THE TOWN OF Corte Madera California

Corte Madera Adapts - Shoreline Community Summary

Coastal flooding poses a significant hazard to Corte Madera residents, property owners, and businesses. In Mariner Cove and Marina Village, settlement has been significant. Increases in impermeable surfaces and rising sea levels driven by climate change, coastal flooding will increase in the future. Sea levels in San Francisco Bay have risen eight inches over the past century (CA 4th Assessment, 2018) and projected future sea level rise may be as much as 12 inches by 2030 to 60 inches or more by 2100. Rising sea levels exacerbate the extent of tidal flooding, worsen creek overflow due to backwater effects of elevated high tides, and can intensify wave action that erodes the shoreline currently protecting infrastructure.

How is climate change exacerbating coastal flood risk?

- Sea water expands as ocean temperatures increase, elevating sea levels. (CA 4th Assessment, 2018)
- Land-based ice sheets and glaciers are melting, increasing volume of water in the ocean. (CA 4th Assessment, 2018)
- Frequency and intensity of storm events projected to increase, leading to more frequent and severe flooding.
- Higher sea levels will increase inland flooding during extreme precipitation (which are projected to increase) because there will be nowhere for that water to go.

What does this mean for Corte Madera?

- More frequent and intense (depth and duration) flooding from daily tides, king tides, and storm events.
- Flooding of major thoroughfares (US 101, Paradise Drive, Tamalpais Drive, and Redwood Highway), schools, coastal neighborhoods, private homes, shopping areas, bike paths, wetland areas, and stormwater detention ponds.
- Land subsidence due to settling of original fill in tidal lands is increasing the relative rate of sea level rise.
- Current levee system may be over-topped by ocean and/or storm surge in the near future, or may fail sooner due to erosion from more frequent and intense wave action.

Why should we care?

- Chronic flooding can lower home values.
- Utility and transportation infrastructure are affected.
- Flood insurance rates may increase or become unavailable.
- Residents may be forced to relocate or rent/purchase in more expensive areas.
- Baylands and marshes provide essential habitat to species of concern and endangered species.
- Significant flooding limits Town accessibility for residents, tourists, and emergency services.

SLR Scenario	Parcels permanently flooded	Parcels in 100-yr max flood zone
Current	--	603
Levee Overtopping (20")	203	1,237
Chronic Inundation (40")	957	1,484

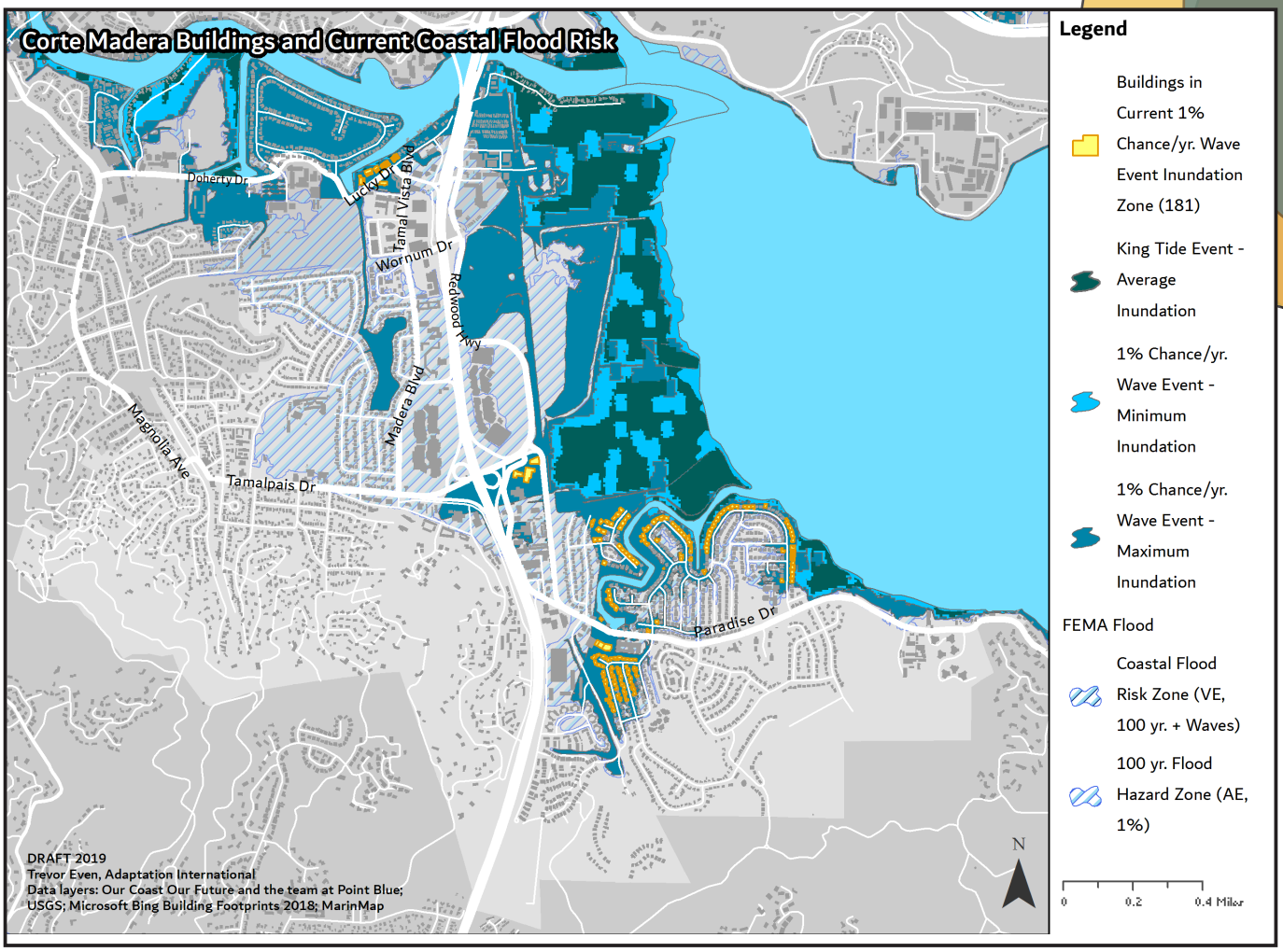
How and when should we expect flooding?

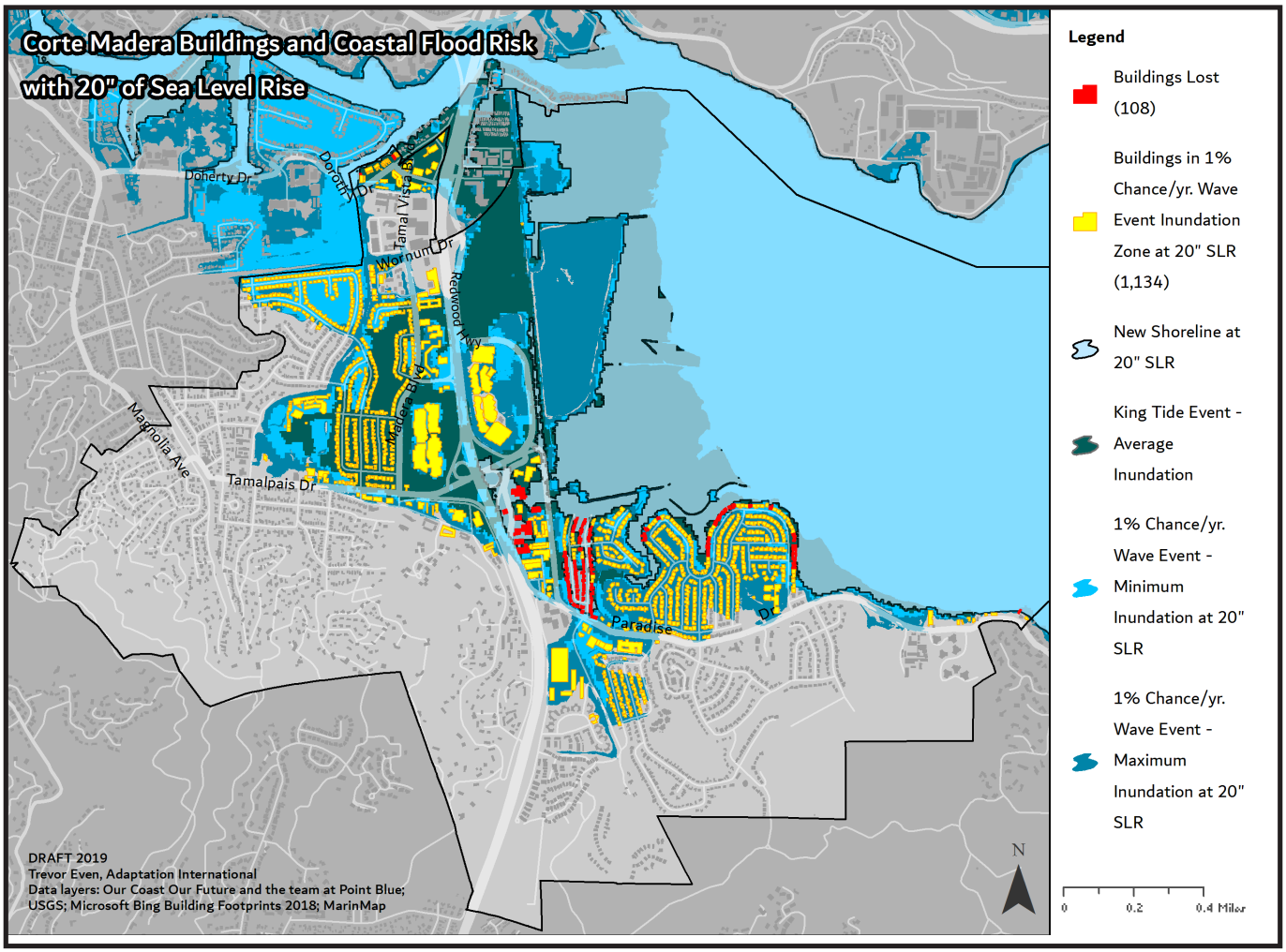
- Flooding is already occurring with king-tide and storm events.
- Levees over-topped leading to significant flooding in shoreline neighborhoods.
- Long-term or chronic flooding occurring in shoreline neighborhoods and affecting the Town center and essential infrastructure.
- Increased deluge and higher intensity rain events are being observed.

Present-2030	2050-2100
2030-2050	2100+

Threshold	Scenario Possibilities	
	SLR	Event Meeting Threshold
Current Conditions/Episodic Flooding (MHHW)	0"	King-tide
	0"	100-yr Storm
Levee Overtopping/Significant Episodic flooding (MHHW + 20")	0"	100-yr Storm (max potential)
	10"	King-tide
	20"	Daily Tides
Chronic and Extensive Flooding (MHHW + 40")	10"	100-yr Storm
	20"	King-tide
	40"	Daily Tides

*Mean higher high water (MHHW) is the average height of the higher high tides of each day


Corte Madera Buildings and Current Coastal Flood Risk
Doherty Dr
Lucky Dr
Tamal Vista Blvd
Wornum Dr
Redwood Hwy
Madera Blvd
Magnolia Ave
Tamalpais Dr
Paradise Dr
DRAFT 2019
Trevor Even, Adaptation International
Data layers: Our Coast Our Future and the team at Point Blue; USGS; Microsoft Bing Building Footprints 2018; MarinMap
N
Legend
Buildings in Current 1% Chance/yr. Wave Event Inundation Zone (181)
King Tide Event - Average Inundation
1% Chance/yr. Wave Event - Minimum Inundation
1% Chance/yr. Wave Event - Maximum Inundation
FEMA Flood
Coastal Flood Risk Zone (VE, 100 yr. + Waves)
100 yr. Flood Hazard Zone (AE, 1%)
0
0.2
0.4 Miles


Corte Madera Buildings and Coastal Flood Risk with 20" of Sea Level Rise
Doherty Dr
Dorothy Dr
Tamal Vista Blvd
Wornum Dr
Redwood Hwy
Madera Blvd
Magnolia Ave
Tamalpais Dr
Paradise Dr
DRAFT 2019
Trevor Even, Adaptation International
Data layers: Our Coast Our Future and the team at Point Blue; USGS; Microsoft Bing Building Footprints 2018; MarinMap
N
Legend
Buildings Lost (108)
Buildings in 1% Chance/yr. Wave Event Inundation Zone at 20" SLR (1,134)
New Shoreline at 20" SLR
King Tide Event - Average Inundation
1% Chance/yr. Wave Event - Minimum Inundation at 20" SLR
1% Chance/yr. Wave Event - Maximum Inundation at 20" SLR
0
0.2
0.4 Miles