

C/CAG

CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY

*Atherton • Belmont • Brisbane • Burlingame • Colma • Daly City • East Palo Alto • Foster City • Half Moon Bay • Hillsborough • Menlo Park
Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside*

2:30 PM, Thursday, June 18, 2015
San Mateo County Transit District Office¹
1250 San Carlos Avenue, 2nd Floor Auditorium
San Carlos, California

STORMWATER (NPDES) COMMITTEE AGENDA

- | | | |
|---|----------------|--------------|
| 1. Public comment on items not on the Agenda (presentations limited to three minutes). | Breault | No materials |
| 2. Issues from May and June C/CAG Board meetings: <ul style="list-style-type: none">• May: Review and approve Resolution 15-17 authorizing the C/CAG Chair to execute Amendment Number 1 to the funding agreement with the Bay Area Water Supply and Conservation Agency, extending the term through June 30, 2016 at a cost not to exceed \$25,000 for rain barrel rebates in San Mateo County. (APPROVED)• June: Review and approve Resolution 15-20 authorizing the C/CAG Chair to execute Amendment No. 2 to the agreement with SCI Consulting Group, Inc., extending the term through June 30, 2016 at no additional cost to enable continued technical support for a potential countywide stormwater funding initiative. (APPROVED)• June: Review and approval of Resolution 15-22, authorizing the C/CAG Chair to execute Amendment No. 10 to the agreement with Eisenberg, Olivieri, and Associates, extending the contract through September 30, 2015 at no additional cost for technical support to the countywide stormwater program. (APPROVED)• June: Review and approval of Resolution 15-23 authorizing the C/CAG Chair to execute Amendment No. 3 to the agreement with San Mateo County's Division of Environmental Health, extending the contract through October 31, 2015 at a cost not to exceed \$100,650 to implement critical public education and outreach activities in accordance with the Municipal Regional Permit. (APPROVED)• June: Receive a presentation on the draft revised Municipal Regional Stormwater Permit and provide staff direction regarding written and/or oral testimony. | Fabry | No materials |
| 3. ACTION – Review and approve April 16, 2015 Stormwater Committee meeting minutes | Fabry | Pages 1-5 |
| 4. ACTION – Review and provide recommendations regarding written and oral testimony on the draft revised Municipal Regional Permit. | Fabry | Pages 6-11 |
| 5. ACTION – Receive update from Funding Initiative Steering Committee and provide recommendations on next steps for a potential countywide stormwater funding initiative. | Fabry | Page 12 |
| 6. ACTION – Review and provide recommendations on a C/CAG response to the San Mateo County Grand Jury Report, “Flooding Ahead: Planning for Sea Level Rise.” | Fabry/ Wong | Pages 13-42 |
| 6. Regional Board Report | Mumley | No Materials |
| 7. Executive Director’s Report | Wong | No Materials |
| 8. Member Reports | All | No Materials |

¹ For public transit access use SamTrans Bus lines 390, 391, 292, KX, PX, RX, or take CalTrain to the San Carlos Station and walk two blocks up San Carlos Avenue. Driving directions: From Route 101 take the Holly Street (west) exit. Two blocks past El Camino Real go left on Walnut. The entrance to the parking lot is at the end of the block on the left, immediately before the ramp that goes under the building. Enter the parking lot by driving between the buildings and making a left into the elevated lot. Follow the signs up to the levels for public parking. Persons with disabilities who require auxiliary aids or services in attending and participating in this meeting should contact Nancy Blair at 650 599-1406, five working days prior to the meeting date.

C/CAG AGENDA REPORT

Date: June 18, 2015
To: Stormwater Committee
From: Matthew Fabry, Program Coordinator
Subject: Review and approve April 16, 2015 Stormwater Committee meeting minutes
(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Review and approve April 16, 2015 Stormwater Committee meeting minutes as drafted.

ATTACHMENTS

1. Draft April 16, 2015 Minutes

STORMWATER COMMITTEE
Regular Meeting
Thursday, April 16, 2015
2:30 p.m.

DRAFT Meeting Minutes

The Stormwater Committee met in the SamTrans Offices, 1250 San Carlos Avenue, San Carlos, CA, 2nd floor auditorium. Attendance at the meeting is shown on the attached roster. In addition to the Committee members, also in attendance were Sandy Wong (C/CAG Executive Director), Matt Fabry (C/CAG Program Coordinator), Jon Konnan (EOA, Inc.), and John Fuller (Daly City). Chair Breault called the meeting to order at 2:40 p.m.

1. Public comment: None

2. Issues from C/CAG Board: None

3. ACTION – The draft minutes from the February 19, 2015 Stormwater Committee meeting were approved unanimously. (Motion: Donohue, Second: Underwood).

4. PRESENTATION – Geoff Brosseau, Executive Director of the California Stormwater Quality Association (CASQA), gave the Stormwater Committee an annual update on CASQA's ongoing activities, member benefits, accomplishments, and future plans/vision. Geoff noted that C/CAG is a CASQA member through the countywide stormwater program. Geoff gave a brief overview of CASQA's new strategic vision. As CASQA members, C/CAG's member agencies are entitled to various benefits, including statewide representation via comment letters and testimony on regulatory issues of concern (e.g., trash amendments, industrial general permit, receiving water limitations) and access to CASQA work products and news updates. CASQA's new stormwater program effectiveness assessment portal emphasizes parameters other than discharge quality, such as behavior change and pollutant load reduction. Addressing brake pads as a source of copper has been a long-term success story for CASQA. CASQA's 10th annual conference in Orange County had about 750 participants and the 11th annual conference will be in Monterey, October 19 – 21. CASQA's future plans include developing a training program for the industrial general permit and continuing to assist with development of stormwater financing legislation. Geoff noted that CASQA.org has for more information on CASQA's strategic vision, meetings, trainings, associated schedules, portals, online BMP handbooks, and other items.

5. INFORMATION – C/CAG staff Matt Fabry provided the Committee with an update on ongoing discussions with Regional Water Board (RWB) staff regarding the Administrative Draft released in February for a reissued Municipal Regional Permit (MRP). Bay Area stormwater program and Permittee staff continued working with RWB staff via various workgroups and collaborated regionally to provide RWB staff consolidated comments on the Administrative Draft in March, which primarily took the form of redline/strikeout versions of the draft permit provisions. The highest priority concerns identified focused on provisions for 1) New/Redevelopment and Green Infrastructure, 2) Trash Load Reduction, and 3) Mercury and Polychlorinated Biphenyls (PCBs) Controls. At a regional MRP 2.0 Steering Committee meeting on April 2, stormwater program staff presented these priority issues and RWB staff responded, as summarized below.

Key concerns for New/Redevelopment and Green Infrastructure include:

1. Green Infrastructure (GI) – required level of effort and time frames for MRP 2.0 compliance, for both GI plans (framework due June 2016) and early implementation. RWB staff agreed that the level of effort specified in GI plans should vary among agencies and will work with municipal staff to understand what type of early buy-in (i.e., by June 2016) is possible from each agency for its GI plan (e.g., given the typical city council process).
2. LID Definition – giving bioretention equal status to other LID measures and eliminating feasibility analysis. RWB staff appears to have agreed to this, contingent upon good GI planning, and with a few details to be worked out.
3. Hydromodification – consolidation of requirements and allowance of an alternative sizing approach (direct simulation of erosion potential) to meet the existing HM standard. RWB staff is open to considering alternative approaches.
4. O&M Verification of Pervious Pavement – limit to installations on Regulated Projects approved after Permit effective date and above a certain size threshold for certain uses. RWB staff is OK with this only applying to projects approved under MRP 2.0 but still considering what size threshold if any may be appropriate.

Key concerns for Trash Load Reduction include:

1. Frequency and timing of compliance dates (including 2022 "no adverse effect" date). RWB staff is willing to eliminate the 2016 compliance date but maintain it as a reporting check-in (i.e., "dress rehearsal") before the 2017 compliance date. RWB staff is not willing to go before their Board at this time and ask for the 2022 date to be extended to 2025.
2. Geographical extent and frequency of on-land trash assessments. RWB staff willing to continue discussing this but cautioned that if a Permittee claims that certain actions are working but has done insufficient assessment it may be vulnerable to enforcement.
3. Accounting for source control benefits and creek/shoreline cleanup actions. RWB staff is open to continued discussion.
4. Intent/purpose of receiving water observations. RWB staff agrees that receiving water observations will not be a compliance point.

Key concerns for Mercury/PCBs Controls include

1. Approach to compliance: BMP-based vs. load reduction requirement or a hybrid, and linkage to GI provisions in C.3. Permittees need a clear and feasible pathway to compliance. The administrative draft's approach of requiring a load reduction and then developing an accounting system early in the permit term to credit BMPs requires a leap of faith unacceptable to local agencies. RWB staff continues to support making the compliance point achievement of a load reduction number rather than implementation of BMP programs.
2. Accounting – can we agree on the scope and assumed interim benefits of major BMP programs before the permit is adopted? Stormwater staff has been working with RWB staff to try to develop an accounting system that could be incorporated into the permit. Compliance would not be based on achieving a load reduction but instead would be based on implementing BMP programs designed to reach a load reduction target or action level. The target would be informed by what the BMP programs could achieve based on the upfront agreed upon accounting system.
3. Management of PCBs in building materials during demolition – what is the best approach and over what time frame? RWB staff believes that this type of BMP program should be administered at the local level, since local agencies already regulate demolition. Although there are high levels of PCBs in caulks/sealants in certain buildings, it is uncertain whether the PCBs are released to the environment during demolition. Committee members expressed concern at

committing resources before we are sure whether there is a problem, but acknowledged that other issues (potential human exposure at the site, disposal) suggest that a program to manage building materials during demolition could be beneficial, if developed in the right way (e.g., statewide program analogous to asbestos abatement). Geoff Brosseau agreed that this is an appropriate issue for CASQA to consider on a statewide basis and agreed to raise it.

Committee members raised various questions and concerns regarding the priority issues. Matt Fabry noted that a Tentative Order of the permit is scheduled for release in May, which will provide an opportunity for further comment.

6. Regional Board Report: NONE

7. Executive Director's Report – C/CAG staff Sandy Wong reported that C/CAG staff recently visited Sacramento to meet with the San Mateo delegation and highlight local agency concerns related to stormwater and transportation issues. Staff emphasized the need to integrate planning and funding for Green Streets and Complete Streets.

8. Member Reports: Committee member Porter gave a brief update on the County's proposal to create a new Water Management Agency, and summarized feedback from a recent presentation to C/CAG's Resource Management and Climate Protection Committee. He indicated that Supervisor Pine would be presenting to the C/CAG Board on May 14 on this issue, and then they would likely start making presentations to all 20 city/town councils.

Chair Breault adjourned the meeting at 3:40 p.m.

| 2015 Stormwater Committee Roster | | | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|--------------------------------------|-------------------|---------------------------------------|-----|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|
| Agency | Representative | Position | | | | | | | | | | | | |
| Atherton | Gordon Siebert | Public Works Director | | | | | | | | | | | | |
| Belmont | Afshin Oskoui | Public Works Director | | X | | X | | | | | | | | |
| Brisbane | Randy Breault | Public Works Director/City Engineer | | | | X | | | | | | | | |
| Burlingame | Syed Murtuza | Public Works Director | | X | | X | | | | | | | | |
| Colma | Brad Donohue | Director of Public Works and Planning | | X | | X | | | | | | | | |
| Daly City | Patrick Sweetland | Director of Water & Wastewater | | O | | X | | | | | | | | |
| East Palo Alto | Kamal Fallaha | City Engineer | | | | | | | | | | | | |
| Foster City | Jeff Moneda | Public Works Director | | | | X | | | | | | | | |
| Half Moon Bay | Mo Sharma | City Engineer | | | | X | | | | | | | | |
| Hillsborough | Paul Willis | Public Works Director | | X | | X | | | | | | | | |
| Menlo Park | Jesse Quirion | Interim Public Works Director | | | | | | | | | | | | |
| Millbrae | Charles Taylor | Public Works Director | | X | | | | | | | | | | |
| Pacifica | Van Ocampo | Public Works Director/City Engineer | | | | | | | | | | | | |
| Portola Valley | Howard Young | Public Works Director | | X | | | | | | | | | | |
| Redwood City | Saber Sarwary | Supervising Civil Engineer | | X | | X | | | | | | | | |
| San Bruno | Jimmy Tan | City Engineer | | X | | | | | | | | | | |
| San Carlos | Jay Walter | Public Works Director | | X | | | | | | | | | | |
| San Mateo | Brad Underwood | Public Works Director | | X | | X | | | | | | | | |
| South San Francisco | Brian McMinn | Public Works Director | | X | | X | | | | | | | | |
| Woodside | Paul Nagengast | Deputy Town Manager/Town Engineer | | | | | | | | | | | | |
| San Mateo County | Jim Porter | Public Works Director | | X | | X | | | | | | | | |
| Regional Water Quality Control Board | Tom Mumley | Assistant Executive Officer | | O | | | | | | | | | | |

"X" - Committee Member Attended

"O" - Other Jurisdictional Representative Attended

C/CAG AGENDA REPORT

Date: June 18, 2015

To: Stormwater Committee

From: Matthew Fabry, Program Coordinator

Subject: Review and provide recommendations regarding written and oral testimony on the draft revised Municipal Regional Permit

(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Review and provide recommendations regarding written and oral testimony on the draft revised Municipal Regional Permit

BACKGROUND

Regional Water Board staff released an Administrative Draft of a revised Municipal Regional Permit (MRP) in February, and a formal Tentative Order for public review on May 8. The existing MRP expired at the end of November last year, but has been administratively extended until a new permit is issued. The MRP is issued for five year terms. Two hearings have been scheduled on the Tentative Order, the first of which occurred on June 10 (all provisions except trash) and the second will be on July 8 (trash only). Written comments are due on July 10. The permit is expected to be adopted at a hearing on October 14 and would go into effect shortly thereafter.

Staff anticipates sending a comment letter on behalf of C/CAG's member agencies via the Countywide Water Pollution Prevention Program. Staff and technical consultants have been actively engaged in reviewing and working with Water Board staff on the Administrative Draft and are currently working with C/CAG's various stormwater committees and subcommittees to review and develop comments on the Tentative Order. The attached table summarizes key provisions of the draft permit, remaining issues, as well as recommended revisions, as identified through review by the Bay Area Stormwater Management Agencies Association.

Feedback from the Committee is requested to inform a written comment letter as well as oral testimony at the July 8 hearing. Staff anticipates handing out a draft comment letter for discussion at the meeting.

ATTACHMENTS

1. High Priority Issues in MRP 2.0 Tentative Order Identified by BASMAA

| 2. PROVISION | REMAINING ISSUES | RECOMMENDED REVISIONS |
|-------------------------------------|--|--|
| C.3 – New and Redevelopment | | |
| C.3.b.i - Regulated Projects | This provision now requires any Regulated Project that was approved “pre-C.3” (i.e., with no stormwater control plan) and has not begun construction to comply with LID treatment requirements. Permittees are concerned that they do not have the legal authority to impose new requirements on an entitled project, and they will not be able to comply with this requirement. | Delete requirement – it will apply to a relatively small number of projects and a small percentage of impervious surface created/replaced in the region. One compromise is to allow the use of non-LID treatment at these projects, which would be easier to incorporate into an approved site design, but this does not address the legal issue. |
| C.3.j - Green Infrastructure | In general, this provision continues to be the most challenging and most uncertain portion of C.3 in terms of what will constitute compliance. The language needs to be more consistent with the expectations in Provisions C.11 and C.12. Discussions with Water Board staff on C.11 and C.12 have suggested that load reductions can be accomplished by public retrofits and private development and redevelopment, whereas C.3.j only refers to public retrofits. | Make more explicit in C.3.j (as well as in C11/12) that private development and redevelopment as well as public projects will count toward meeting POC load reductions. Efforts during the MRP 2.0 term should focus on planning and opportunistic implementation where feasible. |
| C.3.j.i.(1) – GI Framework | The GI framework has to be developed and approved by local governing bodies within one year (by 12/1/16) and then reported in the 2017 Annual Report (9/15/17). This is a very short timeframe given the effort required to coordinate and educate upper level staff and elected officials, prepare the framework, conduct resource planning, and accommodate lead times for bringing the framework to governing bodies. | Extend the timeframe for approval to the reporting date (9/15/17), which would provide an additional 9 months. |
| C.3.j.i.(1)(a) – GI Plan | Prioritization and mapping of potential and planned projects will be a major, resource-intensive effort, which may not be completed within 2 years. Additional flexibility in approaches to mapping and prioritization is needed. In addition, the time intervals for planning should be aligned with fiscal years, and made consistent with the time intervals for load reductions in C.11/12 (i.e., 2020 and 2030). | The mechanisms used to develop the Plan and priorities should include other less complex tools in addition to GreenPlan-IT. The time intervals should be changed to FY 19-20, FY 24-25, and FY 29-30. |
| C.3.j.i.(1)(c) – GI Plan | The timeframes for establishing “targets” for amount of impervious surface retrofitted do not line up at all with the C.11/12 load reduction timeframes. It is unclear how these targets are to be established by each Permittee. | Allow the development of “projections” instead of “targets”, and allow Permittees to include projected private development as well as public projects. Allow the projections to be developed for the years 2020, 2030, 2040, and 2065, consistent with C.11/12. |

| 2. PROVISION | REMAINING ISSUES | RECOMMENDED REVISIONS |
|--|---|--|
| C.3.j.ii. - Early Implementation | It is unclear how compliance with this section will be determined. The review process needs to be more defined and objective, in order to avoid disagreements with WB staff as to what are “missed opportunities”. | Add proposed language (provided in early input to the MRP 2.0 Administrative Draft, as shown in the footnote below) ¹ that would allow for consistent review of CIP projects for GI opportunities, based on specified criteria. |
| C.10 – Trash Load Reduction | | |
| C.10.a – Trash Reduction Requirements | Mandatory Reduction Time Schedule – 70% load reduction by 2017 is too rigorous of a time schedule and should be extended. Reductions become increasingly more challenging and more time is therefore needed to find/implement sustainable control measures. | Extend 70% load reduction time schedule to 2018. |
| | Private Drainages – Requirement to map and assess ALL private drainages 5,000 ft ² and above is a significant undertaking that would result in minimal water quality benefit. Need alternative approach to addressing private drainages. | Integrate inspections and enforcement of high priority private drainage areas into C.4 programs (Industrial and Commercial Site Controls). |
| | C.3 Facilities as Full Capture Systems – Requirement to screen overflow pipes on C.3 facilities before considering full capture system is problematic and inconsistent with the full capture definition. | Make C.3 facilities equivalent to full capture systems without screens. |
| C.10.b – Trash Reduction Outcomes | Full Capture System Maintenance – Prescriptive maintenance frequencies for systems based on trash generation categories is inconsistent with the experience of Permittees. Maintenance frequencies are site specific and affected by the amount of vegetative materials and debris reaching the device and the size of the inlet vault, not the amount of trash generated. | Require Permittee-specific maintenance program to be implemented and adapted accordingly to achieve/maintain full capture criteria. |
| | Value of Source Controls – Maximum of 5% reduction for implementing source controls is too low and inconsistent with information collected to-date. | Increase maximum to 20% reduction for source controls, with supporting evidence. |

¹ Proposed language: “Permittees shall review and analyze appropriate projects within the Permittee’s capital improvement program, and for each project, assess the opportunities and associated costs of incorporating LID into the project. The analysis shall consider factors such as grading and drainage, pollutant loading associated with adjacent land uses, uses of available space with the project area, condition of existing infrastructure, opportunities to achieve multiple benefits such as providing aesthetic and recreational resources, and potential availability of incremental funding to support LID elements along with other relevant factors... Permittees will collectively evaluate and develop guidance on the criteria for determining practicability of incorporating green infrastructure measures into planned projects.”

| 2. PROVISION | REMAINING ISSUES | RECOMMENDED REVISIONS |
|---|--|--|
| | <p>Receiving Water Monitoring – Intent of receiving water monitoring downstream of areas converted to low generation remains unclear. Requirement that locations of sites have to be downstream of areas converted to low generation implies that compliance with MS4 reductions will be determined in the future via receiving water monitoring.</p> | <p>Revise language to state that purpose is “...to evaluate the level of trash present in receiving waters over time, and to the extent possible determine whether there are ongoing sources outside of the Permittee’s jurisdiction that are causing or contributing to adverse trash impacts in the receiving water(s).”</p> |
| <p>C.10.e – Optional Offsets</p> | <p>Additional Creek and Shoreline Cleanup – Maximum of 5% offset for these important actions is too small. Ratio of trash removed to offset (i.e., 10:1) is too large. Requirement for cleanups to occur a minimum of 2x at a site creates inflexibility and is too constraining.</p> | <p>Increase maximum to 10% for additional creek/shoreline cleanups. No minimum on cleanup frequency at a site. Reduce ratio to 3:1.</p> |
| | <p>Direct Trash Discharge Controls – Maximum of 10% offset for these important actions is too small. Ratio of trash removed to offset (i.e., 10:1) is too large.</p> | <p>Omit maximum % reduction value for direct discharge control program. Reduce ratio to 3:1.</p> |
| <p>C.11/12 – Mercury and PCBs Controls</p> | | |
| <p>C.12.a – Implement Control Measures to Achieve Load Reductions</p> | <p>Lack of clear and feasible pathway for Permittees to attain compliance with the load reduction requirements. Most factors that would be key to meeting the criteria are uncertain and many are not within Permittee control (e.g., extent of source properties that will be found, building demolition rates, and redevelopment rates), making achievement of compliance uncertain.</p> | <p>Load reduction performance criteria should not be the point of compliance. Base compliance upon implementing PCBs control programs designed to achieve the load reduction performance criteria, based on the interim accounting method (see next section).</p> |

| 2. PROVISION | REMAINING ISSUES | RECOMMENDED REVISIONS |
|---|--|--|
| C.12.b – Assess Load Reductions from Stormwater | <p>BASMAA and RWB staff recently worked together to develop an interim accounting method. It was intended to provide a basis for stipulated load reduction benefits for implementation of the primary PCBs control programs that Permittees anticipate implementing during the MRP 2.0 permit term (this interim accounting method would be revised before the next permit term). BASMAA appreciates that RWB staff included in the fact sheet much of the information developed for the interim accounting method. However, values for certain key accounting parameters for managing PCBs-containing materials and wastes during building demolition activities were left out.</p> | <p>Include in the interim accounting method values for all parameters to allow for scrutiny during the public permit review process, given the uncertainty in these values. It is especially important to include values for all parameters associated with managing PCBs-containing materials and wastes during building demolition activities, including the fraction of PCBs mass in a building that enters the MS4 during demolition in the absence of enhanced controls, which is particularly uncertain.</p> |
| | <p>Requirement to formally submit load reduction assessment methodology early in the permit term for Executive Officer approval creates uncertainty in the load reduction benefit for each PCBs control program.</p> | <p>Omit the requirement to submit load reduction accounting method early in the permit term. Instead, the interim accounting method should be finalized, incorporated into the permit, and then used to calculate PCBs load reductions during Permittee annual reporting.</p> |
| | <p>RWB staff has acknowledged that load reduction performance criteria are not effluent limits. This should be made clear in the permit. In addition, further clarity is needed regarding the legal definition of the performance criteria and implications with regard to enforcement and potential third party lawsuits.</p> | <p>PCBs load reduction performance criteria should be in the form of action levels. In addition, the permit should include contingency language that would allow for achieving compliance if a good-faith demonstration of solid efforts and actions by Permittees consistent with permit requirements falls short of achieving the load reduction performance criteria.</p> |
| C.12.f. Manage PCB-containing Materials and Wastes During Building Demolition | <p>The various facets of this issue (i.e., water quality, human exposure at the site, and disposal) should be addressed holistically on a statewide or federal basis rather than focusing on water quality BMPs in the Bay Area only. Meeting the Tentative Order’s three year timeframe to develop a program to manage PCBs in building materials and wastes during demolition would likely require administration at the local level. This inappropriate and rushed approach would result in highly inefficient use of scarce public funds and likely be ineffective at comprehensively addressing the problems. It would also likely result in inconsistent programs across the Bay Area.</p> | <p>Allow at a minimum the entire permit term for Permittees to work with the State, USEPA, the building industry, and other stakeholders to attempt to develop a comprehensive statewide or federal program analogous to current programs for asbestos and lead paint. Given the multiple environmental and public health issues in play, USEPA should play a large role in development of this program.</p> |

| 2. PROVISION | REMAINING ISSUES | RECOMMENDED REVISIONS |
|--------------|--|--|
| C.11/12 | In general, the compliance timelines presented in the various sections of C.12 are too short. | Work with BASMAA to develop realistic compliance timelines. |
| | The level of effort and associated resources required to implement Provisions C.11/12 of the reissued permit are currently unknown but could be dramatically higher than implementing MRP 1.0 Provisions C.11/12. Much of the cost of implementing MRP 1.0 Provisions C.11/12 was offset by a grant from USEPA that will end in 2016. The availability of grant or other funding for implementing MRP 2.0 Provisions C.11/12 is uncertain. | As a starting point, making all of the above recommended revisions would result in much greater certainty regarding the level of effort and associated resources that would be required to comply with Provisions C.11/12. |

DRAFT

C/CAG AGENDA REPORT

Date: June 18, 2015

To: Stormwater Committee

From: Matthew Fabry, Program Coordinator

Subject: Receive update from Funding Initiative Steering Committee and provide recommendations on next steps for a potential countywide stormwater funding initiative

(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Receive update from Funding Initiative Steering Committee and provide recommendations on next steps for a potential countywide stormwater funding initiative

BACKGROUND

The ad-hoc Funding Initiative Steering Committee (Breault, Oskoui, Porter, Taylor, and former Committee Member Larry Patterson) met on April 22, 2015 to review current status and recommend next steps regarding a potential countywide stormwater funding initiative. Staff reviewed efforts to-date, including the Task 1 Funding Needs Analysis, Task 2 Funding Options Report, Task 3 Opinion Research, enabling legislation, Action Plan development, and engagement with cities and the public. Staff also provided preliminary analysis of the cost implications of the Administrative Draft of the revised Municipal Regional Permit.

The Committee then discussed options for moving forward, including timing issues (soonest likely attempt at a property-related fee would be spring 2016), known or anticipated ballot measures in 2016, and other potential funding mechanisms including Proposition 218 reform, Enhanced Infrastructure Financing Districts, and efforts to lower the voter threshold for transportation taxes. The Committee received an update from Member Porter on the County's proposal for a new Countywide Water Management Agency and implications for a stormwater funding initiative. The Committee discussed the need for continued public and local agency engagement as well as updated opinion research.

In general, the Committee members indicated a need to continue moving forward toward a potential initiative, but recognized that political support for a new Countywide Water Management Agency might de-prioritize a stormwater initiative. The Committee recommended reconvening after the May C/CAG Board meeting at which Supervisor Pine would be presenting on the proposed new agency. There was also discussion about carving out regional vs. local costs for future permit needs as well as potentially carving out some of the long-term PCB costs and focusing more on the short-term need to reduce the gap between what the public is willing to support and anticipated need. The group also discussed testing more of a green infrastructure message with the public given the permit's expected focus on green infrastructure planning and implementation.

C/CAG AGENDA REPORT

Date: June 18, 2015

To: Stormwater Committee

From: Matthew Fabry, Program Coordinator

Subject: Review and provide recommendations on a C/CAG response to the San Mateo County Grand Jury Report, "Flooding Ahead: Planning for Sea Level Rise"

(For further information or questions contact Matthew Fabry at 650 599-1419)

RECOMMENDATION

Review and provide recommendations on a C/CAG response to the San Mateo County Grand Jury Report, "Flooding Ahead: Planning for Sea Level Rise"

BACKGROUND

The San Mateo County Grand Jury released on June 4 a report titled, "Flooding Ahead: Planning for Sea Level Rise." The report indicates San Mateo County is at sever risk for sea level rise and there is not currently a coordinated approach to address existing flooding problems and agencies are not prepared for the added challenge of sea level rise. The report discusses ways to get organized to pan for sea level rise, as well as alternative sources of funding for sea level rise-related projects. The Grand Jury recommends a single organization undertake sea level rise planning on a countywide basis. The report briefly explores four different options for this new organization, including expansion of C/CAG's role and responsibilities. The Grand Jury also recommends the single organization consider addressing other issues, including existing flood control issues, C/CAG's stormwater program, and groundwater management.

C/CAG is required to respond to the report within 90 days, specifically in regard to the recommendation that the proposed organization consider taking on the stormwater program. C/CAG is also required to respond to each of the findings of the report. All cities, towns, and the county are also required to respond to the report, as is the San Francisquito Creek Joint Powers Authority.

Staff requests feedback and/or recommendations from the Committee to help inform C/CAG's response to the Grand Jury report.

ATTACHMENTS

1. San Mateo County Grand Jury Report, "Flooding Ahead: Planning for Sea Level Rise"



FLOODING AHEAD: PLANNING FOR SEA LEVEL RISE

ISSUE

What actions can the County of San Mateo, and the 20 cities and two relevant local special agencies within the county, take now to plan for sea level rise?

SUMMARY

San Mateo County is at severe risk for sea level rise (SLR) over the period 2015-2100. The County, and the 20 cities and two relevant local special agencies within the county,¹ do not have a coordinated approach to address *existing* problems related to flooding and are not prepared for the added challenge of SLR. This investigation documents the countywide risk that SLR poses to people, property, and critical infrastructure. For example, wastewater treatment plants are highly vulnerable to SLR and this vulnerability presents significant problems for all cities, not just those along the coast and bay.

This Grand Jury report discusses ways to get organized to plan for SLR, as well as alternative sources of funding for SLR-related projects. Based on this investigation, the Grand Jury recommends that a single organization undertake SLR planning on a countywide basis. This report also examines ways to address SLR as part of local land use planning and recommends including SLR-related policies in local General Plans. It also recommends implementation of a coordinated program to raise public awareness of SLR, particularly as to how it may impact this county. Finally, the report highlights the need for effective and coordinated advocacy at the regional, State, and federal levels.

The Grand Jury strongly urges action *now* to undertake countywide planning for SLR. By acting now, SMC may be able to reduce future costs by integrating SLR-related projects with other programmed levee projects, such as those that may be triggered by new FEMA flood hazard maps. By acting now, San Mateo County jurisdictions may apply land use planning measures to mitigate future exposure to SLR. Finally, by acting now to address SLR, San Mateo County can also address the lack of coordination among jurisdictions that is evident in existing flood prevention efforts. Notably, this lack of coordination places the county at a severe disadvantage when applying for federal or State monies for flood protection.

GLOSSARY

County of San Mateo or **County**: County government under the Board of Supervisors

San Mateo County or **SMC**, or **county**: the geographic entity. Local governments and residents collectively.

¹ The two relevant special agencies with responsibilities for flood prevention are the County Flood Control District and the San Francisquito Creek Joint Powers Authority.

Levees: includes levees, horizontal levees, walls, dikes, and similar structures designed to prevent flooding along the coast, bay shoreline, and along creeks subject to tidal flows

Local officials: elected and appointed officials and staff of the County, cities, and special agencies within the county, interviewed by the jury

CEQA: California Environmental Quality Act. A law governing the environmental review process, including the preparation of environmental impact reports, to be used by local governments when considering proposed new developments.

JPA: Joint Powers Authority. A separate government agency created by its member agencies (such as cities and counties), typically with officials from the member agencies on its governing board. JPAs are formed for specific purposes and to exercise powers commonly held by the member agencies. For example, two or more cities may form a JPA to manage a common government function, such as fire protection for their jurisdictions, where it is more cost-effective to act together than separately.

Specific Agencies

BCDC: San Francisco Bay Conservation and Development Commission. A State agency with permit authority over new development along the San Francisco Bay shoreline. BCDC requires an SLR risk assessment for any new development within its jurisdiction. It published the report *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on Its Shoreline* (2011).

C/CAG: City/County Association of Governments of San Mateo County. A JPA formed by the County of San Mateo and all 20 cities within the county for various purposes including, for example, oversight of a regional transportation Congestion Management Program.

CCC: California Coastal Commission. A State agency with permit authority over new development along the coast. CCC requires an SLR risk assessment for new development within its jurisdiction.

CEC: California Energy Commission. A State agency responsible for energy policy and planning, including research. It published the reports *The Impacts of Sea Level Rise on the San Francisco Bay* (2012) and *Climate Change Scenarios and Sea Level Rise Estimates for California* (2009).

CO-CAT: Coastal and Ocean Working Group of the California Climate Action Team. A working group of senior staff from 17 State agencies with ocean and coastal resource management responsibilities. It issued the *State of California Sea-Level Rise Guidance Document* (2013) for use by State agencies as part of their assessments and decisions.

FEMA: Federal Emergency Management Administration. A federal agency whose responsibilities include preparing Flood Insurance Rate Maps that depict areas subject to

inundation by a “100-year storm.”² At present, FEMA does not map flood hazards based on anticipated future sea levels.

NRC: National Research Council. An operating arm of the National Academy of Sciences and the National Academy of Engineering, a private nonprofit institution. It published the report *Sea Level Rise for the Coasts of California, Oregon and Washington: Past, Present and Future* (2012).

SCC: State Coastal Conservancy. A State agency that purchases, protects, restores, and enhances coastal resources. Currently supports preparation of local coastal plans and vulnerability assessments in San Mateo County that address SLR.

BACKGROUND

San Mateo County (SMC) residents are at severe risk for flooding due to projected sea level rise (SLR) over the period 2015-2100. In fact, SLR is already occurring. Measurements at the San Francisco Tide Station at the Golden Gate show eight inches of SLR between 1897 and 2006, consistent with figures from around the world.³

The precise amount and rate of SLR are unknown, but State agencies have consistently advised that seas are rising at “accelerating rates,” and project SLR ranging up to 65 inches (167 centimeters) by the year 2100.⁴ One scientist advised SMC officials of the possibility of even greater SLR, nearly 15 feet, during this century.⁵

² A “100-year-storm” is used to define a rainfall event that statistically has a one percent chance of occurring in any given year. However, it is not the storm that will occur once every 100 years. Rather, it is the rainfall totals that have a one percent chance of being equaled or exceeded each year.

³ Matthew Heberger et al. (Pacific Institute) 2012, *The Impacts of Sea Level Rise on the San Francisco Bay*, California Energy Commission (CEC) Publication No. CEC-500-2012-014, pp. 2-3; and San Francisco Bay Conservation and Development Commission (BCDC), *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on Its Shoreline*, Staff Report, October 6, 2011, p. 18.

⁴ In 2008, Governor Schwarzenegger issued an executive order requiring State agencies to prepare SLR scenarios for the years 2050 and 2100 to “assess project vulnerability, reduce expected risks, and increase resilience to sea level rise.” In response, the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), representing 17 State agencies, proposed interim SLR projections for the year 2100 ranging from 31 to 69 inches, grouped into “low,” “medium,” and “high” models (based on a 2009 CEC study). For some planning purposes, agencies such as BCDC focused on 55 inches of SLR, the average projection in the “high” model. However, CO-CAT urged agencies to “select SLR values based on agency and context-specific considerations of risk tolerance and adaptive capacity.” (See BCDC, *Living with a Rising Bay*, pp. 9, 20-22.) In 2012, the National Research Council (NRC) issued a report *Sea Level Rise for the Coasts of California, Oregon and Washington: Past, Present and Future*. The report projects SLR ranging from about 16 inches to 65 inches (42 to 167 centimeters) by the year 2100. The NRC report was commissioned by California, Oregon, and Washington State agencies, by the National Oceanic and Atmospheric Administration (NOAA), the U.S. Army Corps of Engineers, and the U.S. Geological Survey. CO-CAT now considers the NRC report to be the “best available science” on SLR for this state, but allows State agencies to use the projections “in a flexible manner” in their assessments or decisions. (See CO-CAT, *Sea-Level Rise Guidance Document*, March 2013, p. 1, and California Coastal Commission (CCC), *Draft Sea Level Rise Policy Guidance*, October 14, 2013, p. 4.)

⁵ John Englander, Conference Speech at Jackie Speier, Rich Gordon, and Dave Pine, “Meeting the Challenge of Sea Level Rise in San Mateo County,” December 9, 2013, College of San Mateo Theatre, San Mateo, CA.

Scientists have identified the major sources of SLR: an increase in water temperature causing expansion of the oceans, plus the addition of water from melting glaciers.⁶ Based on scientific studies, State agencies warn that additional SLR is now *inevitable*.⁷

Most discussions of SLR focus on the cause (climate change) and means of prevention (such as reducing carbon emissions). This Grand Jury report is not about preventing SLR, but rather about *adaptation* to SLR. Adaptation includes measures such as constructing or modifying levees, elevating structures, restoring wetlands, or abandoning low-lying areas.

This report addresses SLR that is projected to gradually increase through the year 2100. Although this may seem to stretch far into the future, it is within the lifespan of younger residents and the useful life of many existing buildings and infrastructure. Substantial areas of the county are *already* within existing FEMA flood insurance rate maps. Unless better protected, these areas could feel the first impact of SLR at any time.

Over the last 20 years, there have been incidents of severe flooding in SMC. In December 2014, low-lying basins and levee over-topping were contributing factors when a moderate “five-year”⁸ storm left hundreds of residents homeless.⁹ If the County, cities, and two relevant local special agencies are struggling to address *existing* flood conditions, how will they handle worse conditions in the future?¹⁰

METHODOLOGY

Documents

See Bibliography for a detailed list:

- Federal, State, and regional agency reports
- Consultant studies prepared for government agencies

⁶ The risk is not just SLR alone, that is, a slow rise in sea level until one day the levees are topped. For one thing, SLR can undermine the integrity of existing levees. Even more, the risk lies in the *combination* of SLR, plus the yearly high tides (“king” tides), plus a 100-year storm that causes a storm surge and wave action in the Bay, plus heavy rainwater runoff in creeks. Other factors that influence the risk of flooding due to SLR include changes in land elevation due to earthquakes, and the subsidence, or sinking, of land such as that caused by excess pumping of groundwater. See BCDC, *Living with a Rising Bay*, p. 4; and see Schaaf & Wheeler, Consulting Civil Engineers, *Climate Change Impacts for San Mateo, California*, February 2, 2009, pp. 4-10 (report commissioned by the City of San Mateo).

⁷ “Perhaps the most notable finding from the IPCC is that the effect of GHG emissions will continue long after emissions are reduced. The IPCC projects that global temperature will continue rising for a few centuries before stabilizing. Sea level rise from thermal expansion will continue for centuries to millennia. Sea level rise from ice-sheet melting will continue for several millennia.” BCDC, *Living with a Rising Bay*, p. 9.

⁸ A five-year storm statistically is a storm whose magnitude has a 20% chance of occurrence each year.

⁹ Angela Swartz, “Cleanup Begins: Some Still Can’t Return to Homes Damaged from Storm, CSM Shelter Available,” *San Mateo Daily Journal*, December 16, 2014; a 45-year flood in 1998 that damaged about 1,700 properties was a factor that led to the creation of the San Francisquito Creek JPA. See <http://sfcjpa.org/web/about/agency-overview/>.

¹⁰ The two relevant local special agencies with responsibilities for flood prevention are the San Mateo County Flood Control District and the San Francisquito Creek Joint Powers Authority.

- Information from government websites
- City and county planning documents
- Newspaper articles
- Videos of two conferences on SLR held in San Mateo County

Site Tours

Silicon Valley Clean Water wastewater treatment plant (Redwood Shores)

Interviews

In conducting this investigation, the jury interviewed 14 individuals including two elected officials; four city managers or assistant city managers; four executive directors, general managers, or assistant general managers of three joint powers authorities; and four County of San Mateo appointed officials.

DISCUSSION

San Mateo County's Exposure to Sea Level Rise

As noted earlier, State agencies project SLR within a range of up to 65 inches by 2100. A 2012 report, prepared by the Pacific Institute for the California Energy Commission (CEC), documents the potential impacts on areas around San Francisco Bay of sea level rise of 16 inches by 2050 and 55 inches by 2100.¹¹

The results of the CEC study are startling. Of all the counties in California, SMC is by far the most exposed to SLR, in terms of both the residents and economic value at risk. Assuming 55 inches of SLR, the replacement value of buildings and contents at risk of flooding along the bay is estimated to exceed \$23 billion, while that along the coast is valued at \$910 million (land value is not included in these figures).¹² This is about one-quarter of the statewide total and nearly 40% of the Bay Area total. The dollar figure only hints at the threat to the people and structures within SMC due to SLR:

- 120,000 residents at risk of losing their homes to flooding (also nearly one-quarter of the statewide and 40 percent of the Bay Area totals)¹³
- 110,000 employees at job locations at risk

¹¹ Heberger et al., *The Impacts of Sea Level Rise*, pp. 6-21. As noted in the discussion in footnote 4 of this Grand Jury report, 55 inches is the average of "high" model projections. Thus, it represents a close-to-worst-case scenario (excluding catastrophic SLR discussed elsewhere in this report).

¹² SCC, "San Mateo County Shoreline Vulnerability Assessment," Staff Recommendation, January 29, 2015, p. 2. Valuation of coastal property at risk was not included in the Heberger et al. report but was provided by the Pacific Institute.

¹³ Pacific Institute, "Thematic Maps." <http://www.pacinst.org/publications/sea-level-rise-thematic-maps/>. Based upon 2010 U.S. Census data, the website updates the 110,000 population figure for SMC that was included in Heberger et al.

- 6 wastewater treatment plants at risk
- 1 power plant at risk
- 72 miles of highways at risk
- 420 miles of roads at risk
- 10 miles of railroads at risk
- 78 EPA-regulated hazardous material sites at risk
- 75% of existing wetlands at risk of being “unviable”

The Grand Jury reviewed SLR flood maps prepared by the Pacific Institute, which show the impact of 55 inches of SLR.¹⁴ These maps are included in the Appendix. All of Foster City and substantial areas of Redwood City and San Mateo could be inundated. Serious flooding could also occur in East Palo Alto, Menlo Park, San Carlos, Belmont, Burlingame, Millbrae, San Bruno, and South San Francisco.

The 55-inch SLR flood zone covers important commercial centers including part of South San Francisco’s biotech industrial area, the hotels along Burlingame’s shoreline, numerous shopping areas, business parks, and recreational spaces. Within this floodplain are the headquarters of Visa International in Foster City, Franklin Templeton Investments in San Mateo, Oracle in Redwood Shores, and Facebook in Menlo Park.

Fifty-five inches of SLR waters would flood San Francisco International Airport and the County’s Half Moon Bay and San Carlos Airports. Other County facilities at risk include the new jail under construction and the Government Center, both in Redwood City. The Caltrain line in San Mateo, Burlingame, and Millbrae is threatened. The Port of Redwood City and marinas operated by the County Harbor District at Pillar Point on the coast and at Oyster Point in South San Francisco could be flooded.

The new Kaiser Foundation hospital in Redwood City, the Kaiser Foundation medical office building in San Mateo, the new Palo Alto Medical Foundation medical office building in San Carlos, and the Stanford Health Care medical office buildings in Redwood City are all within the 55-inch SLR flood zone.

On the coast, parts of Half Moon Bay and Pescadero could be flooded. In Pacifica, the potential for SLR has “very serious implications . . . areas of the Sharp Park Golf Course, the Rockaway Beach district, and the West Linda Mar and West Sharp Park neighborhoods could be inundated.”¹⁵ Further, “coastal erosion processes that have caused damage along the high bluffs of Pacifica’s northern neighborhoods would very likely increase in magnitude . . . while there

¹⁴ Pacific Institute, “Impacts of Sea Level Rise on the California Coast.”
http://www2.pacinst.org/reports/sea_level_rise/gmap.html.

¹⁵ Dyett & Bhatia (consultants), *City of Pacifica Draft General Plan*, March 2014, pp. 7-8.

could be new risks of erosion along the length of Pacifica’s coastline in areas that are not currently exposed to wave action erosion. . . .”¹⁶

Countywide Impact—Tax Revenue

Although no exact figure has been calculated, it is evident that the impacts identified above would also have a severe effect on tax revenues from a variety of sources. In particular, a reduction in property tax revenue from SLR flood zones would affect all taxing entities in the county. This might affect the provision of County and city services throughout the county.

Countywide Impact—Wastewater Treatment Plants

The impact of SLR is not limited to jurisdictions touching the ocean or bay. Inundation of wastewater treatment plants would pose severe countywide environmental and health threats. Since sewer systems rely on gravity, treatment plants are often located at sea level, with outflow of treated wastewater into the bay or ocean. The CEC report identified the following plants in SMC as vulnerable with 55 inches of SLR:¹⁷

- Mid-Coast Sewer Authority (includes the city of Half Moon Bay)
- City of Millbrae
- San Francisco International Airport
- City of San Mateo (includes the city of Foster City and part of the town of Hillsborough)
- South Bayside System Authority (now Silicon Valley Clean Water) (includes the cities and towns of Atherton, Belmont, East Palo Alto, Menlo Park, Portola Valley, Redwood City, San Carlos, and Woodside)
- South San Francisco/San Bruno (includes the town of Colma)

In addition to the threat of flooding, it is likely that these plants, and others that pump their treated water into the bay or ocean, will also need to install stronger pumps in order to deal with the increased water pressure at depths that will have increased due to SLR.¹⁸

The State CO-CAT advises that shoreline wastewater treatment plants with no space to relocate inland have “low adaptive capacity and high potential impacts from flooding.” For such facilities, preparing for a higher projected SLR would be prudent.¹⁹

The Grand Jury toured the largest treatment plant, located in Redwood Shores, operated by Silicon Valley Clean Water. It serves 200,000 south county residents. At the plant, key

¹⁶ Ibid.

¹⁷ Heberger et al., *The Impacts of Sea Level Rise*, p. 16. Note also that the City of Brisbane is served by the Southeast Water Quality Control treatment facility in San Francisco, which also appears to be vulnerable to SLR.

¹⁸ Source: Interview.

¹⁹ CO-CAT, *Sea-Level Rise Guidance*, pp. 3-4.

components have been elevated to protect against possible levee failure. However, this does not take into account SLR. Also, staff noted that the treatment plant receives wastewater from four pumping stations, all of which are in the SLR flood plain.²⁰

Catastrophic Sea Level Rise

A 2013 *National Geographic Magazine* article described potential SLR of 212 feet, over many centuries.²¹ In a presentation to SMC officials, oceanographer John Englander said that a 10-foot rise over just 10-15 years is possible this century if two west Antarctic glaciers break loose into the ocean.²² This would be *in addition to* the SLR already projected by State agencies. This Grand Jury report looks at the local planning required for up to about 55 inches of SLR. At this level, SLR impacts SMC to a much greater extent than other Bay Area counties, and it makes sense to look at this county separately. However, SLR on the order of 15 feet or more would severely impact the entire Bay Area and planning may need to be addressed primarily at the regional level.

SLR Is a Countywide Issue

A key question is whether SLR should be viewed as a *countywide* threat or only as a risk to areas threatened with *actual inundation*. The answer to this question has important implications for how the problem is addressed—and who pays for it.

Currently, flood control, whether along creeks or shorelines, is the responsibility of each city, as cities have responsibility for public safety and for land use. In fact, exposure to SLR is partly the result of land use decisions by cities to develop tidal wetlands and other low-lying areas.

However, as detailed above, the impact of SLR will fall on *all* county residents. In particular, the exposure of wastewater treatment plants and the loss of countywide tax revenue are serious countywide threats.

Public Awareness of the Threat

Developing a plan to adapt to SLR will require broad support among elected officials and other government policymakers and, most importantly, the general public. This, in turn, requires greater public awareness of the issue.

Two forums on SLR sponsored by Congresswoman Jackie Speier, Assemblyman Rich Gordon, and Supervisor Dave Pine have served to educate many local elected officials and government

²⁰ Source: Interview.

²¹ Tim Folger and George Steinmetz, “Rising Seas: How They Are Changing Our Coastlines,” *National Geographic*, September 2013.

²² John Englander, Conference Speech at Speier, Gordon, and Pine, “Meeting the Challenge of Sea Level Rise”; see also Will Travis (former Executive Director of BCDC), Conference Speech at Speier, Gordon, and Pine, “Meeting the Challenge of Sea Level Rise.” Travis noted that at some point higher levees may not be viable and suggested that we may need to look at the Dutch model of “living with water”; see also Larry Goldzband (Executive Director of BCDC), Conference Speech at Speier, Gordon, and Pine, “Meeting the Challenge of Sea Level Rise.” He noted the possibility of addressing SLR at the Golden Gate, rather than along the entire length of the bay shoreline.

staff.²³ However, as one city manager noted, continuing education is necessary as elected officials rotate off their councils.

Moreover, despite some press coverage of the two forums, it appears that the public at large is not well informed on the issue. At present, the Grand Jury is not aware of any on-going educational efforts by local governments to inform county residents about SLR, particularly as it may impact SMC.

Preparing for SLR

Existing Flood Protection in San Mateo County

Cities and two special local agencies are responsible for construction and maintenance of levees within their jurisdictions.²⁴ Often, they pay the entire cost of levee projects. They work closely with various regional, State, and federal permitting agencies to meet design standards, both for the structures themselves and the adjacent shoreline environment.²⁵

Presently, there is a chain of levees along the bay. Each link in the chain is the responsibility of a different city or special agency. However, flood risk is based on topography, not political boundaries. Thus, the safety of properties in any given city often depends on levee projects undertaken by its neighboring cities. The public is protected only so long as the “weakest link” in the chain of levees is able to meet the threat. Officials interviewed by the Grand Jury identified a number of existing “weak links.”

Currently, no countywide agency has oversight of the levees as a whole. No agency provides countywide planning, coordinates cities’ construction and maintenance efforts, or assists with grant applications related to *existing* flood problems, much less preparing for SLR. Cities do not contribute money to pay for projects outside their jurisdiction, even though their own residents may benefit.

The San Mateo County Flood Control District is “countywide” on paper but its tax base is limited by the California Water Code to certain “subzones,” which were specified prior to the voters’ adoption in 1978 of Proposition 13. The District’s revenue stream is small and limited to funding flood control along the Colma, San Bruno, and San Francisquito Creeks. The District has no staff of its own, contracting with the County’s Public Works Department on an as-needed basis for necessary staffing.

²³Jackie Speier, Rich Gordon, and Dave Pine, “Meeting the Challenge of Sea Level Rise in San Mateo County,” College of San Mateo, December 9, 2013, and “Planning for Sea Level Rise in San Mateo County,” Foster City City Hall, June 27, 2014.

²⁴ The cities of East Palo Alto and Menlo Park, the San Mateo County Flood Control District, the city of Palo Alto and the Santa Clara Valley Water District have formed the San Francisquito Creek Joint Powers Authority to address flooding, enhanced ecosystems and recreation along that creek in both San Mateo and Santa Clara Counties. The San Mateo County Flood Control District also has responsibility for flood control along Colma and San Bruno Creeks.

²⁵ Other agencies may be involved in particular situations. For instance, Caltrans is responsible for protecting State highways and airport owners may be responsible for protecting certain airports. (Source: Interviews.)

Current Efforts in San Mateo County to Plan for SLR²⁶

The County has taken the lead in trying to jump-start the process of planning for SLR. Along with working groups of elected officials, city staff, and special district personnel, the County has commenced (a) conducting a vulnerability assessment, (b) exploring options for a countywide governance organization to address flood control and SLR, and (c) identifying sources of funding. In January 2015, the County's Office of Sustainability received a grant from the State Coastal Conservancy (SCC) to jointly manage an SLR vulnerability assessment for SMC. The study will cover the entire bayside and the coast from Half Moon Bay north.²⁷ While there is currently no guarantee, staff is confident that the Office of Sustainability will continue working on SLR beyond the period of the grant.

Characteristics of a Possible Organization to Address SLR Planning

Almost every local official interviewed by the Grand Jury acknowledged the need for greater coordination among jurisdictions to address SLR. Each person was asked about options for "getting organized" to address SLR. Some of the characteristics identified by many of those interviewed include:

- The organization should be countywide, including upland and coastal communities.
- The cities should participate in decision-making by the organization.
- The organization should have a *focus* on SLR and have a staff with expertise in the subject.
- The organization must be sustainably funded.

Interviewees also identified a number of existing needs related to planning for SLR that should be met:

- Identify consistent SLR-related projections and flood control project standards for all jurisdictions
- Help coordinate jurisdictions regarding SLR-related flood control projects and seek a commitment by jurisdictions to implement projects in a timely fashion

²⁶ Other important SLR-related efforts in SMC include the "SFO/San Bruno Creek/Colma Creek Resilience Study," a joint effort of the airport, affected cities, and the County to assess SLR impacts in the vicinity of San Francisco International Airport (Brendan P. Bartholomew, "Peninsula Sea-Level Study to Focus on Flood Threats Surrounding SFO," *San Francisco Examiner*, February 13, 2014). The San Francisquito Creek JPA is undertaking two SLR-related projects: the SAFER Bay project will protect property within the cities of East Palo Alto and Menlo Park from Bay 100-year tides with up to three feet of SLR and enhance and create Bay marshes; and the San Francisco Bay to Highway 101 project along San Francisquito Creek that will protect the tidally influenced areas of East Palo Alto and Palo Alto from a 100-year creek flow coincident with an extreme tide and 26 inches of SLR (<http://sfcjpa.org/projects>). In addition, the SCC is funding Local Coastal Plan updates for Half Moon Bay and Pacifica that will address adaptation to SLR (SCC, "San Mateo County Shoreline Vulnerability Assessment" RFP, February 18, 2015).

²⁷ SCC, "San Mateo County Shoreline Vulnerability Assessment," Staff Recommendation, January 29, 2015.

- Assist with grant applications (State and federal agencies prefer to provide grants to projects that demonstrate a multi-jurisdictional approach)
- Seek to broaden the revenue sources for SLR projects

However, several city managers and others questioned whether the cities are ready for a new organization to assume direct control of levees, since such an organization might impinge on city authority regarding public safety, land use, and use of eminent domain.

Organizational Options

The Grand Jury discussed the following organizational options for SLR planning with the interviewees:

- Expanding the role of the County Flood Control District (SMCFCD) and/or the County Office of Sustainability
- Creating a new independent special district with an elected board (such as the Santa Clara Valley Water District)
- Expanding the role of the City/County Association of Governments (C/CAG)
- Creating a new joint powers authority (JPA) with an appointed board of elected officials from the cities and County (and possibly relevant special agencies)

The County option (first bullet point) offers advantages. As an existing agency, the Flood Control District would not need to be created anew (although legislative action would be required to expand its role). Its existing jurisdiction extends countywide, at least on paper. County staff already has expertise in matters relating to flood control. Although separate, the SMC Office of Sustainability is also developing staff with knowledge about SLR. The relevant functions of the Office of Sustainability and County's Public Works Department (which staffs the County Flood Control District) could easily be coordinated or merged. Both the Flood Control District and the Office of Sustainability are responsible to the County Board of Supervisors. Therefore, a way would need to be found to ensure that cities may participate in decision-making. Given its other responsibilities, some interviewees were also concerned that the County Board of Supervisors might not be able to give SLR the focus it requires.

In the case of an independent special district with its own elected board (second bullet point), neither the cities nor the County Board of Supervisors would have decision-making authority. It is not a near-term option, since it would require voter approval, hiring of staff and acquisition of office space, among other things. The Grand Jury's investigation also suggests that the creation of a new district would be an expensive choice, particularly if the district's responsibilities are limited to SLR planning. An independent special district might be a more appropriate option if responsibilities included actual levee construction and maintenance.

The Grand Jury inquired as to whether C/CAG, which already has committees on several environmental subjects, could expand its role to include planning for SLR. However, local officials felt that C/CAG is strongly focused on congestion management and does not have

expertise in SLR/flood control. C/CAG staff has not proposed to the agency's Board of Directors that the agency take on SLR.²⁸

Creating a new JPA (fourth bullet point) would allow the cities (and County) to have a voice. A JPA for SLR could hire staff with expertise in the field and, as a single-purpose agency, could stay focused on SLR. One negative factor is the need to create a brand new governmental structure and the added expense to do so. However, it is possible that the JPA could contract for administrative services and staffing with another agency, such as the County. A second concern expressed by local officials is the need to structure the JPA so that a membership that includes the County, 20 cities, and possibly other relevant local agencies does not become unwieldy.

Based on this analysis, the Grand Jury concludes that, under current circumstances, there is no perfect choice for an organization to undertake countywide SLR planning. However, it appears that either enlarging the role of the County Flood Control District or creating a new JPA would be viable options. What is critical is that a coordinated countywide approach be agreed upon soon.

Funding of an Organization to Plan for SLR

The costs of an organization that only focuses on *planning-type* functions such as coordinating local jurisdictions, conducting studies, developing standards and timelines, and preparing grant applications would be much less than the cost of actual construction of levees. It could be funded by member contributions, grants, and contributions from industry and wastewater treatment agencies. This would be similar to the general fund revenues that C/CAG currently collects from member contributions and grants.

Funding of Projects to Protect against SLR

At the Grand Jury's first interview, a local official posed the following question regarding SLR: "how are we going to pay for it?" Levee construction is extremely expensive. Projects recently completed or proposed in the county, just to address existing needs, have run into the tens of millions of dollars.²⁹

Current Funding for Levee Protection in San Mateo County

Currently, funding for levee projects comes mainly from local general funds or capital improvement funds, plus, in some cases, an assessment on property owners who directly benefit from such projects. Where relatively few properties are involved, the assessment per parcel can be prohibitive.

²⁸ Source: Interview.

²⁹ For example, in 2012 the City of San Mateo completed \$22.7 million in levee improvements to protect 8,000 properties and faces raising another \$22.35 million for levee improvements to protect 1,500 properties that remain in FEMA flood insurance rate maps (Larry Patterson, Conference Speech at Speier, Gordon, and Pine, "Meeting the Challenge of Sea Level Rise"). The San Francisquito Creek JPA has secured State and local funding for its \$37.5 million project for the portion of that creek between the Bay and Highway 101 (Gennady Sheyner, "San Francisquito Creek Project Sees Breakthrough after Permit Stall," *Palo Alto Online*, November 3, 2014, and interview).

The cost of flood insurance to property owners is also expensive. As a result, cities focus on projects that remove residents from FEMA flood zones (which determine the need for insurance). Savings on insurance helps offset the cost of a property assessment.

Potential Countywide Sources of Funding for SLR Projects

City general funds and assessments on properties that directly benefit may also be used for SLR-related projects. However, since SLR has countywide impacts, spreading part of the cost countywide appears justified. Some potential sources of countywide revenue include:³⁰

- Wastewater agencies may impose fees on customers within their service area to help pay for levee projects that protect wastewater treatment plants and pumping stations threatened by SLR.
- Officials interviewed doubt that, at present, SLR levee projects could secure the 66.7% voter approval required under Proposition 218 for a special tax (i.e., a tax imposed to raise revenue for a specific purpose). However, this could be a source of funds in the future, when the threat of SLR becomes more evident.
- The County and cities may raise funds through general taxes, such as County Measure A (2012), which require approval of a simple majority of voters, and distribute a *portion* of such revenues to protect against SLR, so long as the measure does not include a specific commitment to fund SLR projects.
- C/CAG used the simple majority voter threshold to win approval for County Measure M (2010), a vehicle registration fee used for a variety of transportation projects and for mitigation of transportation-related stormwater pollution.³¹ Any organization, such as the County Flood Control District or a new JPA, that addresses SLR and other related issues such as groundwater management and water pollution, might be able to use a similar approach.
- State law (SB 628, 2014) allows for the formation of Enhanced Infrastructure Financing Districts within cities and counties with the authority to issue bonds, with 55% voter approval, for purposes such as “flood control levees and dams, retention basins, and drainage channels.”³² In certain circumstances, such districts may be formed within SMC jurisdictions to serve as a source of funding for SLR projects.
- Contributions may be solicited from business parks or agencies responsible for facilities such as airports or highways that are within SLR flood plains. For example, the Facebook headquarters campus in Menlo Park will benefit from the San Francisquito Creek JPA’s SAFER project, and the company has contributed \$275,000 toward its design and EIR.³³
- Mitigation fees may be imposed on new developments in areas subject to SLR.

³⁰ Source: Interview.

³¹ C/CAG, Funding-Local/Measure M. <http://ccag.ca.gov/funding/measure-m/>.

³² California Legislative Information, SB-678 Enhanced Infrastructure Financing Districts.

³³ Renee Batti, “Stemming the Tide,” *Almanac: The Hometown Newspaper for Menlo Park, Atherton, Portola Valley and Woodside*, March 10, 2014, and interview source.

Potential Regional, State, and Federal Sources of Funding for SLR Projects

To date, local cities have received little federal or State funding for levee projects.³⁴ Several officials advised that granting agencies typically prefer projects that show multi-jurisdictional cooperation, placing the local government entities in San Mateo County at a significant competitive disadvantage in securing such funds. However, even for a multi-jurisdictional project, grants are highly competitive. SLR-related projects face a further difficulty if the granting agency does not yet recognize the risk of SLR. Finally, since SMC is by far the county most vulnerable to SLR, it may be difficult to find other counties with similar needs with which to collaborate on a regional basis. However, there is one new source of funding:

- The State of California’s Climate Resilience Account, created in 2014, is a source of grant funding directed specifically at SLR. Although only \$2.5 million has been allocated statewide in the first year, it may be enlarged in the future.

Reducing Costs by Integrating SLR-Related Projects with Other Levee Projects

Given that the amount and rate of SLR are uncertain, local officials may be reluctant to spend large amounts of money for projects that may never be needed. Possible cost-saving options that cities and relevant special agencies may examine on a case-by-case basis include:³⁵

- Integrating SLR-related protection with existing planned or proposed levee projects³⁶
- Developing SLR-related projects in stages, with specific “triggers” required before undertaking each stage of construction

In order to take advantage of these cost-saving options, however, SLR planning should begin now. For instance, a FEMA representative has advised county officials that new FEMA flood hazard maps will be forthcoming in the near future. These maps will reflect a new higher calculation of bay wave action during storms. This new calculation, which is independent of any SLR effect, may trigger the need for new levee projects to keep properties in SMC from being subject to flood insurance requirements. Incorporating consideration of future SLR in these new projects may result in cost-savings later.³⁷

SLR Is a Land Use Issue

Levee projects are a common solution to SLR. However, they may not be feasible everywhere, due to financial, environmental, or technical reasons. If the risk of flooding due to SLR cannot be completely eliminated, the County and cities will need to examine land use measures to help mitigate the threat of SLR.³⁸ Possible land use measures include the following:

³⁴ Notably, San Francisquito Creek JPA has received an \$8 million State Water Resources Board grant for a multi-jurisdictional project. (Source: Interview.)

³⁵ Craig Conner, U.S. Army Corps of Engineers, Conference Speech at Speier, Gordon, and Pine, “Meeting the Challenge of Sea Level Rise.” These suggestions were supported by local officials interviewed by the Grand Jury.

³⁶ The San Francisquito Creek JPA’s San Francisco Bay to Highway 101 flood protection project will address, in combination, a 100-year creek flow coincident with an extreme tide and 26 inches of SLR. (Source: Interview.)

³⁷ Kathleen Schaefer, FEMA, Conference Speech at Speier, Gordon, and Pine, “Meeting the Challenge of Sea Level Rise.”

³⁸ Flood control levees themselves are local land uses, sometimes offering public trails, and vista points, and other recreational options.

- Jurisdictions can include adaptation to SLR in the Safety Element of their General Plans. While not required by State Guidelines,³⁹ several cities in the county do mention SLR in their Safety Elements and/or Climate Action Plans.⁴⁰
- Jurisdictions may restrict new development or types of land use in areas subject to SLR.
- Jurisdictions may use building codes to mitigate SLR flood risk. For instance, they could require habitable areas and key building equipment be placed above flood level.
- Jurisdictions may identify areas suitable for environmental resource protection and habitat enhancement, in light of the threat of SLR.
- Jurisdictions may need to identify certain areas to be abandoned to SLR.
- Jurisdictions may impose SLR mitigation fees as a condition of approval on major residential or commercial projects in undeveloped areas subject to future SLR.
- Jurisdictions may use the CEQA environmental review process to ensure that exposure to SLR is considered, and mitigation measures identified, when major residential or commercial projects are proposed within a SLR flood plain.

Actions Needed at the Regional, State, and Federal Levels

While focused on SMC, this investigation points to the need for action on SLR at other levels of government. The County, cities, and relevant local special districts, through their representation at regional agencies, memberships in state associations, lobbyists, and elected State and federal legislators, could advocate on our behalf. Some examples include:

- Federal agencies, such as the U.S. Army Corps of Engineers, do not currently recognize SLR in their flood control mapping and/or funding.⁴¹
- Federal and State funding is extremely limited for all stages of adaptation to SLR: studies, planning, and actual levee projects.

³⁹ California Governor’s Office of Planning and Research, *State of California General Plan Guidelines*, 2003.

⁴⁰ The City of Pacifica’s draft Safety Element has a particularly comprehensive discussion related to SLR. However, the City will wait for “an adequate model with sufficient local detail” to project specific impacts of SLR (see Dyett & Bhatia, *City of Pacifica Draft General Plan*, March 2014, pp. 8-11 – 8-16). The City of San Carlos approved a *Climate Action Plan* (CAP) as a component of the City’s General Plan update. The CAP includes a BCDC map of the city showing SLR of 16 and 55 inches. The City’s approach to SLR is to cooperate with regional agencies, such as BCDC. (See City of San Carlos, *Climate Action Plan*, October 12, 2009, pp. 2, 87-91.) The City of San Mateo commissioned a report that includes a description of the potential effects of SLR on that city and has appended the report to the City’s General Plan. However, the General Plan states that “considering that there is no definitive estimate and that sea level rise will occur slowly over time, the City will continue to address FEMA’s current certification standards” (see *City of San Mateo 2030 General Plan*, 2010, pp. VII-6 and Appendix V, Schaaf & Wheeler, *Climate Change Impacts for San Mateo, California*).

⁴¹ This may change. “In accord with the Biggert-Water Flood Insurance Reform Act of 2012, FEMA is to establish a Technical Mapping Advisory Council that will provide recommendations to FEMA on flood hazard mapping guidelines— including . . . the impacts of sea level rise. . . . FEMA will be required to incorporate future risk assessment in accordance with the recommendations of the Council.” (See FEMA, <http://www.fema.gov/coastal-frequently-asked-questions#CoastalFloodHazardMappingQuestions>, pp. 10-11.)

- With just \$2.5 million in this year’s budget for statewide use, funding of the California Climate Resilience Account, dedicated to SLR, is inadequate.
- California General Plan Guidelines (2003), prepared by the Governor’s Office of Planning and Research, do not require that SLR be addressed in the Safety Element or elsewhere in local general plans.
- Regional agencies, such as BCDC, could provide a forum for discussing SLR, including alternatives for addressing catastrophic SLR greater than 10 feet.

While these and other actions at the regional, State, and federal levels are important, it must be emphasized that San Mateo County cannot afford to wait for planning and resources to appear from outside the county. They may never come.

FINDINGS

- F1. SMC is at severe risk for flooding due to the gradual rise in sea level, projected at up to 65 inches (167 centimeters) by the year 2100. Catastrophic SLR of nearly 15 feet is a possibility this century.
- F2. SLR is a threat *countywide*, including the upland areas. All residents depend on public infrastructure, especially wastewater treatment plants. Also, a significant portion of the countywide property tax base is within the area threatened by SLR.
- F3. Although many local officials are now familiar with and concerned about the threat of SLR, there is inadequate public awareness of SLR’s potential impacts on this county.
- F4. Levees, including their financing, are currently the responsibility of each individual city or special agency with jurisdiction along streams, bay, and coast (the County is responsible for unincorporated areas).
- F5. Flood risk is based on topography, not political boundaries. The safety of properties in one jurisdiction often depends on levee projects undertaken by another jurisdiction.
- F6. Currently, no countywide agency exists to provide planning, facilitate coordination among jurisdictions, or to assist with securing funding for *existing* flood control projects. The same is true for future SLR-related projects.
- F7. To the Grand Jury’s knowledge, no local jurisdiction has adopted SLR projections or maps for specific local land use planning purposes.⁴² No consistent SLR projection has been adopted countywide by the County and cities.
- F8. There is a recognized need for a countywide approach to SLR planning and coordination among jurisdictions.
- F9. Several city managers and others interviewed did not support having a new countywide organization assume direct control of levee projects at this time.
- F10. The County and cities can address SLR in their General Plans and Climate Action Plans, can map the threat, and can adopt relevant policies.

⁴² See discussion of SLR planning in several San Mateo County cities in footnote 39.

- F11. Many actions to address SLR are within the authority of regional, State, and federal agencies.
- F12. By acting *now*, SMC may be able to reduce future costs by integrating SLR-related projects with other programmed levee projects, and by using land use planning measures to mitigate future exposure to SLR.

RECOMMENDATIONS

The Grand Jury recommends increased public education about SLR:

- R1. The County, each city in the county and relevant local special agencies⁴³ should conduct a public education effort to increase awareness of SLR and its potential effects on this county.

The Grand Jury recommends identifying a single organization to undertake SLR planning:

- R2. The County, each city in the county and relevant local special agencies⁴⁴ should identify a single organization, such as a new joint powers authority or an expanded SMC Flood Control District, to undertake countywide SLR planning. It should be structured to ensure that:

- The organization is countywide in scope
- The organization is able to *focus* on SLR
- Both the County and cities (and possibly relevant local agencies) are able to participate in the organization's decision-making⁴⁵
- The organization is sustainably funded

- R3. The organization's responsibilities should include:

- Adopt consistent SLR projections for use in levee planning countywide
- Conduct and/or evaluate vulnerability assessments⁴⁶
- Provide a forum for inter-jurisdictional coordination and exchange of information related to SLR
- Undertake grant applications for SLR-related planning and projects
- Facilitate raising funds on a countywide basis for SLR-related projects, to be passed through to agencies with direct responsibility for project construction

⁴³ San Mateo County Flood Control District and San Francisquito Creek Joint Powers Authority.

⁴⁴ Ibid.

⁴⁵ The organization could also create a technical advisory committee with representatives of departments responsible for levee construction and management, as well as representatives of public facilities at risk, such as airports and wastewater treatment plants.

⁴⁶ A vulnerability assessment could (a) inventory areas at risk for SLR (commercial, residential, public facilities, and infrastructure), (b) determine the adequacy of existing levee protection, and (c) identify and prioritize the projects that will be needed to adapt to SLR.

- Monitor actual SLR over time and any changes in SLR projections, based upon the latest federal, State, or regional government reports and scientific studies
- Through the CEQA environmental review process, comment on major new developments proposed in the SLR floodplain
- Advocate on behalf of the member jurisdictions with federal, State, and regional agencies regarding SLR issues
- Assist the County and cities in public awareness efforts, as described in R1

R4. The County, cities and two relevant local special agencies⁴⁷ should consider expanding the role of the organization beyond SLR to include planning and coordination of efforts to address *existing* flooding problems along the Bay, coast, and creeks that are subject to tidal action. It may be cost-effective to integrate SLR protection with other levee-improvement programs.

The County and cities may also consider expanding the role of the new organization to include potentially compatible functions such as the National Pollution Discharge Elimination System (NPDES), currently managed by C/CAG, and the new (2014) State requirements for local sustainable groundwater planning.

R5. The organization—its administration, staffing, and program expenses—should be funded on a sustainable basis by:

- Member contributions
- Contributions solicited from parties threatened by SLR, including corporations and agencies that operate public facilities such as wastewater treatment plants
- Grants solicited from available potential sources such as the California Climate Resilience Account
- Reducing administrative costs by contracting for services with the County or another agency

The Grand Jury recommends that SLR be addressed in local land use planning:

R6. The County and each city should amend its General Plan, as needed, to address the risk for SLR. The Safety Element⁴⁸ should include a map of any areas vulnerable to SLR, as determined by measurements in the countywide Vulnerability Assessment [R3]. Further, it should identify policies that apply to areas threatened by SLR.

⁴⁷ San Mateo County Flood Control District and San Francisquito Creek Joint Powers Authority.

⁴⁸ As an alternative, the City of San Carlos has addressed SLR in its Climate Action Plan (CAP). The City states that the CAP was developed as a “component of the 2009 General Plan update . . . a legally defensible approach to ensuring that the Climate Action Plan is implemented” (see City of San Carlos, *Climate Action Plan*, 2009, p. 2).

The Grand Jury recommends that local governments champion SLR issues before regional, State, and federal governments and agencies:

R7. The County, cities, and relevant local special agencies, through their representatives on regional agencies, membership in state associations, lobbyists, and elected State and federal legislators, should pursue SLR-related issues with government bodies outside SMC.

REQUEST FOR RESPONSES

Pursuant to Penal code section 933.05, the Grand Jury requests responses as follows:

From the following governing bodies:

Responses to recommendations R1, R2, R3, R4, R5, R6, and R7 are requested from:

- The County of San Mateo Board of Supervisors
- The City and Town Councils of Atherton, Belmont, Brisbane, Burlingame, Colma, Daly City, East Palo Alto, Foster City, Half Moon Bay, Hillsborough, Menlo Park, Millbrae, Pacifica, Portola Valley, Redwood City, San Bruno, San Carlos, San Mateo, South San Francisco, and Woodside

Responses to recommendations R1, R2, R3, R4, R5, and R7 are requested from:

- The Board of Directors of the San Francisquito Creek Joint Powers Authority

Response to recommendation R4 is requested from:

- The Board of Directors of the City/County Association of Governments of San Mateo County

The governing bodies indicated above should be aware that the comment or response of the governing body must be conducted subject to the notice, agenda, and open meeting requirements of the Brown Act.

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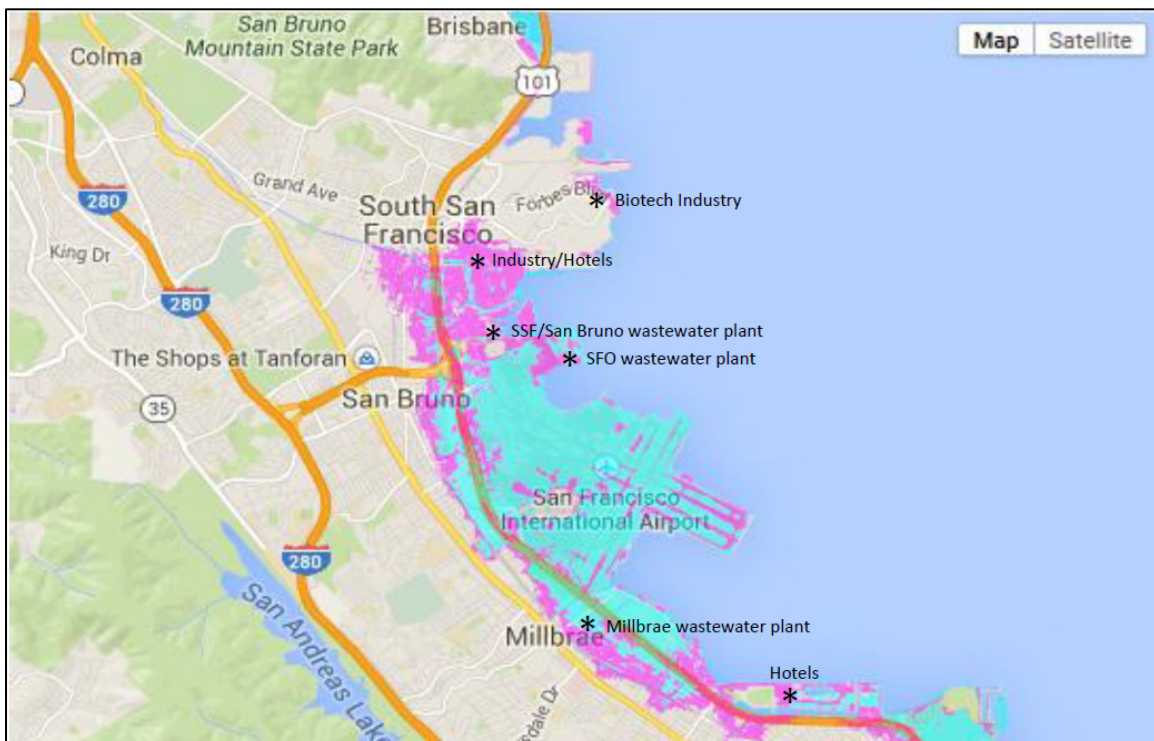
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APPENDIX



Sea level rise inundation maps for selected areas of San Mateo County are presented below. The turquoise-colored zones represent the “current area at risk” to flooding during a 100-year storm, without consideration of existing flood protection levees. The magenta-colored zones represent the area at risk during a 100-year storm with 1.4 meters of SLR (140 centimeters or about 55 inches). The green-colored zones represent areas at risk of erosion from 1.4 meters of SLR, but are not clearly distinguishable at the scale used in this Appendix. These maps were prepared by the Pacific Institute, with specific infrastructure and major government and commercial facilities identified by the Grand Jury with an * symbol.

SAN FRANCISCO INTERNATIONAL AIRPORT AND VICINITY




Maps from Pacific Institute at "http://www2.pacinst.org/reports/sea_level_rise/gmap.html"
Modified by the Grand Jury to show facilities at risk

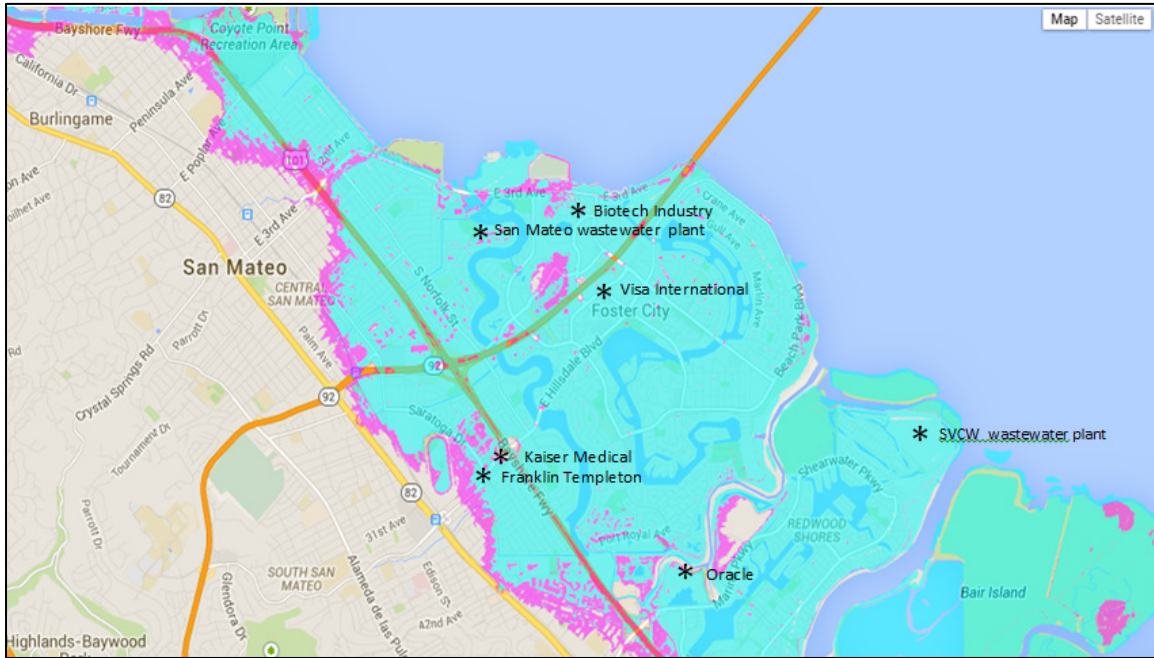
Area at risk from a 100-year coastal flood event

-  Current area at risk
-  Area at risk with a 1.4 meter sea-level rise

Erosion



-  Area at risk from erosion in 2100 with a 1.4 meter sea-level rise

SAN MATEO AND VICINITY




Maps from Pacific Institute at "http://www2.pacinst.org/reports/sea_level_rise/gmap.html"
Modified by the Grand Jury to show facilities at risk

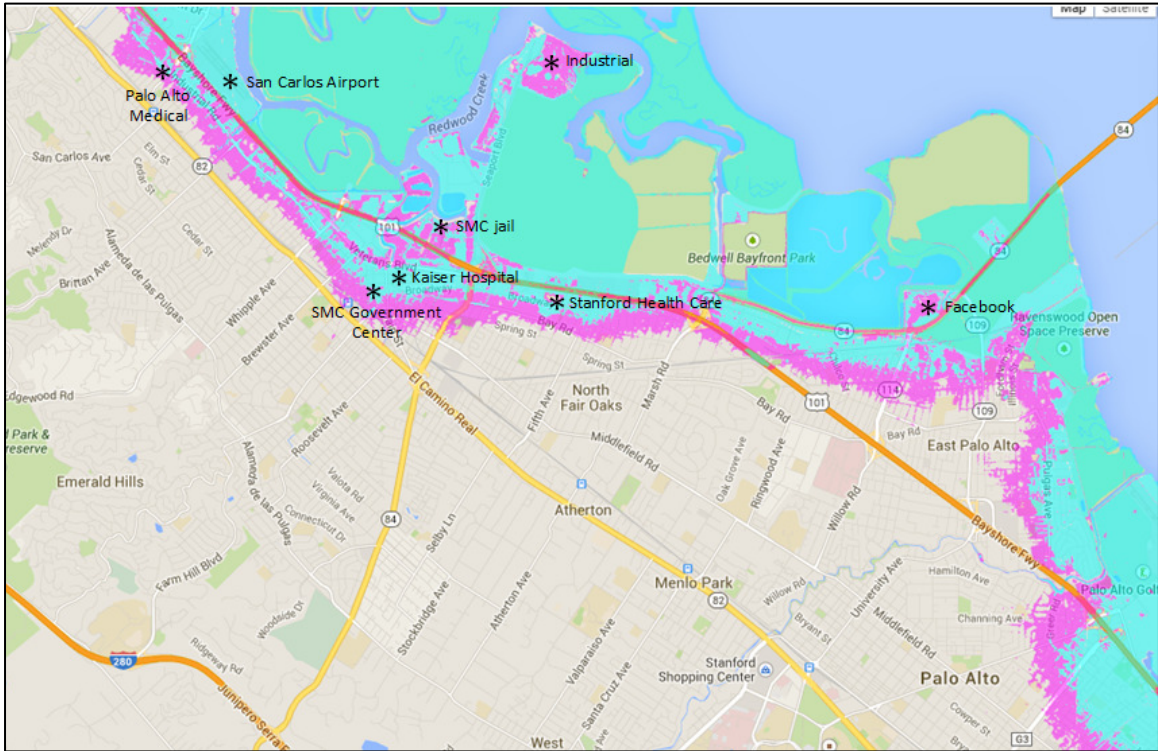
Area at risk from a 100-year coastal flood event

-  Current area at risk
-  Area at risk with a 1.4 meter sea-level rise

Erosion

-  Area at risk from erosion in 2100 with a 1.4 meter sea-level rise

REDWOOD CITY AND VICINITY



Maps from Pacific Institute at "http://www2.pacinst.org/reports/sea_level_rise/gmap.html"
Modified by the Grand Jury to show facilities at risk

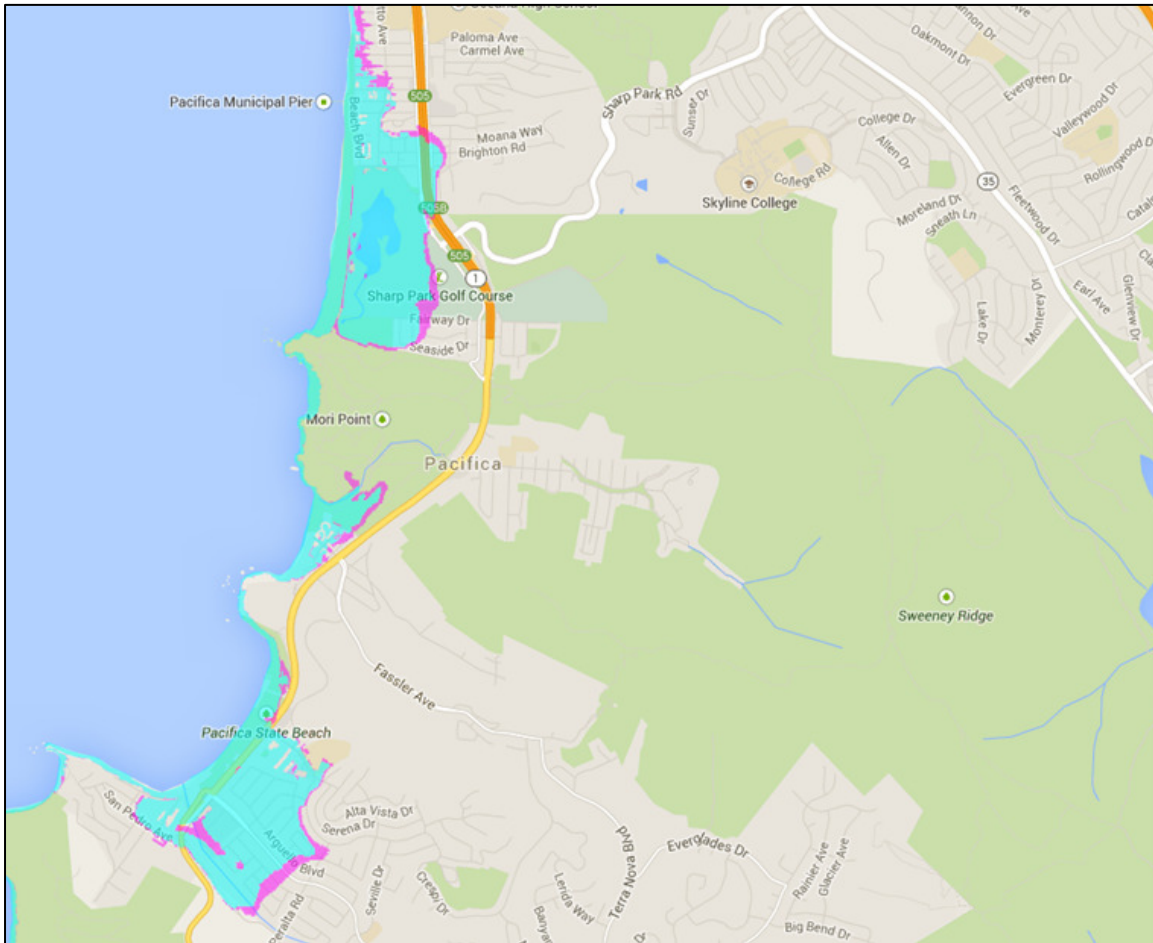
Area at risk from a 100-year coastal flood event

- Current area at risk
- Area at risk with a 1.4 meter sea-level rise

Erosion

- Area at risk from erosion in 2100 with a 1.4 meter sea-level rise

PACIFICA



Maps from Pacific Institute at "http://www2.pacinst.org/reports/sea_level_rise/gmap.html"

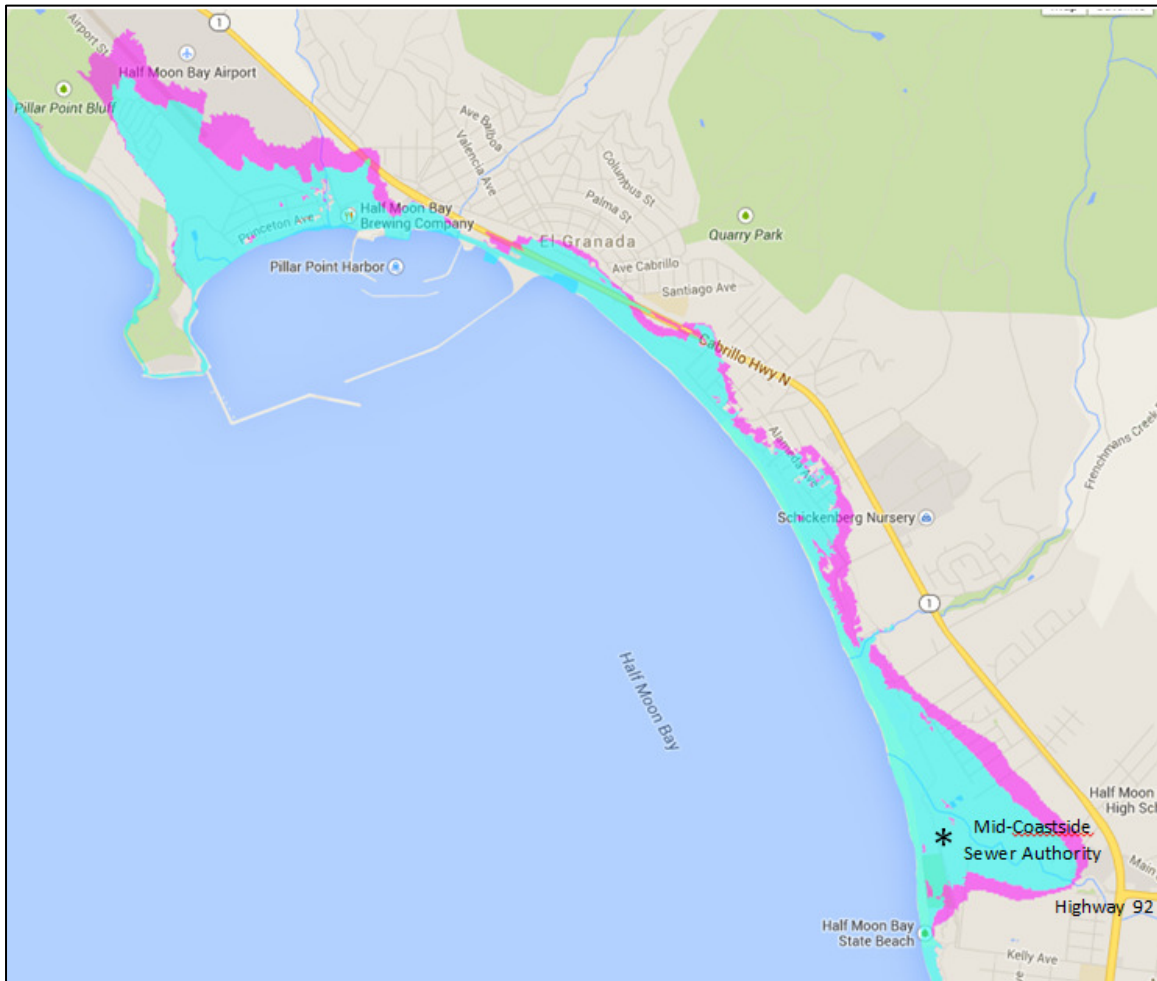
Area at risk from a 100-year coastal flood event

- Current area at risk
- Area at risk with a 1.4 meter sea-level rise

Erosion



- Area at risk from erosion in 2100 with a 1.4 meter sea-level rise

HALF MOON BAY




Maps from Pacific Institute at "http://www2.pacinst.org/reports/sea_level_rise/gmap.html"
Modified by the Grand Jury to show facility at risk

Area at risk from a 100-year coastal flood event

-  Current area at risk
-  Area at risk with a 1.4 meter sea-level rise

Erosion

-  Area at risk from erosion in 2100 with a 1.4 meter sea-level rise

Issued: June 4, 2015