately addressed in the RGPEIR.

21

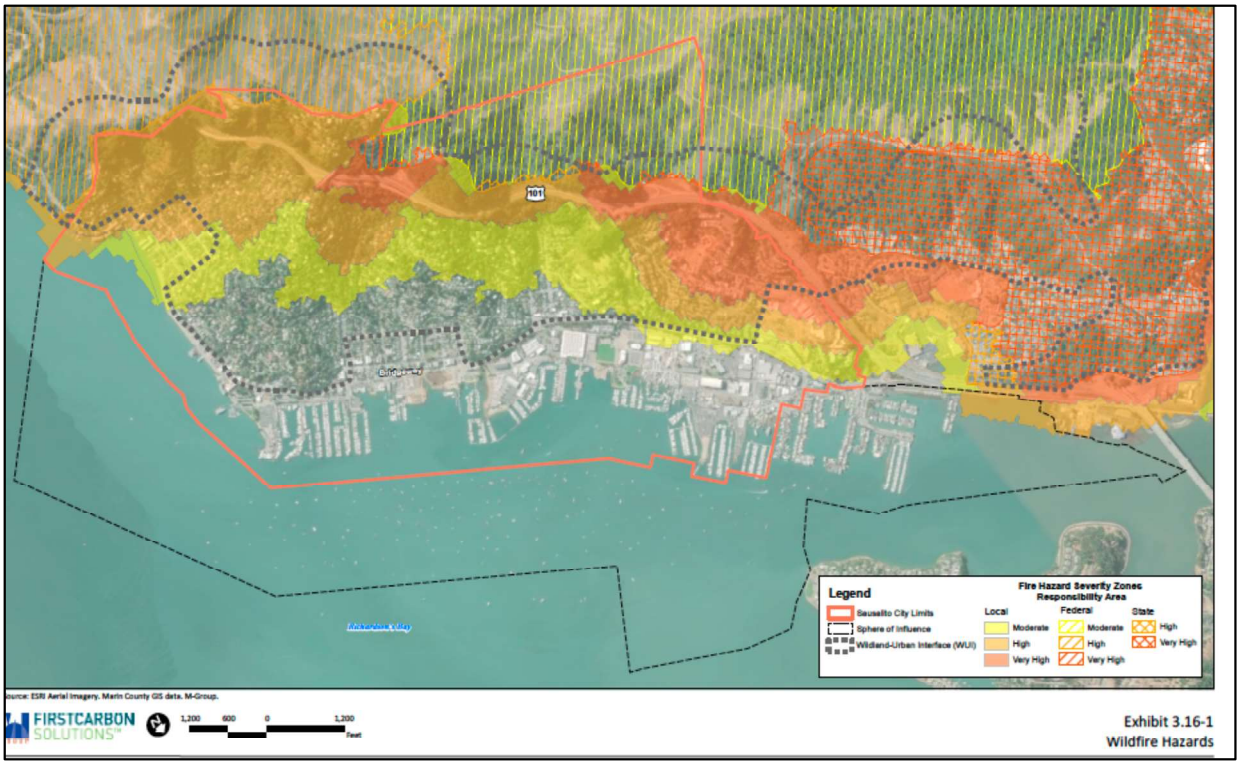


Exhibit 3.16-1
Wildfire Hazards

21
Cont.

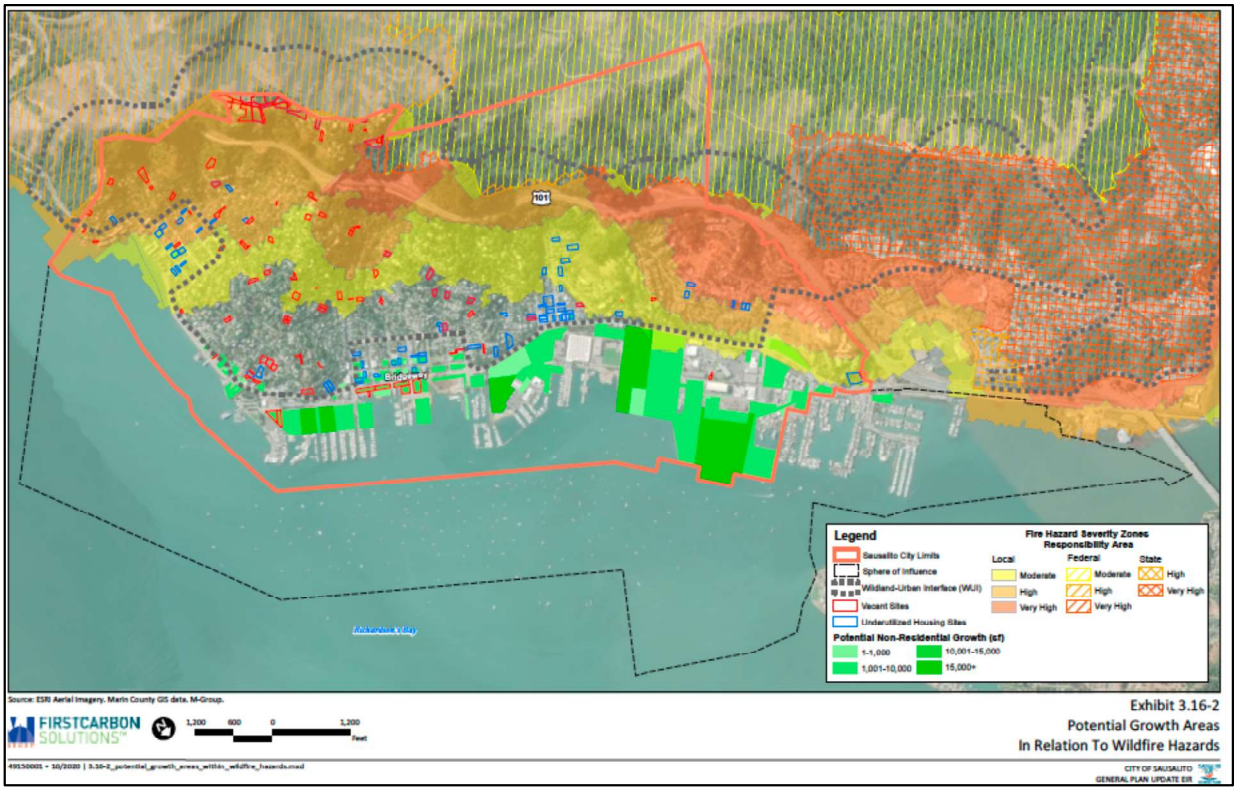


Exhibit 3.16-2
Potential Growth Areas
In Relation To Wildfire Hazards

COMMENT 5.

The RGPEIR adds the statement below in the beginning of the discussion on Geology, soils, and seismicity.

> "RGPEIR P 3.6-1
>
> "Future discretionary projects facilitated by the General Plan will be evaluated for project-specific impacts to geology and soils at the time they are proposed."

22

I question whether it is clear which projects in the RGPEIR will be discretionary and therefore reaffirm the need to assess potential mitigation impacts *before* the new General Plan Update and Final EIR are approved to establish whether the General Plan is practicably feasible. The RDEIR also fails to address the issue of cumulative impacts.

COMMENT 6.

The RGPEIR added the following two policies:

> "RGPEIR P 3.6-10
>
> "CD-1.6.1: Geographic Constraints. In order to enable safe use of buildings, use design guidelines discussed in HS-1.2.5 to ensure that new developments and substantial remodels work within the geographic constraints of its parcel."
>
> "Policy CD-2.3: Challenged Sites. Consider long-term risks when developing property that is or could potentially be at risk.

23

Given that the entire Marinship fill area will be an at-risk parcel from Sea Level Rise (SLR), subsidence, tsunami hazards, elevated groundwater, stormwater and sewage drainage dysfunction, and toxic ground water hazards (to name a few), the two previous policy statements support my assertion that existing and new development in Marinship has substantial geographic constraints in a high risk artificial environment.

COMMENT 7.

Below is a partial list of some additional new policy insertions relevant to my review:

> "RGPEIR P 3.6-12 to P 3.6-14
>
> "Policy HS-1.9: Subsidence. Identify, monitor and manage subsidence issues on at-risk parcels.

24

"Program HS-1.9.1: Subsidence Data. Obtain subsidence data that will be used to inform a subsidence mitigation and adaptation study (Program S-3.2.2).

"Sustainability Element

"Program S-3.2.1 Sea Level Rise Adaptation Plan. Prepare and adopt an adaptation plan for addressing sea level rise and land subsidence that minimizes the potential for displacement of residents, jobs, and other community assets, and prioritizes nature-based adaptation measures. The adaptation plan should include:

"a) The Sea Level Rise Map, which will be created in collaboration with BayWAVE or other regional authorities on sea level rise, as a base for adaptation planning. The map will be updated periodically to reflect the most current and reliable data.

"b) A "menu" approach to adaptation measures that would include but is not be limited to: managed retreat, nature-based adaptation measures, living shorelines, innovative building structures, and horizontal levees.

24
Cont.

"g) Evaluation of opportunities for retreat where practical and feasible, prioritizing undeveloped sites, areas in permanent open space, or areas that are environmentally constrained. Allow for transfer of ownership rights. Consider retreat as a last resort.

"m) An economic analysis of mitigation costs versus private and public economic loss.

"Program S-3.2.2: Subsidence and Liquefaction. Complete a geologic and/or hydrographic study that describes how Sausalito's unique ground subsidence and liquefaction issues will interact with sea level rise. The study should include recommendations and implementation measures.

"Program S-3.8.3: Sausalito-Marin City Sanitation District. Require written documentation from the Sausalito-Marin City Sanitation District that there is available and adequate sewer capacity prior to project approval for those projects subject to SMCSD review.

"Program S-3.8.4: Well Water. Require written documentation from the City Engineer of proof of adequate domestic water supply (well water) if water service is not available from MMWD prior to project approval.

"Program S-3.8.5: Marin County Environmental Health Department. Require written documentation from the Marin County Environmental Health Department that there is sufficient capacity for leach fields prior to project approval in areas dependent upon septic tanks."

The addition of these programs reinforces the argument that these kinds of evaluations and assessments must be done on an area-wide basis, before any particular development proposal

can be considered. These programs are also inadequate to evaluate possible mitigation. For example, it is not described in the RDEIR how "Policy HS-1.9" would "manage" subsidence issues on at risk parcels and what the impacts of a presumed management technique would be.

To a large degree, it appears that the City of Sausalito has identified subsidence and SLR issues in the Marinship area. But toxic groundwater and its mitigation in light of the SLR, subsidence, seismic hazards, and flooding/stormdrain issues have not been properly identified as a significant hazard.

The next step before approving future development should be establishing whether development and its necessary mitigation is even feasible given what we know now. More studies after approval of the RGPEIR for at-risk parcels that could likely require managed retreat, floodwater and ground water pumping, and/or massive fill and/or levees makes no sense unless we know that these major issues, which need to be addressed in tandem and not separately, can be mitigated at all, without significant impacts. 24 Cont.

The City must also establish whether required mitigations are financially feasible. Existing, known problems, such as ineffective storm and sewer drains and spreading of toxic flood water and contaminant ground water plumes, needs to be addressed, and potential environmental impacts evaluated, before review of any future development.

As such, programs S-3.2.2, S3.8-3, S-3.8.4, and S-3.8.5 should be done prior to acceptance of the RGPEIR.

COMMENT 8.

The new RGPEIR insertion below for discussion of Impact GEO-1 strengthens my concerns about exiting infrastructure and development in Marinship and the concerns about any new development that will either occur on existing fill or that will require a massive effort of removal and that will certainly have foreseeable impacts that have still not yet been acknowledged in the RGPEIR.

> "RGPEIR P 3.6-16
>
> "Secondary hazards may include liquefaction, seismically induced landslides, and subsidence, especially in the water front area which is largely underlain by surficial deposits that would be particularly prone to liquefaction and subsidence as shown in Exhibit 3.6-3, while hillside areas would have a higher likelihood for landslides, as shown in Exhibit 3.6-4. "

25

COMMENT 9.

A new Exhibit 2-4 was inserted in the RGPEIR that shows areas of potential nonresidential growth in Marinship. The map shown below shows extensive development on the artificial fill in Marinship.

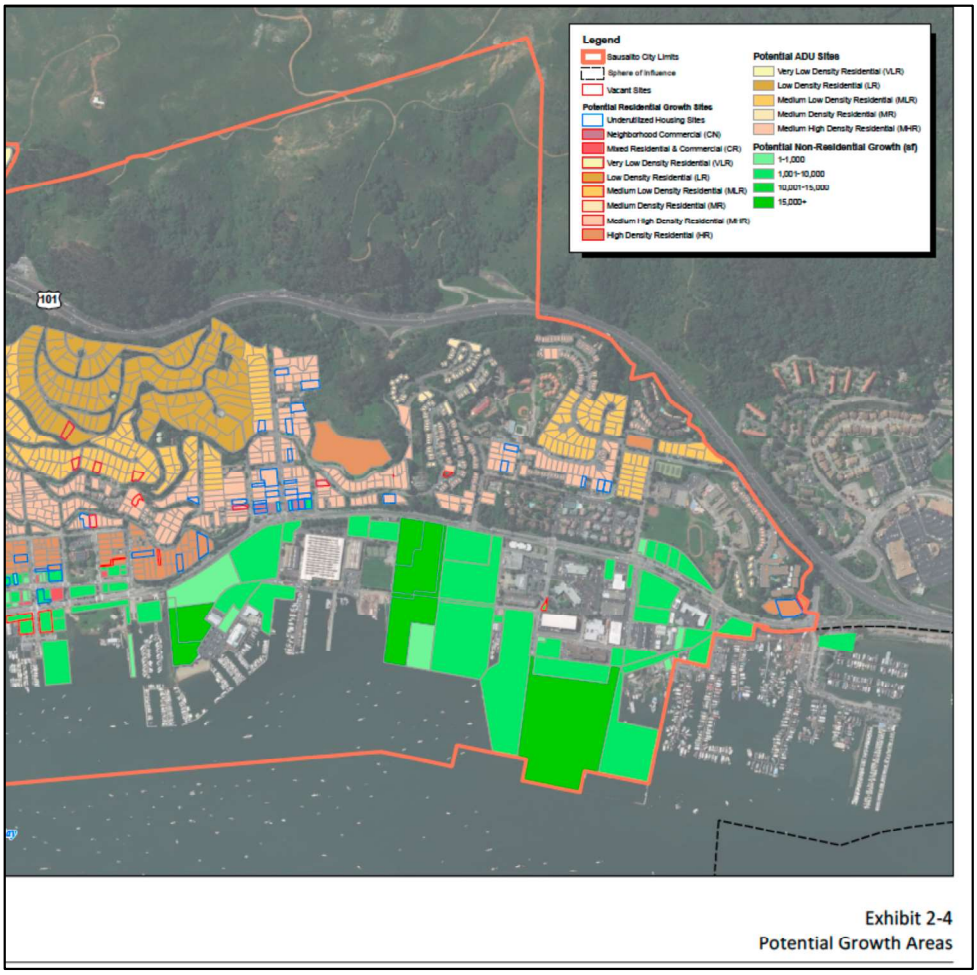


Exhibit 2-4
Potential Growth Areas

25

Cont.

The RGPEIR inserted a new statement about Non Residential Growth:

> "RGPEIR P 2-9
>
> "Additionally, the General Plan may result in other public improvements throughout the city, such as . . . undergrounding of utilities (Policy CD-5.2); . . . "

The idea of undergrounding utilities in the Marinship area seems problematic, if not completely infeasible, in an area ridden with toxic substances, that is subsiding, that will have elevated groundwater, and is subject to SLR. At the very least, undergrounding efforts will foreseeably cause additional environmental impacts that the RGPEIR does not acknowledge or address.

To indicate throughout the RGPEIR that there will be no significant impacts defies common sense and scientific evidence.

The RGPEIR analysis of "Impact GEO-1" also includes the assertions below it that new development projects in Marinship will be evaluated on a case by case basis, yet the entire Marinship artificial fill area needs to be approached as a singular issue, *not piecemeal*.
This is because the interactions of groundwater, hazardous toxic plumes, SLR, subsidence, and stormwater/sewage drainage are interactive throughout the Marinship area – a change in one affects the others. A failure to mitigate one can cause other mitigations to fail. Fixing one component in one parcel cannot address the overall public health and safety consequences during a hazardous event or in future years with SLR.

> "RGPEIR P 3.6-18
>
> "Accordingly, future proposed projects would be subject to conducting an environmental analysis at the time a specific project is defined. In reviewing individual project applications, the city would determine which policies and programs apply, depending on the specific characteristics of the project type and/or project site during the development review process. . .
>
> "Consistent with General Plan policies, individual development projects would be required to undergo project-specific environmental review, which may require additional site-specific or project-specific measures to reduce any potential for loss, injury, or death in the event of a seismic event."

25

Cont.

COMMENT 10.

"Impact GEO-2" added new discussions that the RGPEIR results in no significant impacts because it identifies land uses rather than specific development projects that would involve "unreasonable speculation" as indicated in the text below.

> "RGPEIR 3.6-19
>
> "The General Plan identifies future land uses, but does not describe specific development projects that will be undertaken during the 20-year planning horizon. Thus, estimating project specific impacts would involve unreasonable speculation. The General Plan includes a number of policies and programs specifically designed to protect individuals from injuries and minimize property damage resulting from land instability and geologic hazards by limiting development in certain areas and requiring increased review and mitigation where appropriate."

26

However, the land use planning proposed by the RGPEIR speculates that the land can be developed with no significant impacts based upon discrete programs that do not address and link the interactions and associated impacts of the existing environmental problems and/or future environmental issues as a whole. These environmental issues cannot be independently fixed.

As such, the RGPEIR is misleading with risky and potentially hazardous assertions that Marinship through all its purported policies and programs will provide Sausalito a safe future environment for people and an economic boost. 26 Cont.

COMMENT 11.

For "Impact Geo-3," the RGPEIR has inserted additional descriptions of the previously referenced CBC policies about expansive and hazardous soils, yet it does not provide any new information or studies that alter my concerns that the removal of fill or soil in Marinship poses the potential danger of exposing and disturbing toxic soils and materials in the fill that will require mitigation, and that the assessment of impacts of mitigation have not been adequately addressed.

Adding new landfill at a higher elevation to reduce impacts of SLR, subsidence, and elevated ground water will surely require extensive remediation including fill that will be massive in volume and extensive throughout Marinship to ensure that properties can be accessed and utilized year round. This will increase the weight from new fill material on the existing bay muds, peats, and/or underlaying fill (if it is left in place), and would consequently cause immediate increase in land subsidence rates. This is a foreseeable significant impact that the RGPEIR fails to disclose or evaluate. 27

The impacts of large-scale removal of contaminated and/or inappropriate fill, and the mitigation of these substantial earth-moving and massive landscape altering activities needs to be assessed for all of Marinship as a whole, not piecemeal. The RGPEIR still fails to explain and identify the massive scope of what will be realistically required of the project and the foreseeable mitigation efforts that will be needed to make existing and proposed future development safe and feasible in Marinship.

COMMENT 12.

For "Impact Geo- 5, Impact Hyd-1, Impact Hyd-2, Impact Hyd-4, Impact Hyd-5, Impact Hyd-8, Impact Util-2, Impact Util-3, Impact Util -4, Impact Util-5," and "Impact Util-6," there are no substantive additions, other than further descriptions of policies and programs. These do not cause me to consider making changes to my original comments.

COMMENT 13. 28

General hydrology and Water quality comments in the RGPEIR have been inserted and include:

> "RGPEIR P 3.9-1
>
> "Future discretionary projects facilitated by the General Plan will be evaluated for project specific impacts to hydrology and water quality at the time they are proposed."

My comments, stated above, about the RDEIR's inappropriate piecemeal approach to impact assessment and mitigation from increased development also apply here. 28 Cont.

COMMENT 14.

THE RGPEIR inserted the following text for "Impact Hyd-3" but still maintains that impacts are less than significant and no mitigation is required:

> "RGPEIR P3.9-20
>
> "For instance General Plan Program EQ-4.2.6 requires that new development and substantial remodels demonstrate that post development stormwater discharge does not exceed the predevelopment rate, ensuring that the potential for erosion would not be exacerbated but would rather be reduced. Program HS-1.2.1 will result in a detailed map that will identify, in part, locations identified as erosion hot spots, while Program HS-1.2.6 Hillside Ordinance, will include restrictions and heightened review for development on steep slopes that could result in the potential for erosion during construction. Policy LU-6.46.5 and Policy W-3.3, will further protect against erosion by requiring the preservation of the existing shoreline of Richardson's Bay as open shoreline and natural habitat."

29

It is unclear to me how the assertion that impacts are less than significant and no mitigation is required can be made and that the post development discharge rate will not exceed the predevelopment rates given that climate is changing. Rainfall rates and quantities are likely to change and it may become impossible to maintain the previous rates. The RGPEIR needs to acknowledge and address this.

COMMENT 15.

The RGPEIR inserted the following text for "Impact Hyd-6:"

> "RGPEIR P 3.9-23
>
> "Policy HS-1.11 Infrastructure and related programs require the evaluation of infrastructure and capital planning to ensure that upgrades are implemented where needed to ensure resiliency as part of the City's Capital Improvement Program. Additionally, Policy S-3.8 specifically states that future construction will proceed for only those projects that demonstrate the availability of adequate potable water, sewer, septic leach fields and storm drainage."

30

The availability of adequate sewer, leach fields and storm drainage should be established for Marinship <u>before</u> expanded development is approved and it should be established what the impacts will be for improving these conditions for the existing development in the context of

continuing SLR, subsidence, rising ground water, increased extent and emergence of contaminant plumes, and failing storm water and sewer drainage systems.

30 Cont.

COMMENT 16.

The RGPEIR inserted the following text for "Impact Hyd-7:"

> "RGPEIR P 3.9-25
>
> "Additionally, the General Plan contains policies and programs to reduce the likelihood of new development within a tsunami inundation area."

It seems important to note again that the Tsunami Inundation Zones depicted in Exhibit 3.9-3 show only existing conditions and does not reflect the future expansion of Tsunami inundation zone under rising sea level conditions, influences of increased water table height, and land subsidence.

31

Therefore, the RGPEIR statement above would imply that the Marinship area under current conditions is not developable because of the Tsunami Zone. With future development and SLR, it is highly questionable whether it can avoid potential tsunami inundation. To accomplish that, significant and extensive landscape alteration will certainly be required.

The impacts and analysis of impacts of dealing with Tsunami Zones and how they will change in the future planning horizon have not been improved upon or sufficiently analyzed in the RGPEIR.

COMMENT 17.

Among other inserted policy/program descriptions in the RGPEIR, under "Impact Hyd-9," this sentence raises concerns:

> "RGPEIR P 3.9-27
>
> "The General Plan does not authorize any new development and the projected development in the City is allowed under the existing 1995 General Plan."

32

The insertion of this statement does not in any way address the concerns I expressed in my previous comment letter, and ignores the scientific evidence before the Agency.

COMMENT 18.

For "Impact Util-1," the RGPEIR inserted the following text:

33

"RGPEIR P 3.15-20

"New drainage infrastructure (including green drainage infrastructure) and maintaining existing culverts (through mitigating erosion and silt buildup) is key to reducing the risk of soil instability. This is an existing condition that is part of the environmental baseline, and not a condition that would result from implementation of the General Plan. Even under existing conditions, as described under Impact HYD-5, the city's stormwater system has sufficient capacity to accommodate additional stormwater runoff generated by buildout of the General Plan. The city also conducts regular maintenance and upgrades to the system to ensure that it continues to function effectively."

The new text states that the existing storm drain system has sufficient capacity to accommodate additional runoff generated by the buildout plan, yet this is inconsistent with the numerous references cited in my previous review letter that indicate that the storm drain system is outdated and contributes to flooding under certain conditions, such as King Tides or large precipitation events that coincide with high tides and/or storm surges.

Storm drain capacity will absolutely become increasingly limited and certainly contribute to more frequent flooding as SLR and subsidence diminish its ability to have stormdrain outflows in Marinship drain runoff into Richardson Bay. In addition, the interactions and influence of groundwater is not sufficiently addressed or evaluated. 33 Cont.

Also, the RGPEIR on the same page states:

"Should updates, improvements, replacements, or construction of new stormwater drainage infrastructure be funded or result from new development elsewhere in the service area, those subsequent infrastructure projects would be considered and analyzed for potential environmental impacts at that time, consistent with the requirements of CEQA. These storm drain improvements generally would not result in significant environmental impacts because they would be limited to maintenance, repair, and replacement of existing facilities and would not involve significant new disturbance or development. In addition, Program S-3.8.6 would require that new development not change drainage characteristics across property lines, further ensuring that storm drain work will not result in significant changes to the existing conditions."

This appears to be an extremely unrealistic underestimate of the extent to which the storm drain system would require extensive overhaul and redesign due to the need to deal with SLR (either more fill will be required or shoreline levees that would require future pumping of ground water and runoff), hazardous soils, subsidence, ground water, and assessment of capacity to deal with altered rainfall /runoff from climate change, landscape alteration, and development.

COMMENT 19.

The RGPEIR inserted new text under Section 5.2 GROWTH INDUCING IMPACTS that states:

> "RGPEIR P 5-1
>
> "There are two types of growth-inducing impacts: direct and indirect. To assess potential for growth-inducing impacts, General Plan Elements that may encourage and facilitate activities that individually or cumulatively affect the environment must be evaluated (CEQA Guidelines Section 15126.2(d)). CEQA Guidelines, as interpreted by the city, state that a significant growth-inducing impact may result if the General Plan would:
>
> "• Induce substantial population growth in an area (for example, by proposing new homes and commercial or industrial businesses beyond the land use density/ intensity envisioned in the general plan);
> "• Substantially alter the planned location, distribution, density, or growth rate of the population of an area; or
> "• Include extensions of roads or other infrastructure not assumed in the general plan or adopted capital improvements project list, when such infrastructure exceeds the needs of the project and could accommodate future developments."

34

The three bullet points, above, touch on the fact that all the roads for accessing the proposed and existing development in Marinship will require other infrastructure improvements that have not been adequately identified in the RGPEIR.

To make Marinship safe from the impacts of SLR, subsidence, elevated groundwater, and failing storm drain/sewer pipe conditions, there will either have to be extensive and pervasive land-fill added for roads and building sites or extensive containment levees that will require pumping facilities to deal with identified environmental hazards (including toxic groundwater and runoff that has nowhere to drain), and replacement of fill for any excavations that disturb toxic soils. These measures will foreseeably cause additional significant impacts that the RGPEIR fails to disclose or analyze.

In sum, the RDEIR does not realistically deal with the scope and magnitude or irreversible landscape alterations and extensive new infrastructure and utility redesign that will be required to protect people and property from identified risks and hazards.

35

With very bet regards,

Laurel Collins

Laurel M. Collins

Geomorphologist/Owner Watershed Sciences, 8038 Mary Ave NW, Seattle, WA 98117

(510) 384-2371, laurelgene@comcast.net

AREAS OF EXPERTISE

- Fluvial Geomorphology
- Tidal Wetland Geomorphology
- Sediment Budgeting
- Landslide Mapping
- Stream Mapping
- Landscape Aerial Photo Interpretation
- Geomorphic Effects of Wildfire and Land Use Impacts
- Historical Landscape Analysis
- Stream Restoration Design
- Environmental Impact Assessment
- Sea Level Rise Impacts and Adaptation

EDUCATION

University of California at Berkeley, B.A., Earth Sciences, Dept. Geology and Geophysics, 1981

PROFESSIONAL HISTORY

Watershed Sciences, Owner, 2001- to date

San Francisco Estuary

REPRESENTATIVE EXPERIENCE

Ms. Collins has been a geomorphologist since 1981 specializing in fluvial and tidal wetland geomorphology, sediment budgeting, landslide analysis, stream monitoring and mapping, analysis of geomorphic impacts and change from natural and anthropogenic influences, analyses of the influence of wildfire and silvicultural activities on erosional processes, and interpretation of historical geography. Ms. Collins is the owner of Watershed Sciences located originally located in Berkeley, California, and recently relocated to Seattle, Washington. Ms. Collins has conducted stream, sediment, and landslide analyses in many local Bay Area watersheds as well as many regions throughout California and other western states. She has published results of her research, and has served as an Expert Witness for various legal cases in California, Montana, Oregon, and Colorado.

PROJECTS OF WATERSHED SCIENCES

As Owner/Director of Watershed Sciences consulting firm established September 2001, the following projects Ms. Collins has been directly involved with the following projects:

- Watershed assessment of impacts of sea level rise, recent flood events, legacy land use of logging and agricultural practices, and landscape risk assessment of the Martin Griffin Preserve, near Bolinas Lagoon Marin County, California, funded by Audubon Canyon Ranch.
- Development of geomorphic and ecological understanding of past and present conditions and tidal/hydrological processes of Bothin Marsh, Mill Valley, California, to provide recommendations and conceptual strategies for future resource management relative to sea level rise affecting the San Francisco Bay during the next 100 years. Funded by Marin County Open Space District, California.
- Public and video presentation entitled “Of Marsh and Men” about the historical conditions and legacy land use impacts on modern Bothin Marsh and historical Coyote Creek Marsh for the Mill Valley Library, California.
- Investigation of geomorphic and hydrologic conditions and development of alternatives to redesign State Route 1 at the north end of Bolinas Lagoon, California, to reduce flooding and sea level rise impacts, while enhancing

Institute, Environmental Scientist, 1999-2001

Independent Consultant, Environmental Sciences, 1989-2001

University of California, Staff Researcher for Dr. Luna Leopold, Department of Geology and Geophysics 1984-2001

Lawrence Berkeley Laboratory, Senior Research Associate, 1992-1993

East Bay Regional Park District, Resource Analyst 1983-1986, Geologist, 1986-1991

Center for Natural Resource Studies, John Muir Institute, Environmental Scientist, 1980-1983

U.S. Geological Survey, Hydrologic Field Assistant, 1980-1982

California Department of Forestry, Field Assistant, 1979-1980

California Academy of Sciences, Paleontology Department Student Assistant, 1978.

FORMER AFFILIATIONS

American Geophysical Union, 1986-1991

Geological Society of America, 1983-2001

California Forest Soils Council, 1980-1991

stream and estuarine tidal resources. The North End Bolinas Lagoon Project was subcontracted with AECOM, Oakland, California and funded by Marin County Parks and Open Space.

- Investigation of sedimentation and hydraulic geometry design of historical and modern tidal channels in San Francisco Bay marshes to minimize the need for dredging by increasing the opportunities for self-maintenance of Las Galinas and Corte Madera Creek tidal sloughs in Marin County, for Marin County Public Works, Calif.
- Development of expert opinion for the Montana Dept. of Justice and Bloomquist Law Firm, P.C., Helena Montana, to develop historical conditions of the Clark Fork, Madison, and Missouri Rivers at the time of statehood.
- Development of historic and modern landslide and slope conditions along existing development in Terra Linda for Ragghianti / Freitas LLP, San Rafael, California.
- Consulting on field recognition of bankfull conditions and methods of hydraulic geometry analyses in Santa Clara Valley for the Santa Clara Valley Water District, Calif.
- Preparation of a sediment budget and sediment source analysis for Jewel Lake Dam in Tilden Regional Park, subcontracted to NewFields River Basin Services LLC and funded by the East Bay Regional Park District, California. Development of conceptual plans to provide a bypass channel at the existing dam to provide downstream sediment transport and upstream fish migration.
- Development of regional bankfull geometry design curves for Wildcat, San Francisquito, and Pescadero Creeks for California's State Water Resource Control Board's Integrated Regional Watershed Management Program.
- Preparation of Expert Testimony on historical and modern flooding conditions of San Antonio Creek, Marin County, for Shapiro, Galvin, Shapiro, and Moran Law Offices.
- Analyses and PowerPoint presentation of historical conditions and tidal marsh changes in Novato Creek Watershed for the Marin Flood Control and Water Conservation District.
- Collaboration and research on fire regime, native landscape management, and climate change in the Quiroste Valley, California, with Dr. Kent Lightfoot, Department of Anthropology, University of California at Berkeley.
- Preparation of a video presentation on the historical conditions and legacy land use impacts on stream conditions in Corte Madera and San Anselmo Creeks for Marin Flood Control and Water Conservation District.
- Preparation of Expert Testimony on historical and modern conditions of a tidal marsh meander bend at Petaluma

TEACHING

Watershed Analyses, Sierra Nevada Field Station, San Francisco State, 1998-2003

Hydrology Summer Field Course, Teton Science School, 1991 and 1996

CURRENT AND PREVIOUS ADVISORY ROLLS

Science and Technical Advisor Bothin Marsh for Marin County Open Space.

Bolinas Wye Technical Wetlands Advisory Committee for Marin County Open Space

Technical Advisor development of Historical Ecology of the Sonoma and Petaluma Watersheds for projects with Sonoma Resource Conservation District, for San Francisco Estuary Institute.

Technical Advisor Committee for development of a Vineyard Waiver, for the San Francisco Bay Regional Water Quality Control Board

Technical Advisor Committee for Management of Lagunitas Creek, Marin Municipal Water District

South Bay Salt Pond Marsh concerning Redwood Landfill Case for Hanson Bridgett, LLC.

- Development of expert opinion for the Law Offices of Michael Graff for various projects involving impacts of silvicultural practices in the Tahoe National Forest, the influence off off-highway vehicles in National Forest lands, and the environmental impacts of various proposed developments in the Bay Area.
- Evaluation of impacts and quantification of sediment supply from the 2005 flood in Sonoma Watershed for the San Francisco Bay Area Regional Water Quality Control Board and the Sonoma Ecology Center.
- Analyses of historic channel conditions of Whitehouse Creek in Quiroste Valley, San Mateo County, during the time of native habitation by developing a stratigraphic timeline based upon geomorphic conditions and carbon dating. Research was conducted for the Anthropology Department, University of California at Berkeley.
- Development of expert opinion and testimony for the law firm of Ragghianti Freitas, and the Town of San Anselmo on a case concerning flooding of San Anselmo/Corte Madera Creek, Marin County, California.
- Development of reference reach channel geometry of Arroyo de la Laguna, Pleaseanton, for restoration planning by the Urban Creeks Council, Berkeley, California.
- Analyses of sediment sources and landslide mapping for preparation of a TMDL in Sonoma Creek watershed for the Sonoma Ecology Center and the San Francisco Bay Area Regional Water Quality Control Board.
- Development of regional curves for assessing bankfull channel geometry in Marin and Sonoma Counties for US EPA.
- Collection of channel geometry and bankfull stage conditions on Arroyo de la Laguna, Alameda County, for the Natural Resource Conservation Service offices located in Livermore, CA.
- Lidar and GIS analysis of logging roads along the Eel River, Ca, for University of Minnesota and University of California at Berkeley.
- Development of expert opinion for San Francisco law firm of Murphy, Parson, Bradley, and Feeney on a case assessing causation of a landslide in Moraga.
- Development of action plan and methodologies for conducting a sediment budget analysis on Alameda Creek for Alameda County.
- Geomorphic analysis and landslide mapping of Crow, Norris and Bolinas Creeks to assess impacts of land use practices and natural processes for Alameda County Flood Control and Water Conservation District, California.

Restoration Project, Sediment Workshop Leader, County of Alameda

Science Review Group Napa Watershed Project for the San Francisco Estuary Institute

Pescadero Creek Technical Advisory Committee, San Mateo Resource Conservation District

San Pablo/Wildcat Technical Design Advisory Council, City San Pablo

Hill Area Fuel Reduction Committee, for University of California at Berkeley

Mayors Task Force of Forestry and Vegetation, for City of Oakland

- Development of expert opinion and testimony for determining of natural versus artificial conditions of the Mitchell Slough of the Bitterroot River, Montana, for Doney, Crowley, Bloomquist, Payne, Uda PC, Missoula Montana.
- Evaluation of sediment sources and development of conceptual plans for reducing sedimentation in Eden Creek for Alameda County Flood Control and Water Conservation District, California.
- A sediment source analysis and sediment budget in Sonoma Watershed for the San Francisco Bay Area Regional Water Quality Control Board and the Sonoma Ecology Center, California.
- Assessment of flooding and geomorphic change in the lower Sonoma Creek Watershed for the Coastal Conservancy and Southern Sonoma Resource Conservation District, California.
- Geomorphic assessment of long-term processes associated with reservoir stability and the maintenance of red–legged frog breeding habitat of Point Reyes National Seashore, U.S.N.P.S.
- Geologic, geomorphic, and landslide mapping of Strawberry Canyon in Berkeley, California, for the Committee to Minimize Toxic Waste and Urban Creeks Council, California.
- Preliminary assessment of opportunities and constraints for restoration and fish barrier removal in lower Ignacio Creek (Arroyo San Jose), Marin County for Friends of Ignacio Creek and City of Novato.
- Development of conceptual plans for restoration and geomorphic analysis of lower Wildcat Creek for City of San Pablo and Urban Creeks Council.
- Survey of longitudinal profile of lower Carriger Creek, Sonoma County, for the Southern Sonoma Resource Conservation District, California.
- Geomorphic analysis and landslide mapping of silvicultural impacts on sediment supply of Sulphur Creek, Plumas County, for the US Forest Service and Plumas Corporation, Quincey, California.
- Geomorphic analysis of lower Carriger Creek for the Klamath River Information System, William Kier Associates, California.
- Stratigraphic analysis, carbon dating, and history of geomorphic change at Last Chance Creek near Stone Dairy in the Feather River watershed, Plumas County, for the Plumas Corporation, Quincey, California.

PROJECTS FROM PREVIOUS EMPLOYMENT

As Geomorphologist for the San Francisco Estuary Institute, Ms. Collins:

- Developed of a "Watershed Science Approach" for field methodologies to assess and analyze changes in the delivery of water and sediment as affected by Euro-American land use practices in California.
- Conducted a scientific study of physical processes and land use impacts in Wildcat Creek, Contra Costa County, for the San Francisco Estuary Institute. Developed a field-based methodology for quantifying natural versus man-related sediment supplies.
- Applied the Watershed Science Approach to San Antonio Creek, Marin County, for the Southern Sonoma Resource Conservation District.
- Applied the Watershed Science Approach to Carriger Creek, Sonoma County for the Southern Sonoma Resource Conservation District.

As an Independent Consulting Geomorphologist, Ms. Collins served as the following:

- Consulting Geomorphologist for the Napa Resource Conservation District to establish and help educate different stewardship groups and to develop protocols to collect data on stream geometry to monitor channel change.
- Consulting Fluvial Geomorphologist Geomorphology Consultant for AECOS and Institute for Sustainable Development to conduct a watershed analysis for Waimanalo Creek, Waimanalo, and Mokapu Channel, Marine Corps Base, Oahu.
- Fluvial and Tidal Geomorphology Consultant for Marin County Flood Control District to conduct a watershed analysis of Novato Creek, Marin County, with special focus on sedimentation and sediment sources to the Novato Flood Control Project.
- Fluvial Geomorphology Researcher contracting with the Point Reyes National Seashore, to conduct research and monitoring of the second and third year hydrologic and geomorphic effects of the 1995 Vision Fire on Muddy hollow Creek, Marin County.
- Fluvial Geomorphology Researcher for the West Marin Environmental Action Committee to conduct research and monitoring of the first year effects of the 1995 Vision Fire in the Inverness Ridge, Marin County.
- Teacher with Dr. Luna B. Leopold and Dr. Scott McBain for the Teton Science School, Jackson, Wyoming at the Hydrology Workshop on fluvial hydrology, field methods and watershed analysis.

- Fluvial Geomorphology Consultant to U. S. Department of Justice for research on Reserved Water Rights Case on the effects of water diversion on the Fraser River, Lostman Creek, and Indian Creek, Colorado, plus expert testimony.
- Fluvial Geomorphology Consultant to EA Engineering, to perform watershed analyses for a 100-Year Sustained Yield Program for the Noyo River, Mendocino County. Analyses included documentation of channel conditions, determining impacts of logging upon hydrology and fluvial geomorphology of coho salmon habitat, sediment production and landsliding; and advising policy makers on ways to reduce future impacts from timber harvesting.
- Fluvial Geomorphology Consultant to U.S.F.S., to determine the Holocene and recent geomorphic history of the South Fork Kern River in Monache Meadows, Southern Sierra Nevada, Inyo National Forest. Analysis was conducted of flood frequency; channel incision and sediment transport regimes and related to climate change and land use practices for the last 200 years.
- Geomorphology Consultant to law firm of Lossing and Elston, San Francisco, to prepare expert testimony on the effects of fire upon slope stability, landsliding, runoff and erosion.

As a Staff Researcher in the Department of Geology and Geophysics, University of California at Berkeley, Ms. Collins was involved with the following:

- Fluvial geomorphology research for the Pacific Southwest Forest and Range Experiment Station, U.S.F.S. to produce detailed stream maps, longitudinal profiles, and cross sections within and outside of cattle exclosures in the Golden Trout Wilderness, Inyo National Forest, California.
- Tidal marsh geomorphology and hydrology research in the Petaluma Marsh, Sonoma County.
- Fluvial hydrology research on braided channels in regions of Wyoming and Idaho.

As a Senior Research Associate for Lawrence Berkeley National Laboratory Ms. Collins conducted geologic field mapping investigations, analyzed reports and prepared a report on site characteristics for the LBNL Hazardous Waste Handling Storage Facility in Strawberry Canyon, Berkeley, California.

As a teacher for San Francisco State Sierra Nevada Field Station Ms. Collins prepared curricula and lectures for a course in stream restoration, watershed analysis, and

stream monitoring techniques for San Francisco California State University.

As District Geologist for East Bay Regional Park District, Oakland, California, Ms. Collins responsibilities included identification and analysis of geological and landslide hazards; direction of geologic and hydrologic research programs; publication of research findings; formulation of District policy for fuel break management, and resource management relative to hydrologic and geologic issues; preparation of expert testimony; preparation and review of Environmental Impact Reports; assessment and restoration of steelhead habitat in Wildcat Creek, Berkeley Hills.

As Geologist/Hydrologist for the Center for Natural Resource Studies, John Muir Institute, Inc., Berkeley, Ms. Collins conducted field studies and analyses of flood effects and instream flow requirements of San Lorenzo River, Santa Cruz, California; assessed geologic hazards and evaluated fish habitat in Grider Creek, Klamath National Forest; assessed cumulative impacts of silvicultural practices in the Sierra National Forest; assessed the effects of silvicultural practices on site productivity in California forest lands; and published research findings.

As Hydrologic Field Assistant for Water Resources Division, US Geological Survey, Menlo Park, Ms. Collins conducted field studies and analyzed 1) earthflows in Redwood National Park, California; 2) river morphology as effected by volcanic activity, Mt. St. Helens, Washington; 3) interactions among hillslope and stream processes in the San Lorenzo River, Santa Cruz, California. Findings were published.

As Student Assistant for the California Department of Forestry, Sacramento, Ms. Collins conducted field studies and analyzed the effects of logging activities and the effectiveness of the Forest Practice Regulations on rates of erosion in private forest lands throughout California.

As Student Assistant for Geology Department, California Academy of Sciences, San Francisco, Ms. Collins assisted with the curation of fossil genera of ammonites and echinoids for Dr. Peter Rhoda.

REFERENCES

Dr. William Dietrich, Department of Planetary Sciences, University of California at Berkeley,

bill@eps.berkeley.edu

Dr. David Rosgen, Wildland Hydrology, Fort Collins, Colorado, dave@wildlandhydrology.com

Roger Levanthal, Marin County Public Works, San Rafael, California, roger.leventhal@gmail.com

PUBLICATIONS AND REPORTS

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2. Coats, R., L. Collins, J. Florsheim, D. Kaufman, 1982. Landsliding, Channel Change, and Sediment Transport in Zayante Creek and the Lower San Lorenzo River, 1982 Water Year and Implications for Management of the Stream Resource for the California State Water Resources Control Board.
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5. Coats, R., and L. M. Collins, J. Florsheim and D. Kaufman, 1985. Channel Change, Sediment Transport, and Fish Habitat in a Coastal Stream: Effects of an Extreme Event, in Environmental Management. 9(1), pp. 35-48.
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11. Collins, L.M., 1992. Possible Evidence of Faulting at the Petaluma Marsh, Northern California, in Field Trip Guidebook, Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area, March 25-29. California State University, Hayward.
12. Leopold, L.B., J.N. Collins and L. M. Collins, 1992. Hydrology of Some Tidal Channels in Estuarine Marshlands near San Francisco, California, in Catina, Vol. 20, No. 5. October, pp 469-493.
13. Booker, F.A., W.E. Dietrich and L.M. Collins, 1993. Runoff and Erosion after the Oakland Firestorm, Expectations and Observations, in California Geology, California Department Conservation, Division Mines and Geology. Nov/Dec., pp 159-173.
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17. Collins, Laurel, 1997. Fluvial Geomorphic Effects of the Mt. Vision Fire on Muddy Hollow and Fish Hatchery Watersheds, Point Reyes National Seashore prepared for the West Marin Environmental Action Committee.
18. Collins, L.M. and B. Ketcham, 1997. Rills and Hoodoos, Tree Falls, Debris Dams and Fans, in Burning Issues in Fire Management, special Fire Research Document, published by Point Reyes National Seashore, National Park Service, Department of Interior. 4 pp.
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of the San Francisco Estuary Watershed Science Approach to Carriger Creek by the San Francisco Estuary Institute.
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30. Collins, Laurel, 2002. Survey of Longitudinal Profile and Cross Sections for Carriger Creek, Sonoma County, CA prepared for Southern Sonoma Resource Conservation District by Watershed Sciences.
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of First Year Findings, prepared for Southern Sonoma Resource Conservation District by Watershed Sciences.
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