



Sea Level Rise
City of San Rafael
Federation of SR Neighborhoods
September 5, 2109



Climate Change Action Plan 2009

- CCAP adopted 2009
- Recognized need to plan for predicted sea level rise
- Implementing measures included levee analysis, sea level monitoring and preparation of vulnerability assessment



Sea Level Rise “White Paper”

- Prepared in 2014
- “First Step” in responding to CCAP recommendations
- Informational document
- Not a technical report or study

<https://www.cityofsanrafael.org/documents/sea-level-rise-white-paper/>



Purpose of White Paper

- ❑ Presented information, studies, and data available at that time
- ❑ Presented efforts in Marin and North Bay
- ❑ Described adaptation tools/techniques developed and tested
- ❑ Identified vulnerable areas in San Rafael
- ❑ Identified potential opportunity areas for adaptation
- ❑ Presented suggested “next steps”

DISCLAIMER: The inundation data used in these maps do not account for shoreline protection or wave activity. These maps are for informational purposes only. Users agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with the use of the maps. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).



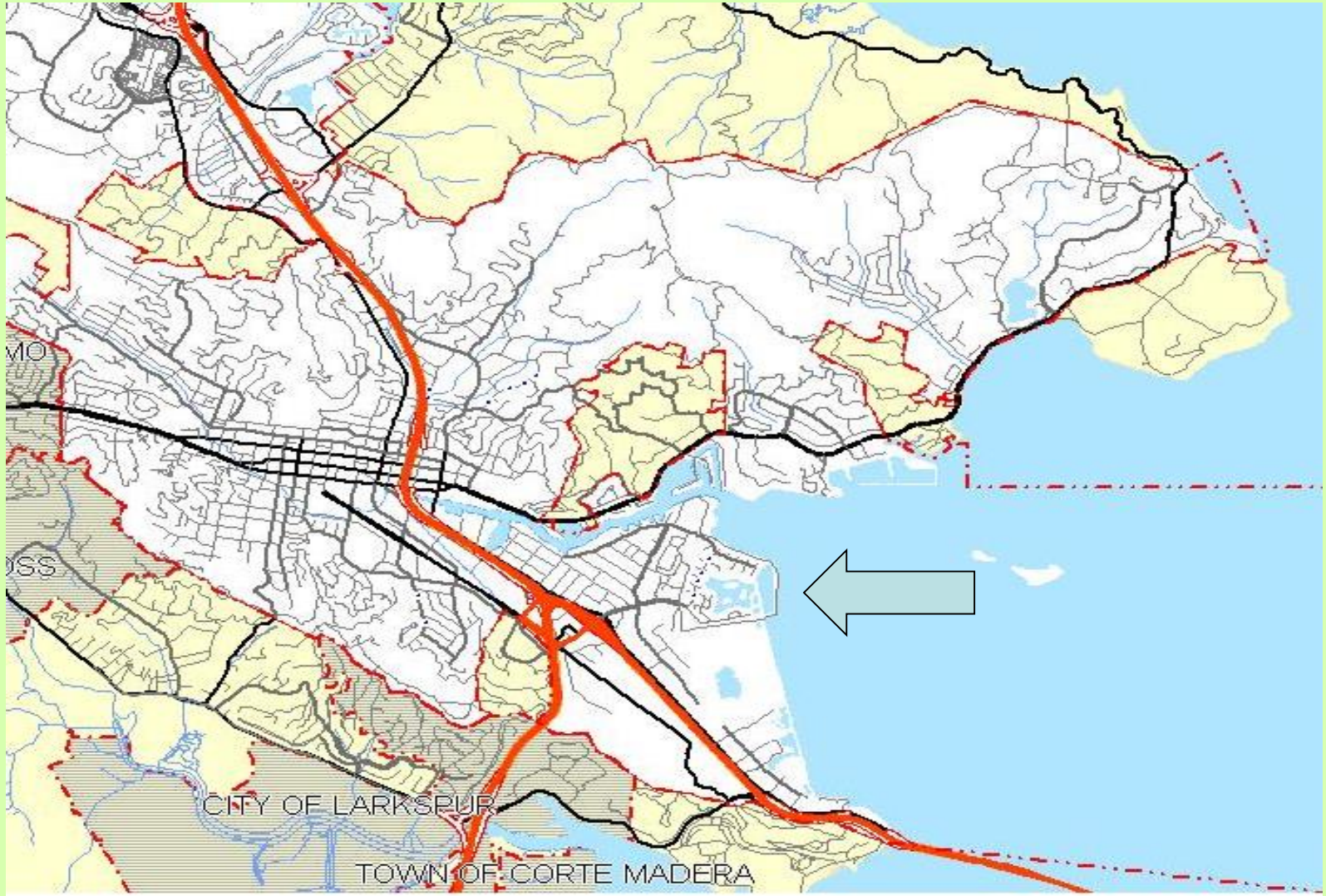


Vulnerable Areas In San Rafael

- ❑ Greater part of Central and Southeast San Rafael (Canal, Spinnaker Pt, Francisco Blvd, Andersen Drive)
- ❑ Areas along San Rafael Canal
- ❑ Large sections of East San Rafael-San Pedro Peninsula (Peacock Gap, Glenwood)
- ❑ North San Rafael (Gallinas Creek basin)



East San Rafael Shoreline





Spinnaker Point





Inner Canal



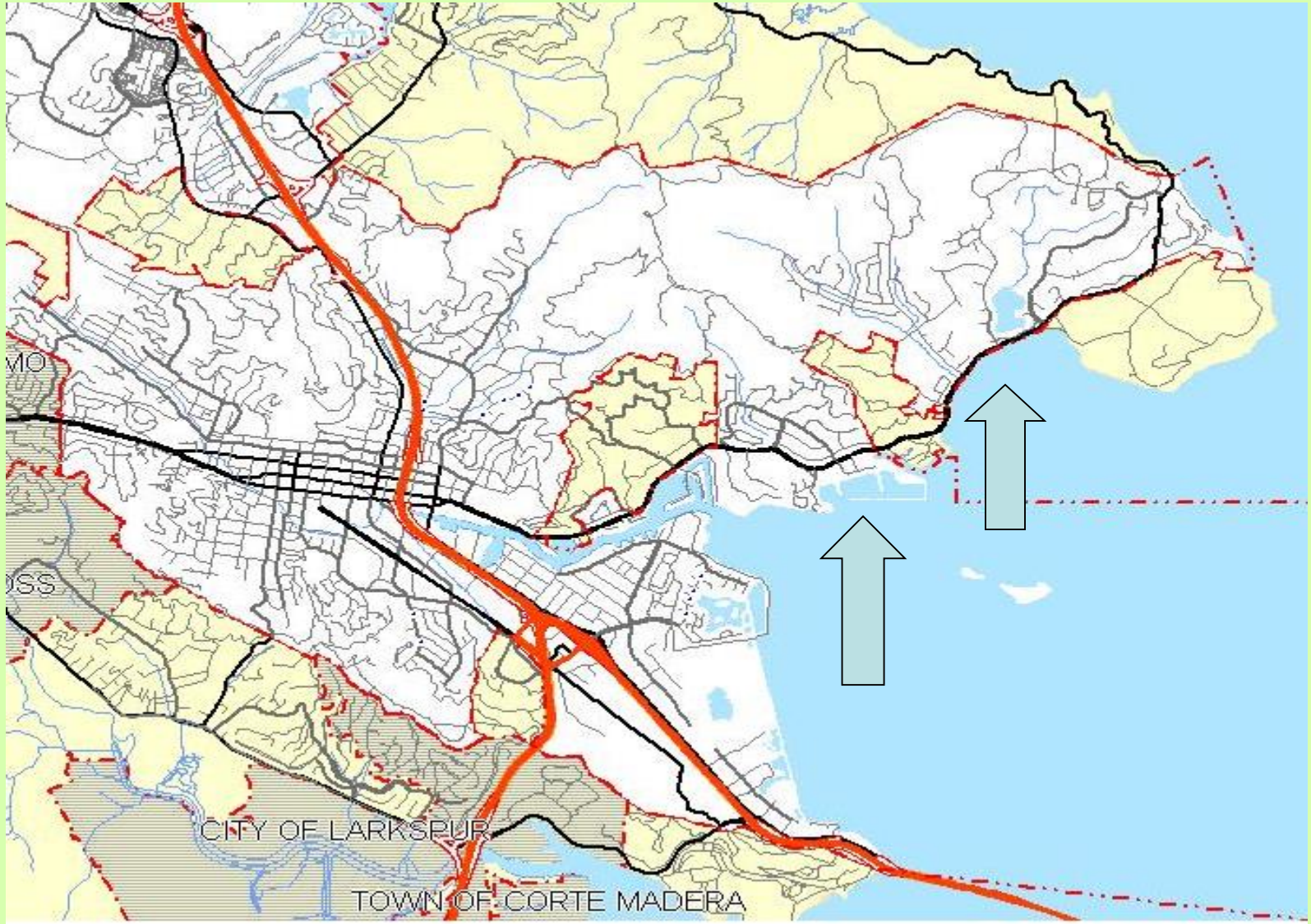


San Rafael Creek (Canal)





San Pedro Peninsula



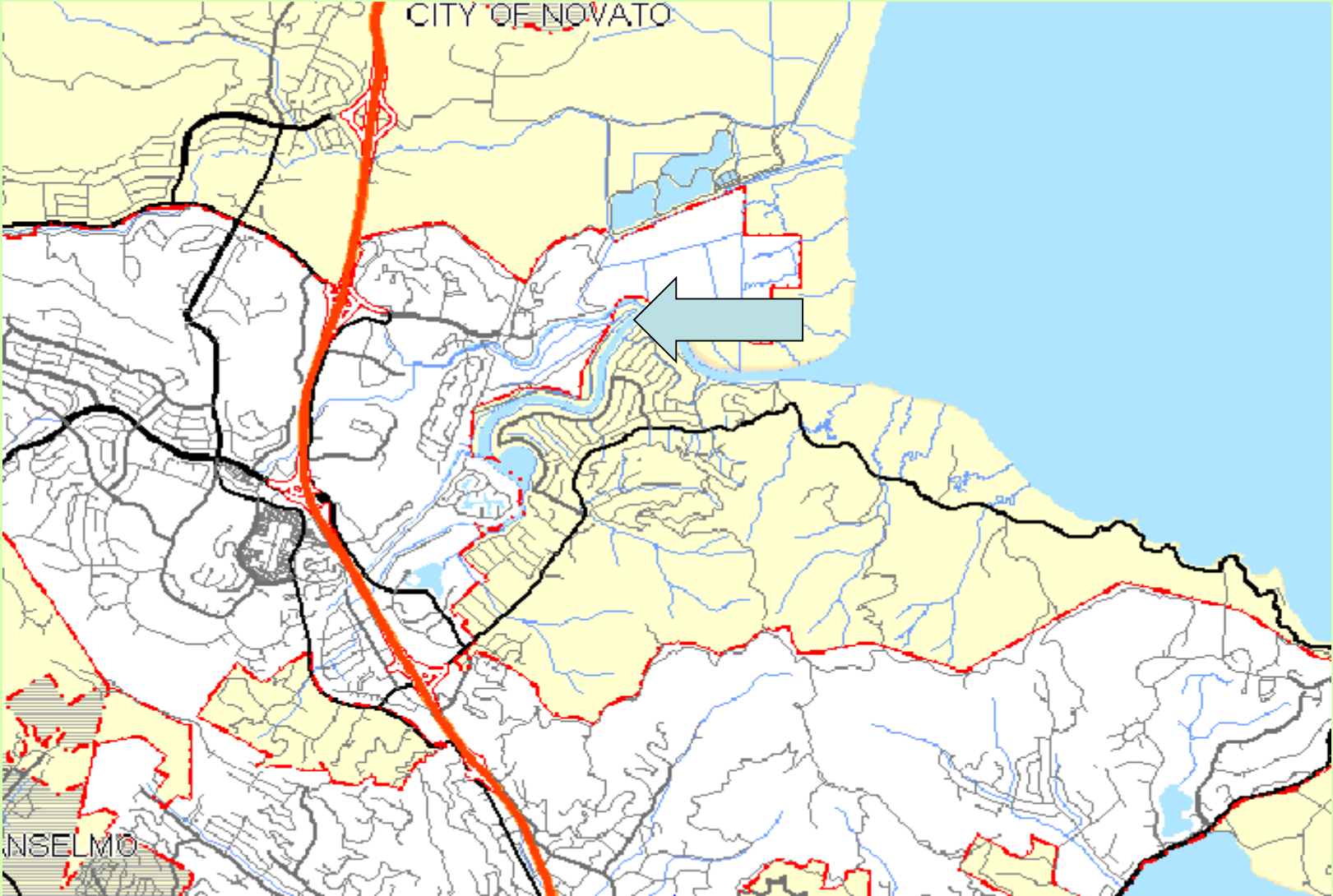


Glenwood & Peacock Gap





Gallinas Creek Basin





Contempo Marin





Participation in BayWAVE

- ❑ 2015-2017
- ❑ Vulnerability Assessment profiling risks and assets
- ❑ Comprehensive coverage of San Rafael
- ❑ Foundation for next steps in planning for sea level rise



Post BayWAVE

- Resilient by Design
- Local Hazard Mitigation Plan
- Measure AA
- CCAP 2030
- ESA - short-term adaptation
- General Plan 2040 underway



General Plan 2040

Focus. . .

- ✓ Awareness/Disclosure
- ✓ Framework for regulations (construction elevation)
- ✓ Preparing for adaptation planning

Plan for 2050 predictions with five-year updates

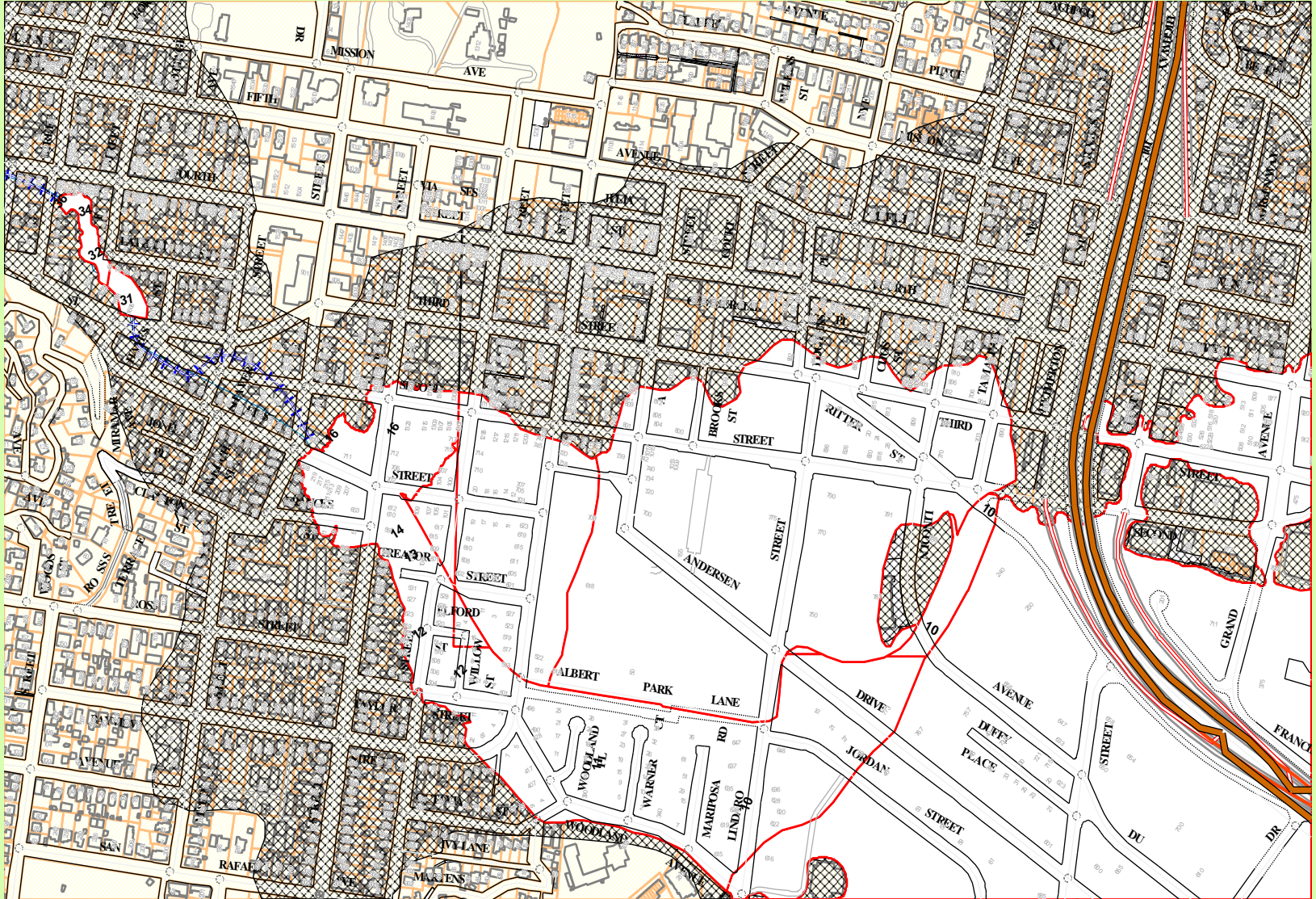
What will General Plan Include?

Sea level rise map

- Assume 2050 prediction
- Public awareness/disclosure
- Used to adopt “overlay” zone
- Planning for adaptation
- Financing & funding



SLR Prediction Map



What will General Plan Include?

Adaptation Report

- Background + Resources
- Best practices
- Toolbox of adaptation measures
- Toolbox of financing measures
- Identify and assess opportunity areas for adaptation



Opportunity Areas for Adaptation

Public & Private Lands:

- Retreat**
- Armoring** -raise/improve levees
- Barriers** -sea walls/breakwaters
- Living shorelines** -horizontal levees



Canalways





Pickleweed Park Diked Baylands





East San Rafael Mudflats





Mahon Creek





Glenwood & Peacock Gap





San Rafael Rock Quarry





What will General Plan Include?

Policies & Implementing Programs

- Maintaining Sea Level Rise Map
- Awareness & Disclosure
- Minimum Construction Elevation
- Preparation of Sea Level Rise Adaptation Plan – follow-up

Climate Change Action Plan 2030

Adaptation Measures & Activities

<https://www.cityofsanrafael.org/climate-change-action-plan/>





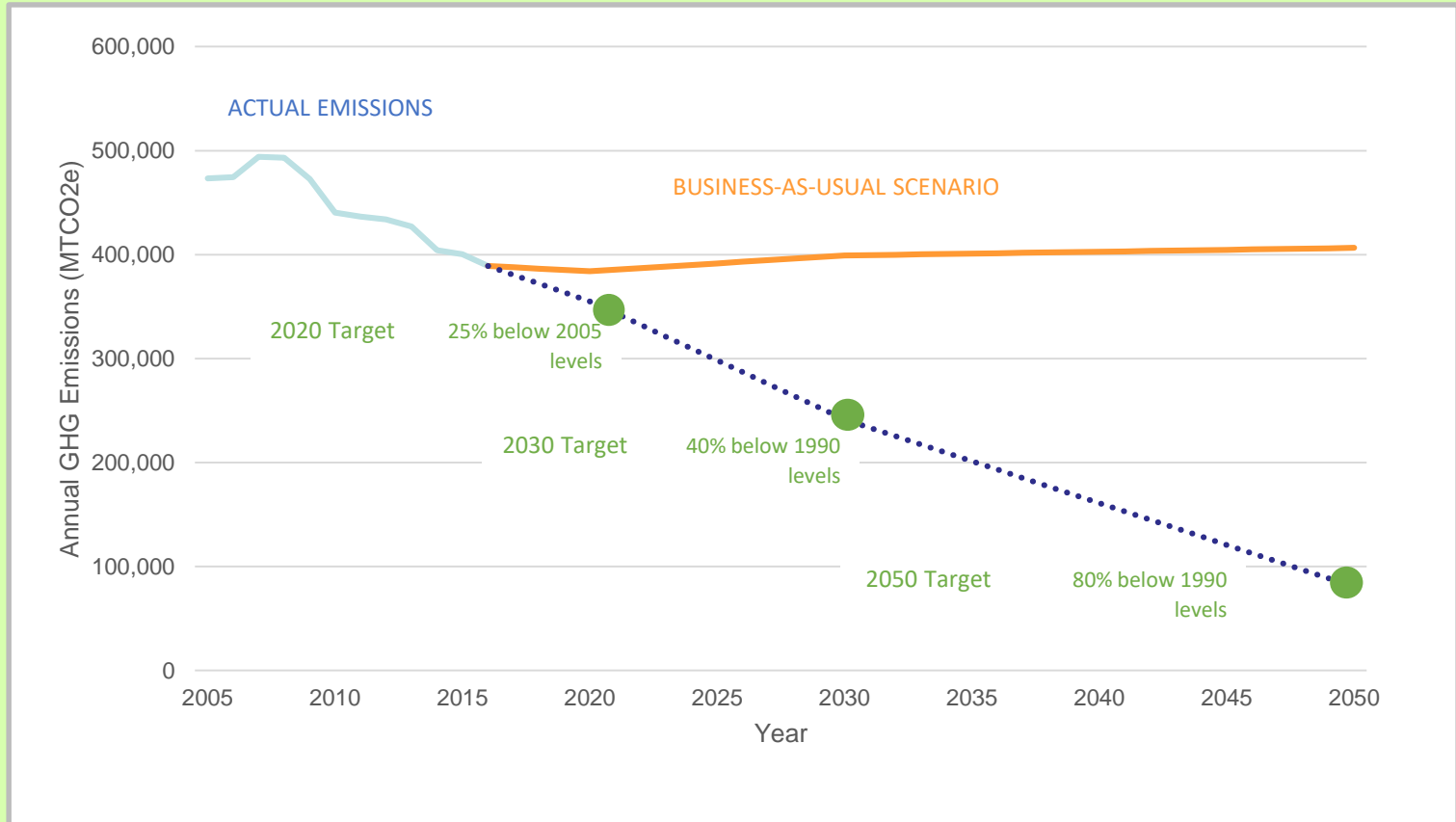
Climate Change Action Plan

2019 IPCC Report:

- We've warmed the planet 1 degree C
- Have to hold the line to 1.5 degrees C
- Need to slash emissions by 45 percent from 2010 levels by 2030.
- Then have to reach net-zero around 2050.
- Paris Agreement – odds of success?



Climate Change Action Plan





Climate Change Action Plan

Plan Structure: Local Actions



Low Carbon
Transportation



Energy
Efficiency



Renewable
Energy



Waste
Reduction



Water
Conservation



Sequestration
and
Adaptation



Community
Engagement



Implementation
and Monitoring



CCAP Commitments

- Consider SLR in development apps
- Include guidance in Capital Improvement & other plans
- Collaborate across jurisdictions, stakeholders
- Include in General Plan Land Use & Bayfront Overlay Zone
- Enhance GIS systems
- Create an Adaptation Plan



Resilient by Design Challenge

- San Rafael chosen by Bionic Team
- Two paths: near-term and long
- Mix of local, regional, private, public
- Finance confab
- Pickleweed Park near-term project

ResilientBayArea.org



Resilient by Design





Resilient by Design Challenge

“Elevate San Rafael” proposes that the city

1. Gradually shift resources away from the current pump and levy system and reduce the perimeter that it maintains
2. Upgrade to floodable buildings
3. Acquire property for infrastructure protection and equitable housing
4. Build a city-scale apparatus of green infrastructure
5. Retreat where necessary

ResilientBayArea.org



Resilient by Design Catalyst Project

CATALYST PROJECT 1 //

Protect Pickleweed Park (P3)

The Park is the community's most important resilience infrastructure. P3 proposes to upgrade flood infrastructure and a pump station with a multi benefit project that would also create an event space, a new playground, sports facilities, and a water sports access. In the case of emergency, this project would be stout enough to withstand flooding and provide a safe haven for the community in a time of crisis.



Community Center

Upgraded Playground

New Pump Station

Event Space

Water Sports

Upgraded Sports Facilities

Levee / Bay Trail

Protect + Elevate


Emergency Response Center





Extreme Heat Preparedness Plan

EXTREME HEAT

- 
- A silhouette of a construction worker wearing a hard hat and carrying a long pipe over their shoulder, standing against a bright sun. The background is a gradient of orange and yellow, suggesting a hot day.
- When temps rise, get inside
 - Stay hydrated
 - Never leave anyone in a closed vehicle
 - Check on loved ones and neighbors
 - Rest often and protect yourself from the sun



Get Involved



**CERT, Resilient Neighborhoods, CCAP
Quarterly Meetings, City Council**



Questions