



Midcoast Community Council

Stormwater Management on the Midcoast

**Situation, Causes, Solutions
and Proposed Actions**

Scope and Process

- How did you get here?
 - Emails, calls, and walking tours with neighborhoods
 - Interviews and/or emails with each County agency
 - National outreach to engineers, architects, other jurisdictions
- Why did I include Non-MCC jurisdictions?
 - A because we share roads and a sewer plant with Caltrans and HMB – failures there are our vulnerabilities as well.
 - Social Justice requires broad inclusion
 - Examples of best & worst practices
- What are we doing here tonight?
 - Gathering feedback and deciding on path forward

Neighborhood Case Studies

- Ocean Colony
- Moonridge
- 2nd St. Montara
- Quarry Park & El Granada*
- Seal Cove
- Moss Beach: Carlos St.
- Miramar*
- SAM Plant*
- Highway 1: Surfer's beach, Airport, and N. Lantos Tunnel*

* Covered in prior MCC meetings, so all details not repeated here, but will be in the written report

A Success Story: Ocean Colony

- Built in late 70's to early 80's
- Created own stormwater management system
- HOA dues fund maintenance and repairs
- No adverse events from Jan. '23 storms
 - 2 fairways flooded, as designed
- Would not disclose details of their costs and efforts

Resilience is not an inborn character trait for most people. It is learned, practiced, and planned. As an example, we can look to Ocean Colony's storm drain system. There were few flooding zones in Ocean Colony, and those mostly from external storm water. Why was Ocean Colony spared? The answer is, we weren't. But we were prepared with a forward-thinking storm system designed in the 1970s with the capacity to handle even the heaviest rains. The preparation was not merely the pipes flowing under the fairways – it was also the design of the streets, which carry the water from nearby homes into the storm drains. And an original design is worth little without constant attention. The Association annually maintains the storm drains to keep them flowing. Homeowners should do likewise with their gutters and downspouts. All this constant attention creates resilience.

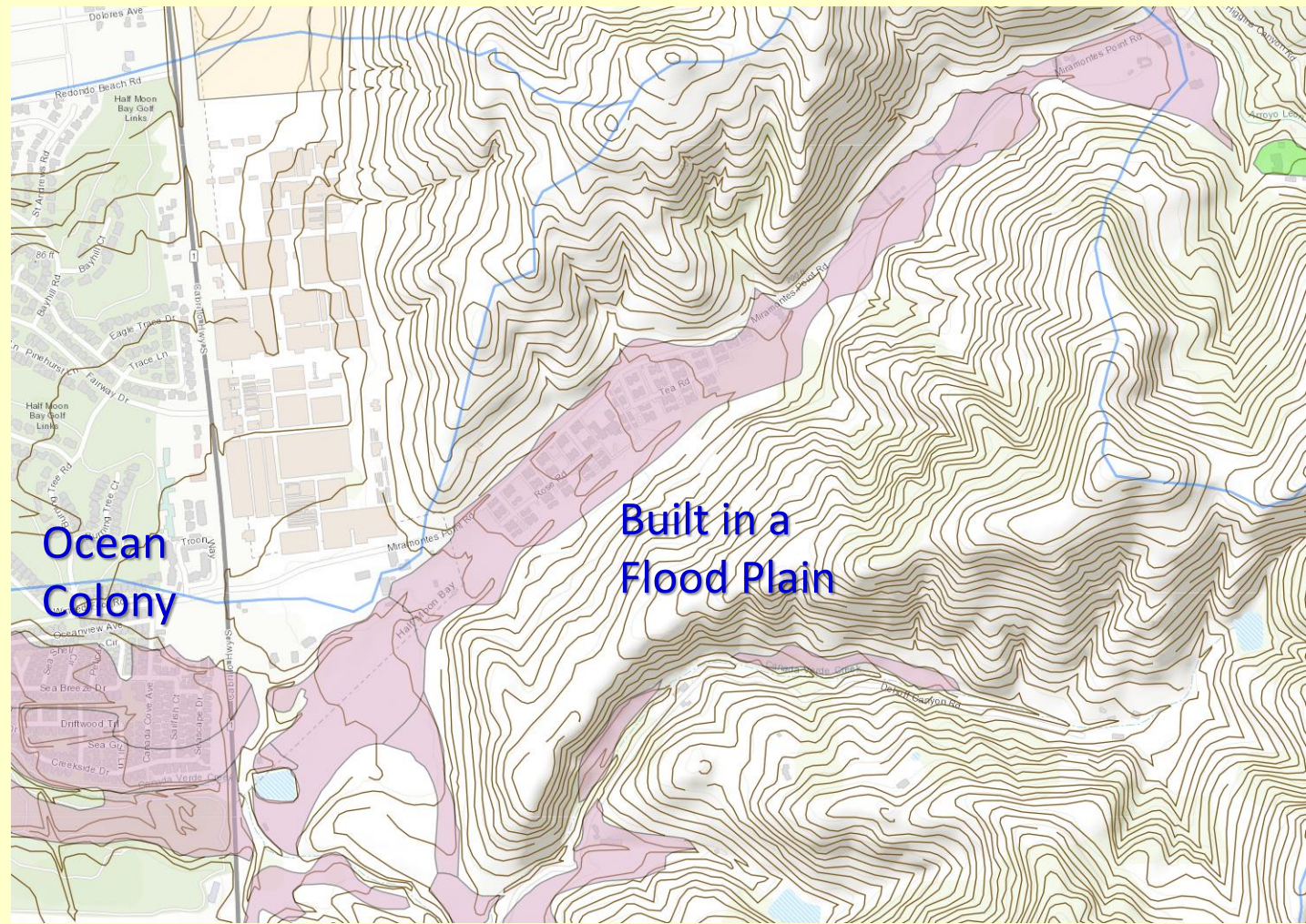
Moonridge: An Unmitigated Disaster

 **Ray Mueller** 
January 1 · 🌐

Pic from Moonridge today, where flooding has displaced residents. We need a long term fix here as well. Thank you to ALAS and community stakeholders helping triage resident needs.



 17
7 comments 1 share



Note: Ocean Colony is DOWNSTREAM from Moonridge...

2nd Street Montara: Down a creek without a paddle

- Documented concerns about stormwater since 2007
- County \$200k study in 2011: Est. Cost: \$1.5M + ongoing costs
- One resident spent \$100K to preserve her house
- County continues to permit more homes upstream
- No evidence of mitigation

East Street
canyon leading
to 3rd and 2nd



El Granada: Uprooted

EG Blvd. slippages and
trees crushing homes >



< Huge trees in EG medians
with shallow roots

Quarry Park

➤ No good deed goes unpunished...



Seal Cove: Slip-slidin' Away



Seal Cove:

- Living with Reality
- Water & sewer system burdens
- Frequent road repairs



Moss Beach: Not Singing in the Rain



Moss Beach: An Undue Burden

- No organized management of water accumulation
- Stetson and Carlos drainage damage homes, flood streets
- Impacted traffic safety, homes, MWSD & SAM sewer system
- Culverts plugged & overwhelmed
- Gutter filters not cleaned and overwhelmed in heavy rains.
- *“...overwhelming infiltration which added extra water pressure in the sewer pumping system and contributed to significant extra stresses in the IPS pipeline SAM owns. This water backing up the neighborhoods ultimately has to be treated and pumped out the SAM sewer plan, a function for which the sewer system was not designed to handle.”*
 - MWSD sewer engineer

Half Moon Bay: Unmanaged Runoff

- Wavecrest efforts a couple of years ago demonstrate some awareness, but ...
- PG&E did pipe survey; results not disclosed
- Property around SAM likely a problem, and a solution
- Still awaiting SAM studies of causes of plant overflows, even when sewage from north held back



HMB Stormwater Plans.... Where's SAM?

FIVE-YEAR CAPITAL IMPROVEMENT PROGRAM SUMMARY FY 2023-28 CAPITAL BUDGET

TITLE	FUND	PROJECT NO.	PRIOR YEAR(S)	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FUTURE YEARS	TOTAL ALL FY	UNFUNDED
STORM WATER IMPROVEMENTS											
GREEN INFRASTRUCTURE AND STORM WATER PROGRAM	152	0563	N/A	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	N/A	N/A	\$ -
STORM WATER MASTER PLAN UPDATE	152	1011	\$ 12,000	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 312,000	\$ -
PILARCITOS OUTFALL REPAIR AT KEHOE WATERCOURSE	152	1005	\$ 157,700	\$ 392,300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 550,000	\$ -
ROOSEVELT DITCH SPOT REPAIR	152	1006	\$ 28,000	\$ 550,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 578,000	\$ -
KEHOE WATERSHED ENHANCEMENT AND ENVIRONMENTAL STEWARDSHIP PROJECT	152	1017	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ 8,400,000	\$ 8,550,000	\$ 8,400,000
SEYMOUR DITCH EROSION AND COASTAL STABILIZATION	152	0608	\$ 200,000	\$ 400,000	\$ 1,325,000	\$ 525,000	\$ -	\$ -	\$ -	\$ 2,450,000	\$ 1,850,000
TOTAL STORM WATER IMPROVEMENTS			\$ 397,700	\$ 1,942,300	\$ 1,475,000	\$ 675,000	\$ 150,000	\$ 150,000	\$ 8,400,000	\$ 13,190,000	\$ 10,250,000
ECONOMIC DEVELOPMENT IMPROVEMENTS											
CRI IMPLEMENTATION PROGRAM	151	1015	N/A	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	N/A	N/A	\$ 100,000
LCP AND HOUSING ELEMENT IMPLEMENTATION	151	1001	\$ 179,000	\$ 181,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 360,000	\$ -
555 KELLY AFFORDABLE HOUSING PROJECT	151	1012	\$ 440,000	\$ 675,000	\$ 540,000	\$ -	\$ 31,075,500	\$ -	\$ -	\$ 32,730,500	\$ -
CLIMATE ADAPTATION PLAN	151	1002	\$ 58,619	\$ 218,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 276,619	\$ -
DOWNTOWN STREETScape MASTER PLAN	151	1024	\$ -	\$ 425,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 425,000	\$ -
SAFETY ELEMENT	151	TBD	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 160,000	\$ -
TOTAL ECONOMIC DEVELOPMENT IMPROVEMENTS			\$ 757,619	\$ 1,679,000	\$ 640,000	\$ 100,000	\$ 31,175,500	\$ 100,000	\$ -	\$ 34,452,119	\$ 100,000
OPERATIONAL IMPROVEMENTS											
IT REPLACEMENT PROGRAM	151	1022	N/A	\$ 35,000	\$ 30,000	\$ 18,000	\$ 18,000	\$ 18,000	N/A	N/A	\$ -
FLEET REPLACEMENT PROGRAM	151	1016	N/A	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	N/A	N/A	\$ -
EQUIPMENT REPLACEMENT PROGRAM	151	1019	N/A	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	N/A	N/A	\$ -
PERMITTING SYSTEM UPGRADE	151	TBD	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,000	\$ -
TOTAL OPERATIONAL IMPROVEMENTS			\$ -	\$ 265,000	\$ 160,000	\$ 148,000	\$ 148,000	\$ 148,000	\$ -	\$ 869,000	\$ -

SAM Impact: Overwhelming

- Infiltration & Inflow overburdens plant
 - Moss Beach, cited above
 - Half Moon Bay near plant
- Plant exceeded theoretical capacity last two Decembers
 - HMB required 100% of plant during peak storms
- Connecting IPS was broken due to excess pressure, holding back flows to save the plant
- Spills equivalent to \$30-40M in fines, if enforced
- Reinvestment in dispute with HMB
- Awaiting FEMA funds for some direct damages

Stormwater Situation Summary

- Homes and roads are being flooded regularly in the newly severe storms.
- The sewer plant nearly failed the last 2 Decembers
- Trees are falling due to soil weakened by saturation, crushing homes and blocking evacuation routes
- Decades of permitting construction of impermeable surfaces,...
- ...Coupled with escalating Climate Change,...
- ...Have created **unsafe conditions** for living and travel in the Midcoast
- ... And compromised Emergency Response...
- ... Not to mention the impact on water quality going forward...

What's Missing

- **Public Safety:** on roads, in homes
- A Stormwater Master Plan for the Midcoast, and the County
 - Even a stormwater asset inventory
- The Stormwater Manager in DPW
- Funding
 - No stormwater infrastructure fees are collected
 - ✓ Permitting, inspection costs are charged
- Visible Process, Visible Progress
- Someone at County who owns this problem

Missing Stormwater Funding: C\CAG

Infrastructure Costs

With inflation, current costs are likely \$1 Billion. No more recent data compiled. *And that's just the Cities listed...*

	Storm Drain Master Plan Cost (total)	High Priority Projects	Med Priority Projects	Low Priority Projects	Dedicated Annual Revenue
Atherton	\$45	\$18	\$24	\$3	\$0.000
Belmont	\$57	\$13	\$13	\$31	\$0.300
Brisbane	\$20	\$15	\$3	\$2	\$0.055
East Palo Alto	\$39	\$31	\$5	\$3	\$0.125
Hillsborough	\$58	\$26	\$14	\$18	\$0.030
Menlo Park	\$39	\$23	\$16		\$0.335
Millbrae	\$42	\$3	\$30	\$9	\$0.240
Pacifica	\$11	\$9	\$2		\$0.178
San Bruno	\$26	\$19		\$7	\$0.575
San Carlos	\$56	\$43	\$13		\$0.435
San Mateo	\$57	\$33	\$16	\$8	\$0.000
South San Francisco	\$54	\$23	\$27	\$4	\$0.425
Total	\$504	\$256	\$163	\$85	\$3

Note: All costs in \$ millions, for jurisdictions with storm drain master plans available to C/CAG

Data are preliminary, not to be cited

2013-14 Data per C\CAG

Who's In Charge Here?

- SMC DPW: has stormwater department, without head for months.
- Planning: approves permits, collects fees
- C\CAG: coordinates County discharge permit; advises on best practice; advisory focus
- OneShoreline: legal charter for County flooding, but no staff/funding for stormwater; Bay-side focus
- HMB: stormwater Capex plan is \$10M unfunded and may need more...
- RCD: helps upon request; grant driven

Potential Solutions

- Stop constructing impermeable surfaces until a validated stormwater management system exists
- Management Reorganization
- Redefine & Improve Planning
- Focus on Priority Problem Areas Immediately
- Create fiscally sustainable funding for stormwater management
- Escalate concerns above County level for funding and enforcement

Why Stop Building?

- Avoid adding to an infrastructure deficit
- Prevent increasing County liability
- Reducing salt water intrusion and water table damage
- Providing land for Regenerative Water Retention
- Take the time to price the stormwater solution, establish a 'hold harmless' approach, and charge related impact fees - before doing more damage.
- County has proven incapable of safely managing stormwater
- Already losing home insurance; don't increase the risk

Solutions: Management Reorganization

- Fill and empower the vacant DPW stormwater position
- Empower one agency to oversee stormwater management (e.g. C/CAG)
- Empower planners/project managers to work across functional boundaries
- Create a stormwater management plan
 - First for the Midcoast, then,
 - For the entire County
- Citizen's Infrastructure Oversight Commission
 - Started in Orinda; expanded to control some tax revenues
 - "Dig Once" for efficiency

Solutions: Improve Planning

- Science and Engineering
 - Define a realistic 'design storm' level
 - Define a protection level based on compound probability over time
 - Redo the SMC Drainage Manual until the guidelines are proven to work
 - Define metrics of success or failure
 - Get Expert Help
- Create a Stormwater Master Plan
 - For the Midcoast
 - For the County
 - ✓ *See following slides*

Science and Engineering Flaws

- “Design Storm” is 90%, 10 year, about 4” in 24 hours
- Our storms are 6”, 7”, 8” every year
- The cumulative probability of protection with current designs is about Zero % over 10 years.
- Standards imply accepting failure, due to cost factors*
- Need to include cost of Failure in the analysis

Stormwater treatment measures on regulated projects¹⁷ are sized to treat runoff from *relatively small sized storms* that comprise the vast majority of storms. The intent is to treat most of the stormwater runoff, recognizing that it would be infeasible to size stormwater treatment measures to treat runoff from large storms that occur every few years. (See Section 5.6 for more information on how stormwater treatment

*C.3 Regulated Projects Guide

Chapter 5: General Technical Guidance for Treatment Measures

Stormwater Management Plan:

Minimum Content

- A) **Assessment** of storm handling requirements vs. existing capacity;
 - ✓ Hydraulic Model to analyze risk and ROI tradeoffs
- B) Robust **Design with Costs** of stormwater systems to fix vulnerabilities: initial and perpetual
- C) **Permitting/design requirements** for new construction that fit within rated stormwater capacity
- D) **Asset Inventory**, perpetually maintained and re-priced for replenishment.
- E) **Perpetual Policies** to ensure stormwater drainage is **funded**, constructed, and maintained in accordance with guidelines - including planning & permitting, and an audit & adjustment process with: inspection, enforcement, and remediation/restitution.
- F) **Management Organization & Process** with integrated Regional Scope to include all entities performing or maintaining impermeable surfaces or watersheds here (e.g. Caltrans, DPW, HMB, SFPUC, MWSD, etc.)

Solutions: Act on Priority Problems

- Reassign Planning staff from permitting, to planning major stormwater fixes:
 - SAM sewer plant in HMB
 - Downstream of Quarry Park, El Granada
 - 2nd Street in Montara
 - Moonridge
 - Seal Cove
 - Highway 1: Surfer's beach and Airport
 - Carlos St. Moss Beach (and Hwy 1)
 - Hwy 1 north of Lantos Tunnel
 - Pilarcitos Creek Dams (SFPUC)
- Immediately apply for all applicable grants

“Polishing the bell
on a sinking ship”

Solutions: Fiscal Sustainability

- Create fiscally sustainable funding for stormwater management
 - Start saving money by stopping adding to the problem
 - Until the following are agreed, construct no more...
 - Institute a stormwater “impact fee” for all new construction
 - County to fund first generation of stormwater infrastructure
 - ✓ Because they permitted the work, and collected taxes from it for years
 - Parcel tax for ongoing operation, maintenance, replenishment of stormwater system
 - ✓ Size of lot, and size of impermeable surface
 - All fees indexed to replacement cost of infrastructure

Financial: Engineering Consulting

- Ballpark estimates from engineering firm:
 - New Drainage Manual: \$50 – 200K
 - SAM vulnerability to Pilarcitos Creek: \$150K
 - SAM stormwater infiltration assessment: \$600K and up
 - County Stormwater Management Plan: \$1 Million
- Other items needing analysis & pricing
 - Fixes to SAM I&I
 - And/or relocation & redesign of SAM
 - Hwy 1 Surfers' Beach
 - Hwy 1 North of Lantos Tunnel

Financial Implications: Construction

- 2011 Study of 1st & 2nd st. Montara cited: \$1.5 million cost
- With inflation, that facility (*if still adequate*) costs \$3M now
 - It probably is NOT adequate for our current storms..
 - And should cost a lot more to protect us
- All local wet spots: $\sim 8 \times 3m = \$24M$
 - Expect double the cost for real protection
- C\CAG retention pond concept near SAM plant: \$3M to do half the job – must add wastewater storage
- Pilarcitos Creek dam replacements: \$30M+
- Per C\CAG: unfunded hundreds of millions County-wide

Solutions: Escalation

- Escalate concerns above County level
 - Regional Water Quality Control Board
 - Grand Jury
 - State elected officials
 - Federal elected officials
 - Calif. Coastal Commission
 - More?
- Require independent audit of County actions:
 - Condition, costs, and capacity of stormwater infrastructure
 - After major storms, ensure infrastructure worked
 - ✓ If not, fix the damage and the cause

What's the ask?

- Stop making things worse, until you make them safe.
- Stormwater Master Plan
- Sustainable County Drainage Manual
- Funding by County to solve the problem and manage it forever
- Local agency veto over selection of stormwater consultant:
HMB, GCSD, MWSD, SAM, MCC
 - And ongoing participation in proposed plans...
- Start fixing problem areas NOW
 - Use the \$25-50M we annually pay the County to protect the tax base
 - Then follow the new Stormwater Master Plan

Social Justice Imperative

- The first Social Justice is Sustainability
 - If we cannot pass on to our descendants a sustainable world, we fail our primary purpose
- Unmanaged stormwater threatens the health, safety, and affordability of (human) life on the Midcoast
- ...The Midcoast is uniquely vulnerable...
 - Farmworkers, mobile home parks, and seniors
 - Tsunami, earthquakes, sea level rise, wildfire, flooding
 - One (1), tenuous, evacuation route
- New Tenant Protection Ordinance:
 - Let's keep the housing we already have...
 - And prevent the next generation of homelessness.

Next Steps

- Incorporate comments from this meeting and emails
- Prepare written report to County; email to stakeholders
- Gather endorsement from local agencies & stakeholders
- Forward report & endorsements again requesting action
- Escalation strategy:
 - For funding
 - For motivation
- More...?