



RICAPS

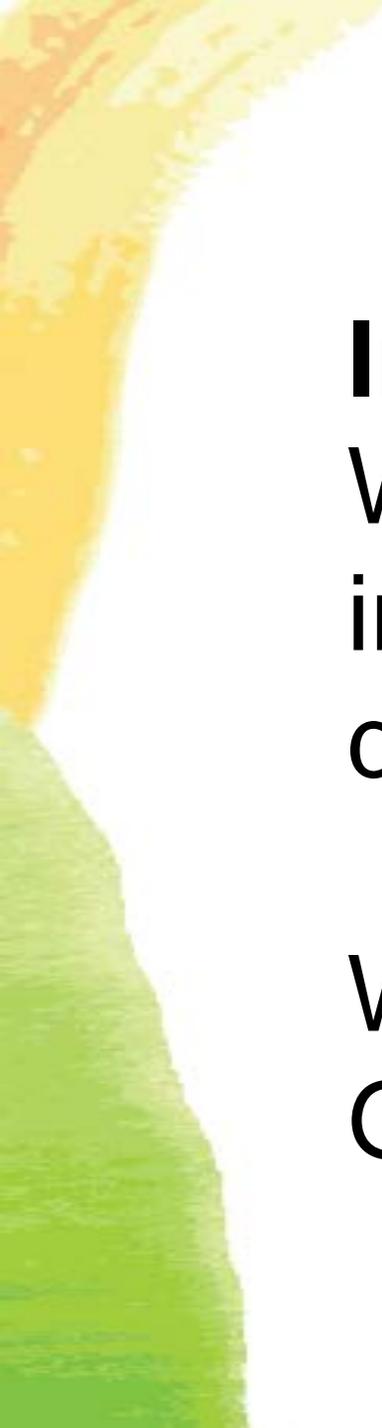
Regionally Integrated Climate Action Planning Suite

Multi-city Working Group
December 17, 2019

RICAPS technical assistance is available through the San Mateo County Energy Watch program, which is funded by California utility customers, administered by Pacific Gas and Electric Company (PG&E) under the auspices of the California Public Utilities Commission and with matching funds provided by C/CAG.

Agenda

- Introductions
- Incorporation into climate action planning
- RICAPS info sharing online platform
- SMC Energy Watch/Reach Code recap and look ahead
- Final announcements



Introductions

What is your jurisdiction's strategy for incorporating adaptation into policy documents?

What is your timeframe for updating your General Plan's safety element?

BUILDING A CLIMATE READY COMMUNITY



RICAPS Adaptation Discussion// **December 17, 2019**



- Climate Impacts in San Mateo County
- Adaptation Planning Process
- Opportunities for Embedding Adaptation in Policy
- Upcoming Tools
- Options for Incorporating Adaptation in the RICAPS CAP Template
- Community Engagement



Climate Impacts



CLIMATE IMPACTS

Climate Variable	Changes by 2030	Changes by 2070
Annual Temperature	Increases by about 1.8 F	Increases by about 4.3 F
Sea Level Rise	0.8 ft	3.5 ft
Annual Rainfall	Increases by about 5%	Increases by about 11%
Runoff from Extreme Storms	Increases in the range of 9% to 15%	Increases in the range of 30% to 45%



Sea Level Rise and Flooding



Sea Level Rise Impacts

- **Transportation:** Highway 101, Highway 1, Millbrae Intermodal Station, Parts of Caltrain
- **Energy:** Inundation of power substations – 12 substations vulnerable
- **Community Facilities:** One Hospital Emergency Room, 34 schools, 22 outpatient healthcare facilities
- **Natural Systems and recreation:** 3 miles of beaches, 7,000 acres of wetlands



Extreme Heat

- Average daily low, high and average temperatures
- Cooling degree days
- Number of high heat days
- Pavement design temperature



Cooling Degree Days

- Increase 1.5 – 2X by 2030
- Increase 2 – 3X by 2070
- Fog protects northern County

AVERAGE COOLING DEGREE DAYS			
JURISDICTION NAME	YEAR 1995	YEAR 2030	YEAR 2070
Atherton	489	760	1222
Belmont	363	591	1020
Brisbane	167	289	618
Brisbane Quarry	127	222	499
Burlingame	199	343	687
Colma	147	255	564
Daly City	119	207	474
East Palo Alto	592	887	1370
Foster City	589	888	1405
Half Moon Bay	439	700	1164
Hillsborough	219	366	695
Menlo Park	562	852	1331
Millbrae	173	307	642
Pacifica	95	166	385
Portola Valley	273	471	814
Redwood City	500	770	1237
San Bruno	149	258	547
San Carlos	419	666	1109
San Mateo City	409	644	1088
South San Francisco	175	300	632
Woodside	325	544	927
Unincorporated County	290	481	836



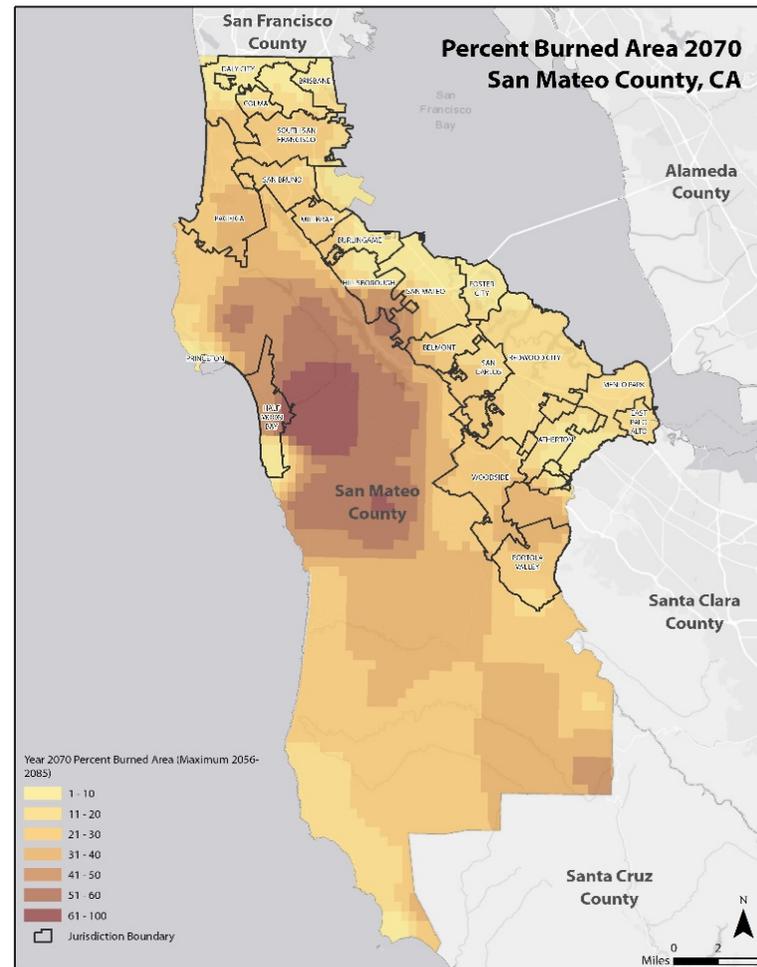
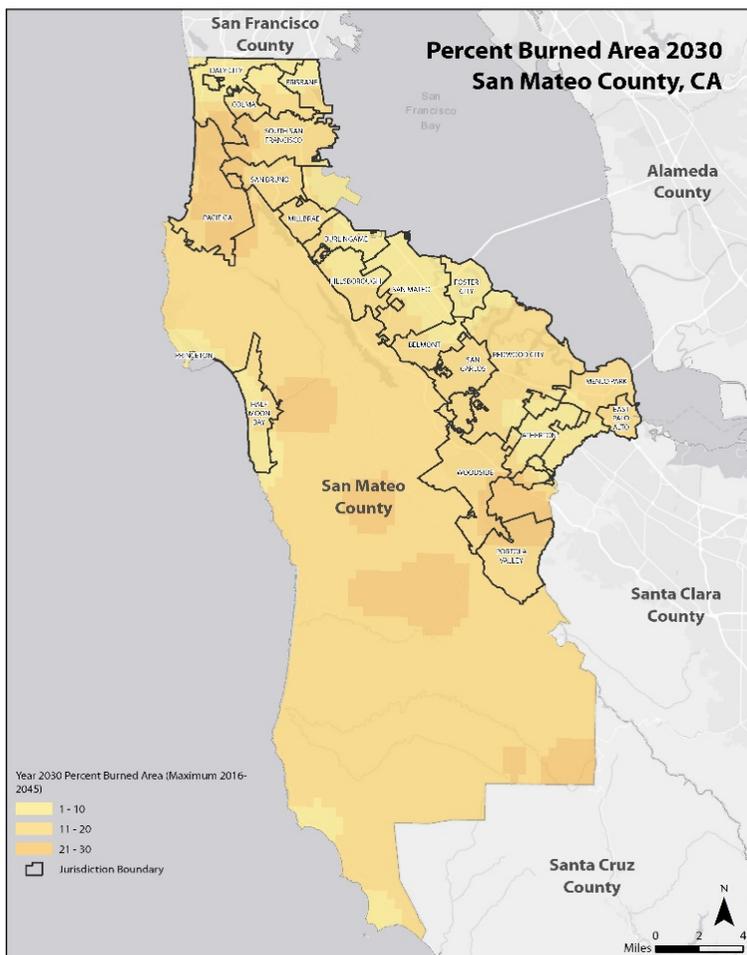
Days Over 100 Degrees F

- Few changes north of San Mateo
- Greatest number of days in East Palo Alto, Menlo Park, Redwood City

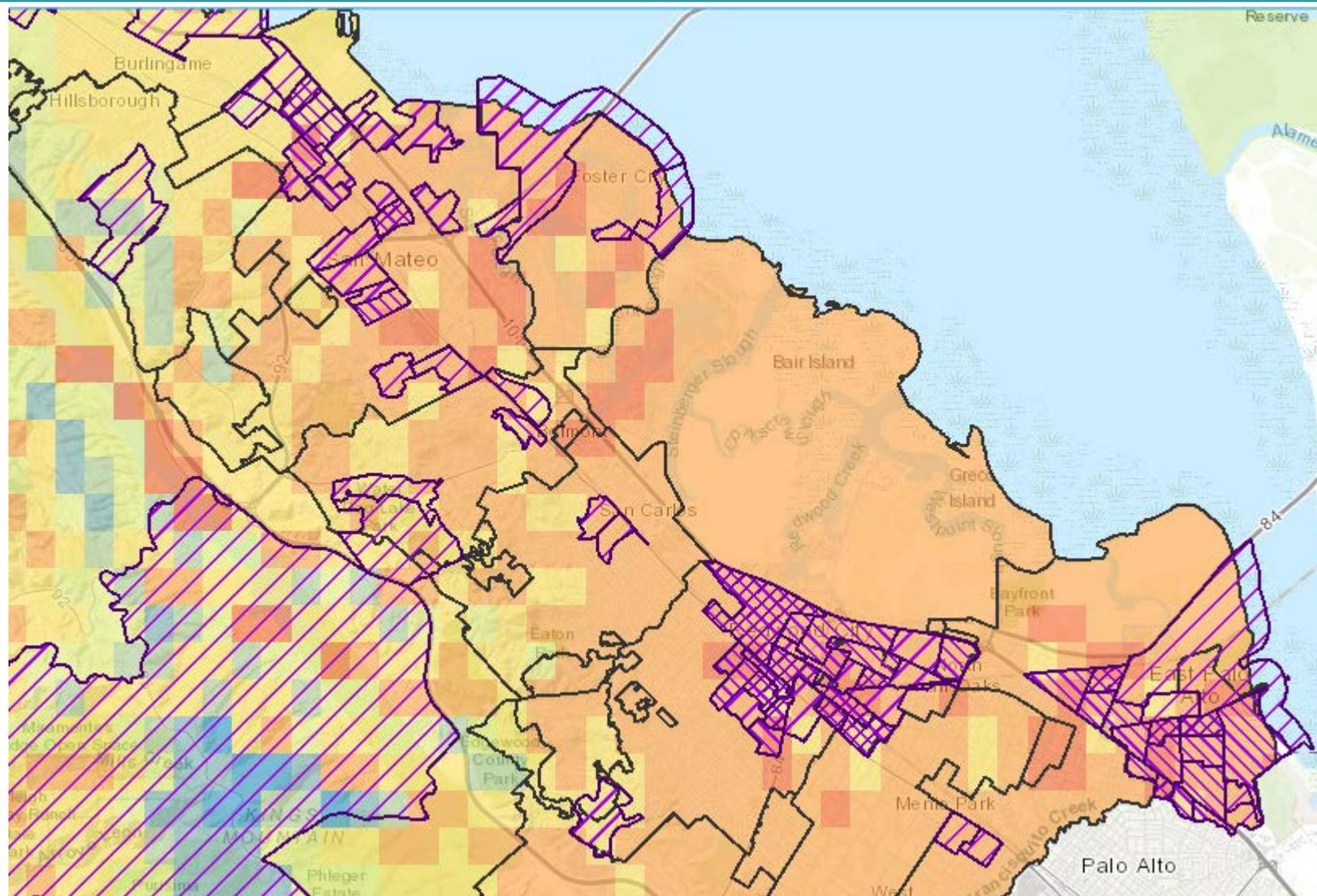
AVERAGE NUMBER OF HIGH TEMPERATURE DAYS			
JURISDICTION NAME	YEAR 1995	YEAR 2030	YEAR 2070
Atherton	22	23	24
Belmont	21	22	24
Brisbane	19	20	22
Brisbane Quarry	19	20	21
Burlingame	20	21	22
Colma	19	20	21
Daly City	19	20	21
East Palo Alto	22	23	25
Foster City	22	23	25
Half Moon Bay	22	23	24
Hillsborough	20	21	22
Menlo Park	22	23	25
Millbrae	20	20	22
Pacifica	18	19	20
Portola Valley	20	21	23
Redwood City	22	23	24
San Bruno	19	20	21
San Carlos	22	23	24
San Mateo City	21	22	24
South San Francisco	19	20	22
Woodside	21	22	23
Unincorporated County	20	21	23



Wildfire Risk



Climate Viewer Demo



Questions

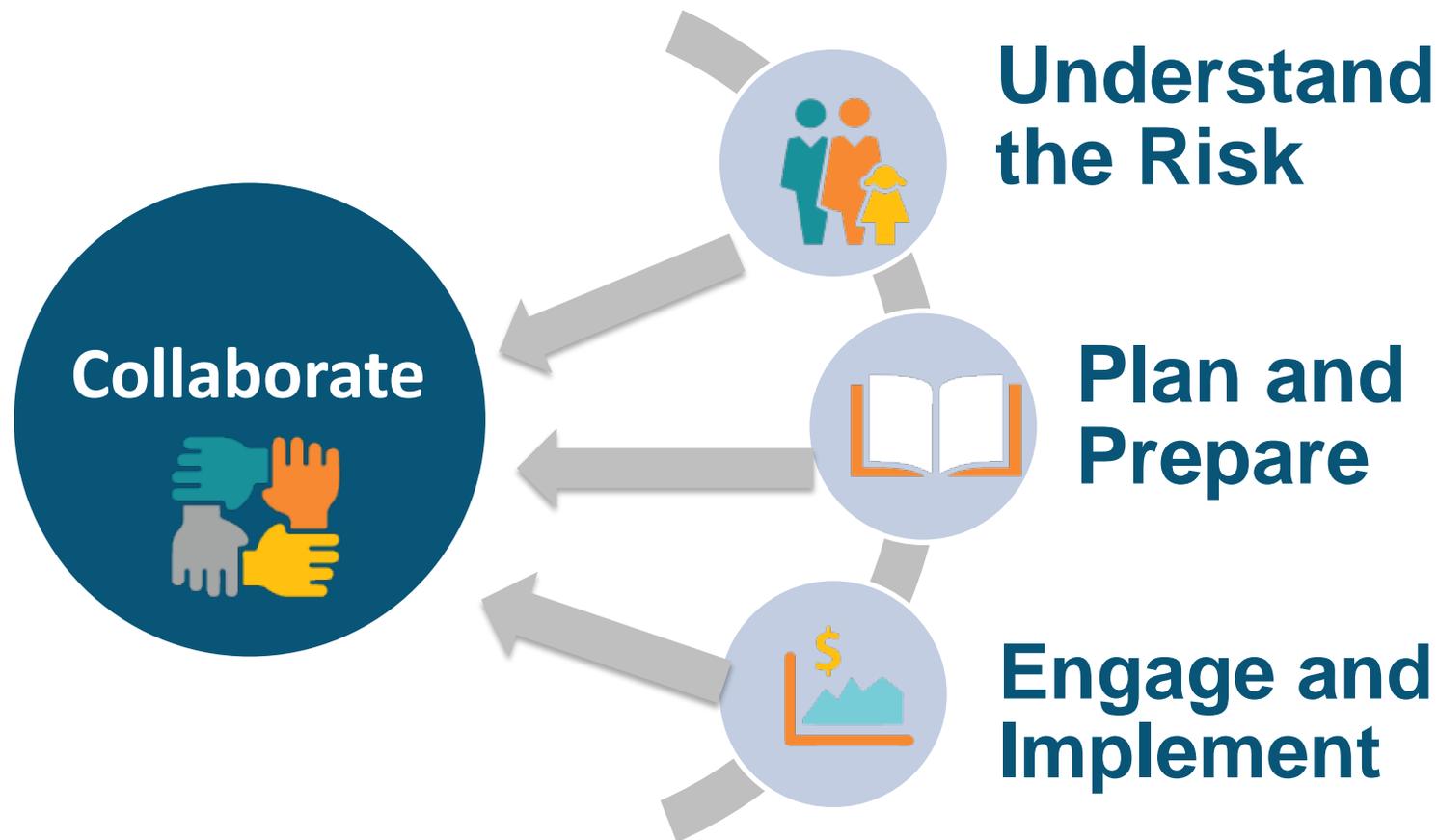
- *How would you consider using this information to support your planning?*
- *What climate impacts are you concerned about?*
- *Are we missing anything?*
- *What type of information could the County provide more of?*



Adaptation Planning Process



Adaptation Planning Process



Defining Resiliency Goals

- A community and local economy that continues to function during extreme events and has coordinated and up-to-date preparedness, response, and recovery procedures.
- A community that can continue to function and thrive with an increase in average temperature and extreme heat days.
- Utilities, buildings, and infrastructure that can meet community needs during and after severe weather.

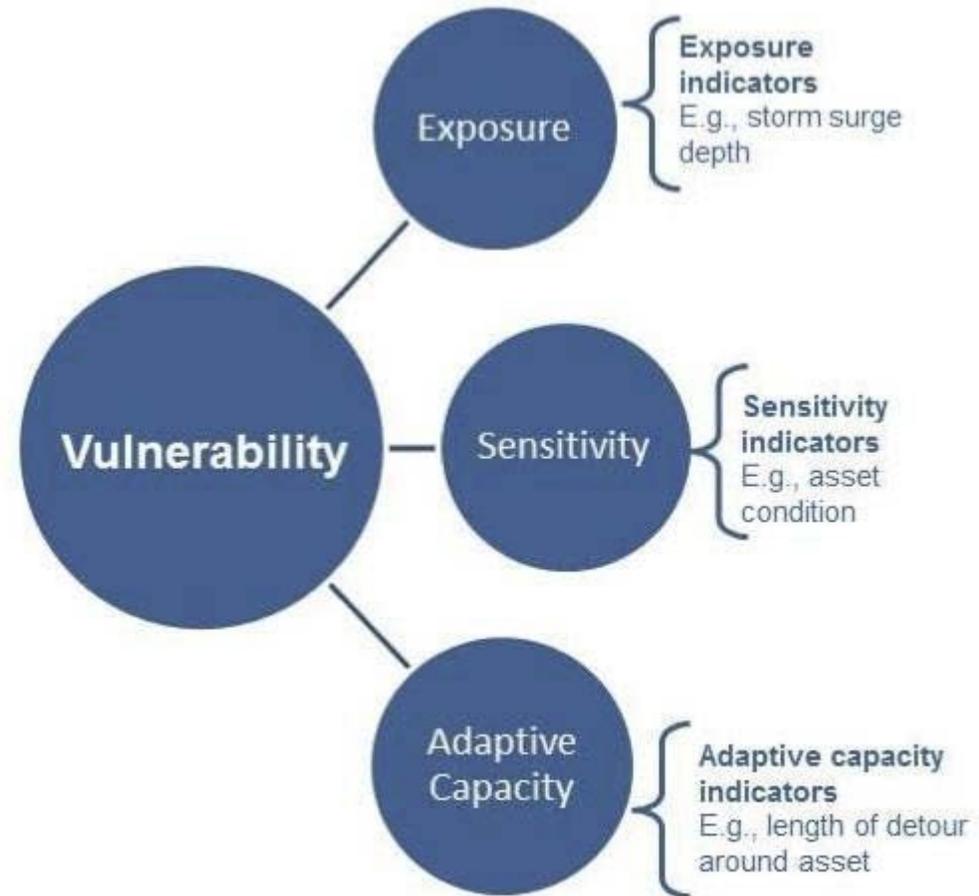


Understanding Risk

- What services have been/could be impacted by the climate hazard?
- What facilities have been/could be damaged, destroyed, or otherwise impacted by the climate hazard?
- Have populations been/could be impacted physically or mentally by the climate hazards?
- Have there been/could there be additional downstream disruptions that result from the loss of critical services?
- How have/could impacts varied across your community?



Assessing Vulnerability

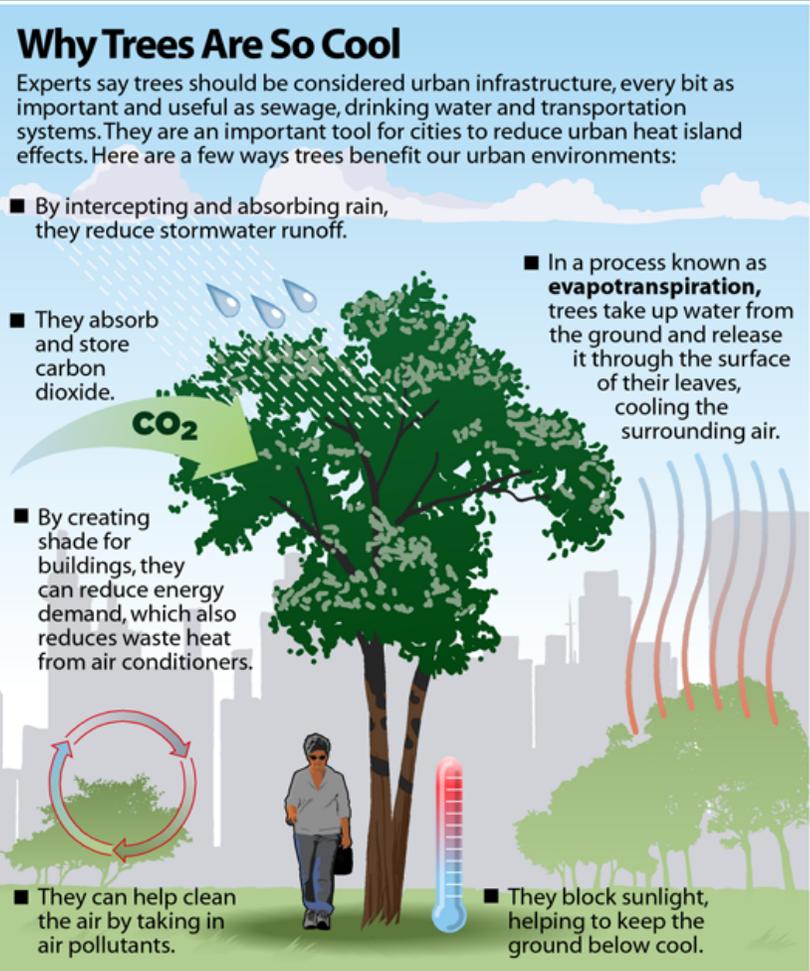


Identify Easy Wins

- Trees to reduce GHGs, reduce minor flooding and reduce heat impacts
- Home retrofits to improve energy efficiency, increase housing quality, and energy resilience

Why Trees Are So Cool

Experts say trees should be considered urban infrastructure, every bit as important and useful as sewage, drinking water and transportation systems. They are an important tool for cities to reduce urban heat island effects. Here are a few ways trees benefit our urban environments:

- By intercepting and absorbing rain, they reduce stormwater runoff.
 - They absorb and store carbon dioxide.
 - In a process known as **evapotranspiration**, trees take up water from the ground and release it through the surface of their leaves, cooling the surrounding air.
 - By creating shade for buildings, they can reduce energy demand, which also reduces waste heat from air conditioners.
 - They can help clean the air by taking in air pollutants.
 - They block sunlight, helping to keep the ground below cool.
- 

SOURCES: EPA; North Carolina State University; U.S. Forest Service PAUL HORN / InsideClimate News



Example: Resilience Hubs

- Self reliant
- Community uses and needs
- Home base



Identify Co-Benefits and Conflicts

- San Mateo County has lowest # of homes with Air Conditioning
- Rising heat will encourage more homeowners to install A/C
- These systems will require more energy to run and could increase GHG emissions if the energy source is not carbon-free



Questions

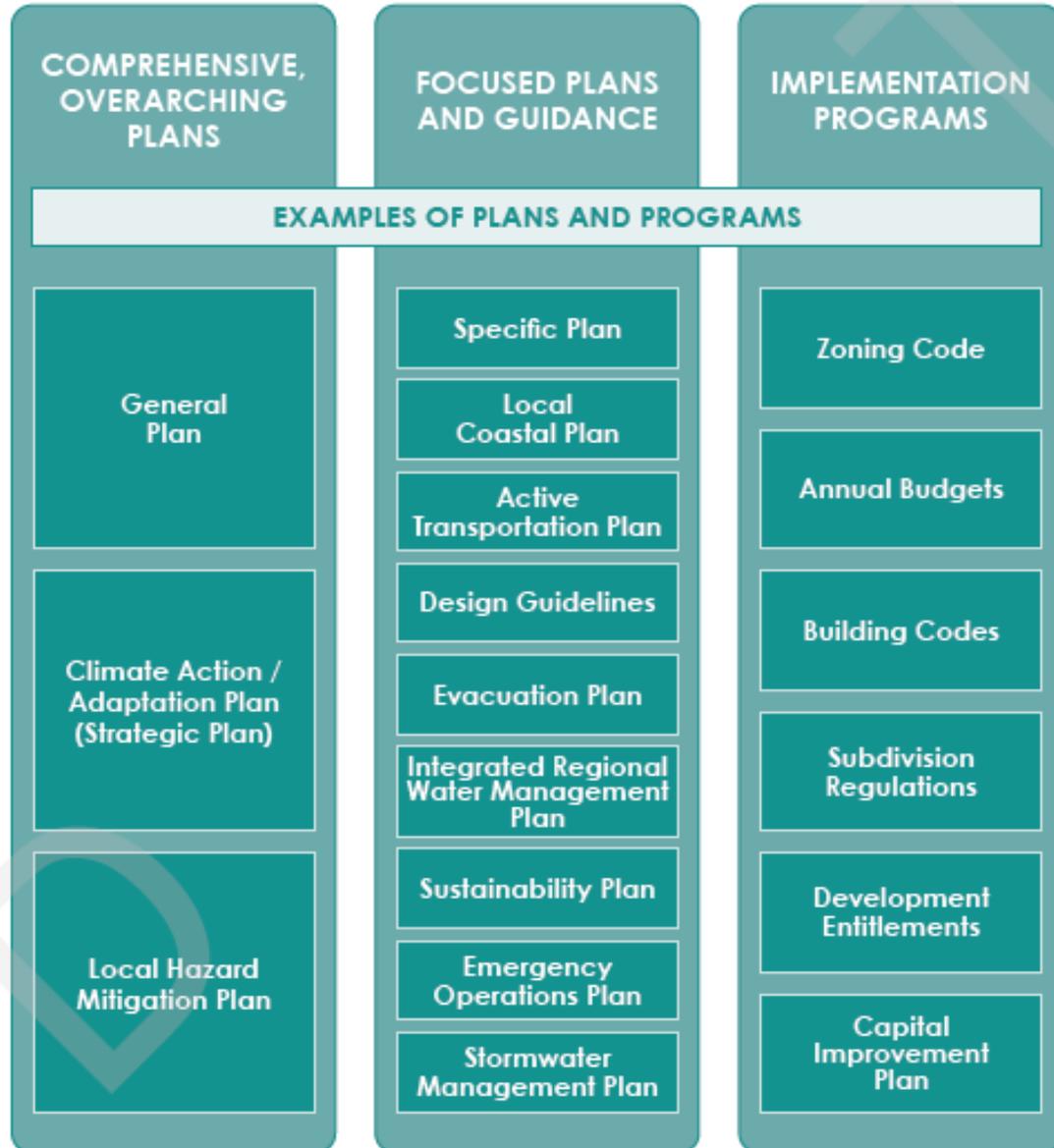
- *Which of your measures might require an adaptation component?*
- *Where do you see conflicts between adaptation and mitigation strategies?*
- *Where do you see synergies between the two?*



Opportunities to Embed Adaptation



Adaptation and Local Planning



- Scaling impacts to adaptation strategies
- Integrated “Climate in All Policies” Approach



LOCAL HAZARD MITIGATION PLAN

- Multijurisdictional plan across 18 cities
- Identified high level impacts of climate change to hazards
- Identified early climate adaptation actions
- SB 379 requires climate vulnerability assessment and adaptation strategies in next revision



San Mateo County

HAZARD MITIGATION PLAN

July 2016



SB 379 Requirements

- Vulnerability assessment
- Adaptation and resilience goals, policies, and objectives
- Guidelines for working cooperatively with relevant local, regional, state, and federal agencies
- Implementation measures to
 - Avoid or minimize climate change impacts associated with new uses of land
 - Locate critical facilities out of impact zones or use resilient building practices
 - Use of nature-based infrastructure that may be used in adaptation projects, where feasible



Questions

- *Are you involved in your Hazard Mitigation Plan?*
- *Do you work with the staff who are?*
- *What other plan include adaptation in your jurisdiction?*



Tools and Resources



Climate Impacts Fact Sheets



WILDFIRE | FACT SHEET

Description

Large wildfires pose a substantial threat to communities throughout California, and the frequency and size of the largest fires has been increasing in recent years due to climate change. Wildfires can claim lives, destroy property, force evacuations and disrupt daily life, and expose large populations to unhealthy levels of air pollution for days to weeks at a time. The greatest risk of wildfires tends to occur when the live and dead vegetation that fuels them is extremely dry at the end of the long summer dry season, and winds are blowing to fan the flames. Urban areas with dense vegetation close to or intermixed with developed areas are particularly at risk of property damage from wildfires—these areas are known as wildland-urban interfaces (WUIs).

Key Definitions

Conflagration: A fire that expands outside of its source area due to fuel build up, wind, and extremely dry conditions.

Firestorm: Typically occurs when several fires combine into one, covering an area larger than one mile. Winds move inward at approximately 50 miles per hour and may generate localized thunderstorms and lightning strikes.

Wildfire: A fire(s) resulting in the uncontrolled destruction of forests, brush, grasslands, field crops, and property.

Wildland-urban Interface: An area where wildland vegetation and urban-suburban development occur together; e.g., dispersed housing in a forested area.

Ember Cast: An ember is a small piece of material that often remains after, or may precede, a fire and is light enough to be carried by the wind for long distances without being extinguished; they pose a significant wildfire hazard.

Community-level Findings

Percent Area Burned 2030 and 2070

The maps and bar chart on page two (2) indicate that the wildfire hazard area for San Mateo County is projected to increase in geographic scale and that the percentage of the area burned within those boundaries is expected to grow.

While the higher-percentage burn areas tend to be in less populated areas, there is a significant risk to critical infrastructures such as roadways that may serve as evacuation routes.

Data Sources and Description

Wildfire projections are from the Fourth California State Climate Assessment are available from CalAdapt, an interactive climate information tool for the state of California; developed by the Geospatial Innovation Facility at UC Berkeley with funding and oversight from the California Energy Commission and advice from Google.org. These projections were developed by the Climate Applications Laboratory at UC Merced.

Using the Hazard Maps and Data

The maps and data in the fact sheets are meant to be used for planning purposes and could be used to help prioritize hotspots, opportunities for action, and opportunities for collaboration across cities. This information could be used to inform the development of climate adaptation strategies, development of policies (e.g. General Plans), and for communication with decision-makers. More information can be found on our [Adaptation Library and Climate Impact Viewer](#).

- Key impacts for fire, floods, and heat
- Link to social equity and health
- Summary of metrics



Nature-Based Strategies



San Mateo OLU

Identifying Nature Based Solutions

SeaChange SMC released a Countywide Sea Level Rise Vulnerability Assessment in 2018 identifying San Mateo County's key vulnerabilities. Communities throughout the County are identifying potential adaptation strategies for the shoreline. Nature based strategies provide multiple benefits, but there are questions about what strategies work in which locations throughout the bay and how they integrate with engineered strategies. This fact sheet summarizes the types of strategies identified through a stakeholder driven process. Local communities and stakeholders can use this information as high level guidance to spur cross-jurisdictional collaboration and to identify potential project areas and concepts for further evaluation.

Types of Nature Based Solutions

Below are examples of nature based strategies. More information and details on adaptation strategies are available at: www.resilience.sfel.org/

Marsh: wetlands affected by daily tides that can decrease wave energy and erosion.

Mudflat: a stretch of mud exposed at low tides that can protect marshes from erosion.

Ecotone/Horizontal Levee: a gently sloping upland, and marsh habitat supported by a flood levee on the shoreline.

Nearshore Reef: mix of oyster shell and baycrete to support subtidal habitat and reduce wave energy.

Submerged Aquatic Vegetation: underwater vegetation such as eelgrass that traps sediment and slows erosion.

What are Operational Landscape Units (OLU)?

OLUs are areas of the shoreline extending from subtidal (i.e. areas that are always underwater, including during low tides) to inland areas. The geology, hydrology and climate are similar so that adaptation planning in this area benefits from being aligned. OLUs, like watersheds, span across jurisdictions.

San Mateo OLU Summary

There are 5 OLUs in the County. The San Mateo OLU stretches along the shoreline between the Coyote Point Recreation Area and into Foster City.

The immediate shoreline across most of the OLU is recreational land, including the Bay Trail, Coyote Point Recreation Area, Seal Point Park, Baywinds Parks, and Mariners Point. The Sea Change SMC Sea Level Rise Vulnerability Assessment evaluated a number of key assets including the Foster City Levee, Foster City Corporation Yard, and Bayside STEM Academy.



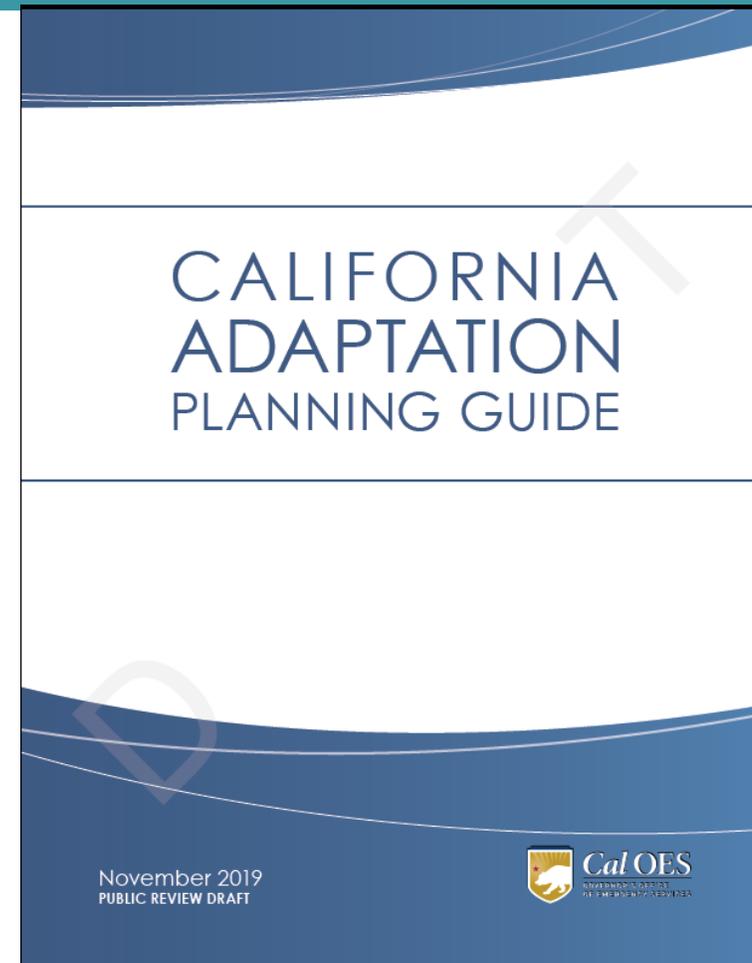
Carbon

Existing marshes in San Mateo County store as much carbon dioxide as is emitted by over 22,000 cars each year. By 2050, planned restoration efforts to add additional marsh will increase the amount of carbon stored and sequestered in Belmont-Redwood OLU to over 735,000 tons, which amounts to removing almost 160,000 cars from the road for a year. Additional potential marsh restoration measures could increase this to nearly 200,000 cars or over 925,000 tons of carbon for a total of 222,000 cars.



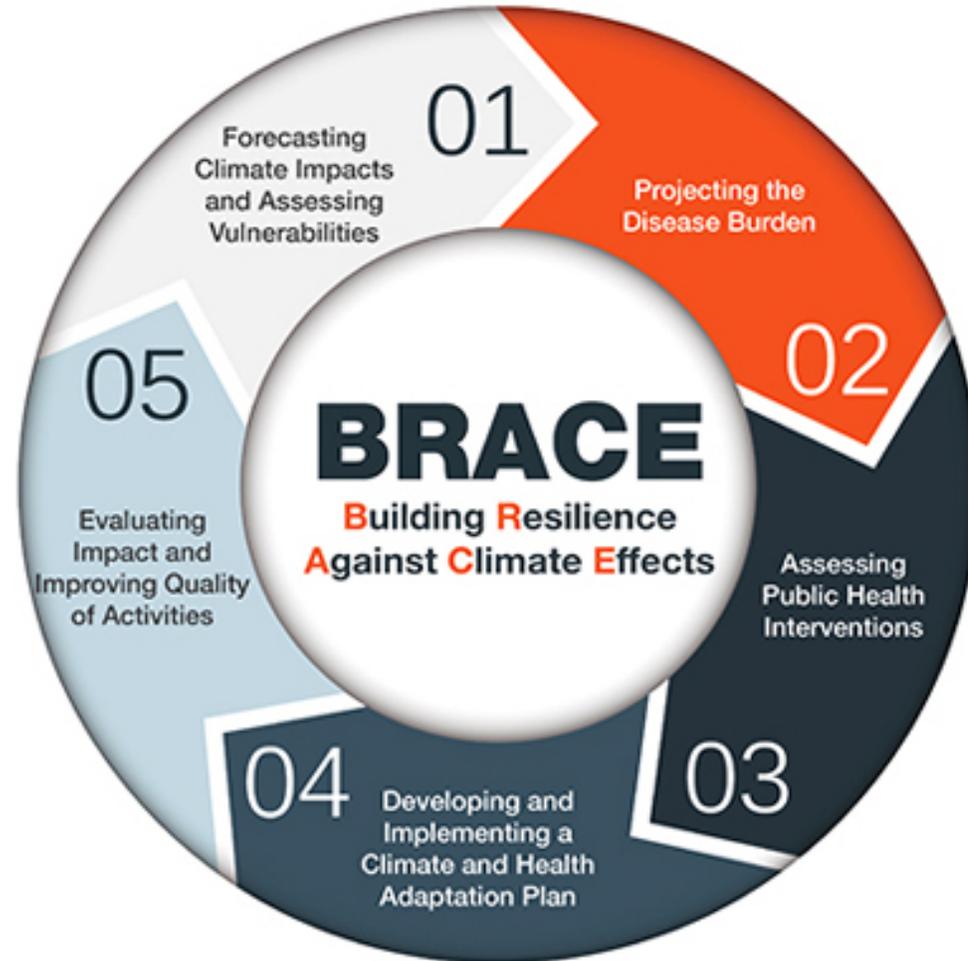
California Adaptation Planning Guide

- Draft released December 2019
- Step by step approach to community engagement, vulnerability assessment, and strategy development



CalBRACE – Health and Climate

- Health Vulnerability Assessment
- Disease burden
- Health Mapping Tool
- Intervention and Adaptation Strategies



Bay Area Regional Health Inequities Initiative

- Coalition of the San Francisco Bay Area's eleven public health departments committed to advancing health equity

<http://barhii.org>

Strategies to Address Climate Change	Potential Health Co-Benefits
<p>Transportation</p> <ul style="list-style-type: none"> Reduce vehicle miles traveled Manage local traffic (e.g. Safe Routes to School) Improve pedestrian and bicycle infrastructure Improve access to and cost of public transportation Use low carbon fuels and increase vehicle fuel efficiency <p>Land Use</p> <ul style="list-style-type: none"> Increase density of housing and neighborhoods Increase availability of affordable housing Develop housing and jobs near public transit Encourage developments that have mixed-uses (e.g. retail with residential) Increase green spaces in urban environments (e.g. parks, trees, open space) 	<p>Transportation</p> <ul style="list-style-type: none"> Reduced traffic injuries and osteoporosis <p>Land Use</p> <ul style="list-style-type: none"> Increased local access to essential services (e.g. housing, jobs, schools) Reduced temperature and urban heat island health effects Reduced noise <p>Both</p> <ul style="list-style-type: none"> Increased physical activity Reduced air pollution (e.g. reduced respiratory disease and cardiovascular disease) Reduced chronic disease (e.g. heart disease, asthma, cancer, diabetes) Improved opportunities to socialize Increased financial resources for use on other community resources Improved mental health Enhanced safety



Health in CAPs

- Active Transportation
- Energy Efficiency
- Renewable Energy
- Solid Waste

Assessing the Health Co-benefits
of San Francisco's Climate Action Plan



Discussion

- *What help/resources do you need to work on adaptation?*
- *Are you considering other co-benefits (e.g. health)?*
- *What are barriers that exist to embark on adaptation?*



- Chapters
 - Impacts/data
 - Discussion of the process
 - Strategies/measures



Gateway Cities Example

Climate Action Planning Framework

RESOURCES



DATA

- > Gateway Cities GHG Inventories and Forecasts
- > GHG Emissions Tracker
- > Gateway Cities Climate Action Tracking Tool



TOOLKITS

- > GHG Reduction Measure Toolkit
- > Climate Change Adaptation Toolkit
- > Public Engagement Toolkit



GUIDANCE

- > CAP Framework User Guide (PDF)
- > Model Climate Action Plan
- > CEQA and Target Setting
- > Implementation Funding and Financing



RICAPS Template Update

- A. Include only adaptation strategies impacted by GHG reduction measures
- B. Include “A” plus additional adaptation strategies
- C. Standalone Adaptation Chapter and reference in Mitigation Section



CITY OF ALBANY

Action	Investment	Benefits
Approach: Increase the resilience of public projects and facilities.		
4.2.1	<p>Prioritize adaptation and resilience in discretionary Capital Improvement Program (CIP) projects. This action would include ensuring that the infrastructure being developed will be designed with forecasted changes in climate (precipitation, temperature, wildfire, sea level rise) in mind.</p>	 
4.2.2	<p>Work with EBCE to assess and improve energy resilience at critical facilities. On-site PV and energy storage systems at appropriate scales would support the continued operation of critical services such as fire and police during a power outage. The City will work with EBCE to determine a funding strategy to prioritize and finance projects.</p>	 

CITY OF SANTA MONICA

RESILIENCE THROUGH LOCAL FOOD

LCFE1: Promote Low Carbon, Low Waste Lifestyles

Promote more sustainable food and drink options through campaigns, outreach events and community resources. Include all five pillars of the City's Sustainable Food Commitment: 1) reduce meat and dairy, 2) avoid processed foods, 3) eat organic, 4) eat local, and 5) reduce waste. Develop incentives and rewards programs to support the local food system and low carbon foods. Promote sustainable pet food through outreach and education.

Carbon Reduction
Potential



Cost
to City

\$\$

Community
Benefits



EXISTING BUILDING EFFICIENCY

ZNC6: Implement a Resilient Building Retrofit Accelerator Program

Develop an accelerator program to streamline the delivery of energy retrofit services and technologies for public and private buildings. Reduce capital costs for property owners by offering financing options and bulk-purchasing of technologies and services. Create partnerships to increase the speed and scale of energy-retrofit measures across the city. Prioritize assistance to owners with fewer resources and less technical ability, including smaller buildings and nonprofits.

Carbon Reduction
Potential



Cost
to City

\$\$

Community
Benefits



Question

- *What level of adaptation information would you like to see in the RICAPS CAP template?*



Community Engagement

- *How do you define community engagement?*
- *How are you engaging your community around adaptation and mitigation?*
- *Where are you struggling?*





THANK YOU!



Visit our website to learn more:
<https://www.smcsustainability.org/climate-change/>
Contact: Marcus Griswold, mgriswold@smcgov.org



Flood Model Inputs: Ocean Boundary Conditions (ft)	1995		2030		2070	
	Minor Storm	Major Storm	Minor Storm	Major Storm	Minor Storm	Major Storm
San Pedro Creek	9.68	10.37	10.02	10.48	13.05	13.34
Colma Creek	7.28	9.98	7.92	10.68	10.49	11.18
Denniston-Arroyo-Purisma Creek	12.71	14.17	13.71	15.43	16.92	18.83
San Mateo Creek	7.67	9.47	8.31	10.08	10.75	11.41
Cordileras Creek	7.87	9.92	8.67	10.71	11.05	11.70
San Francisquito Creek	8.09	10.30	8.74	10.94	11.14	11.93
Pescadero Creek	9.84	10.96	9.95	12.02	12.29	15.02
Gazos Creek	13.16	15.26	14.25	15.84	16.54	17.65
San Gregorio Creek	11.21	12.62	12.05	13.27	15.48	16.52



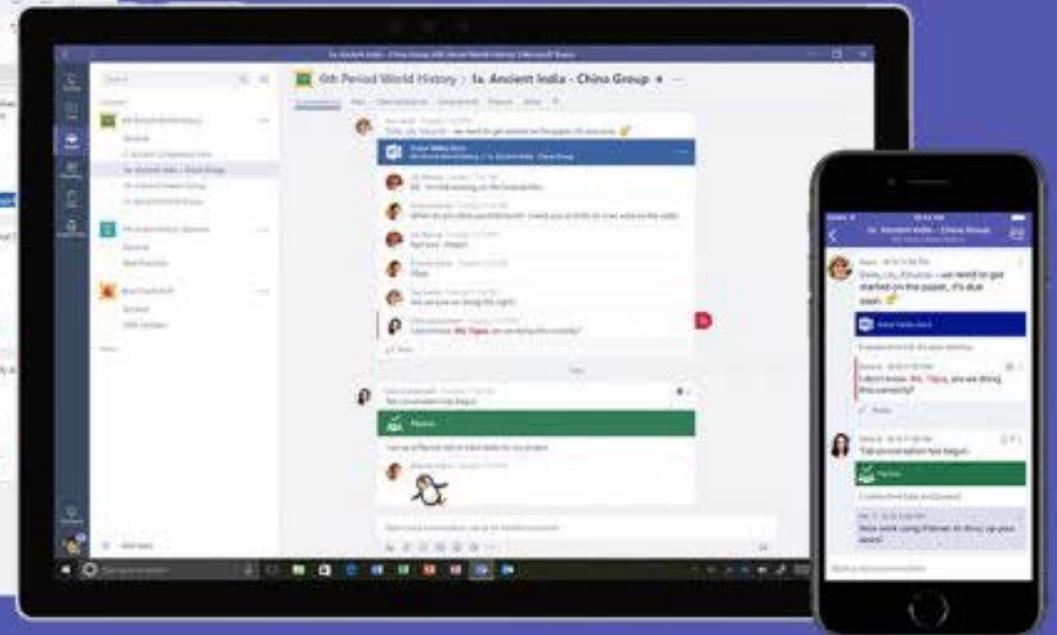
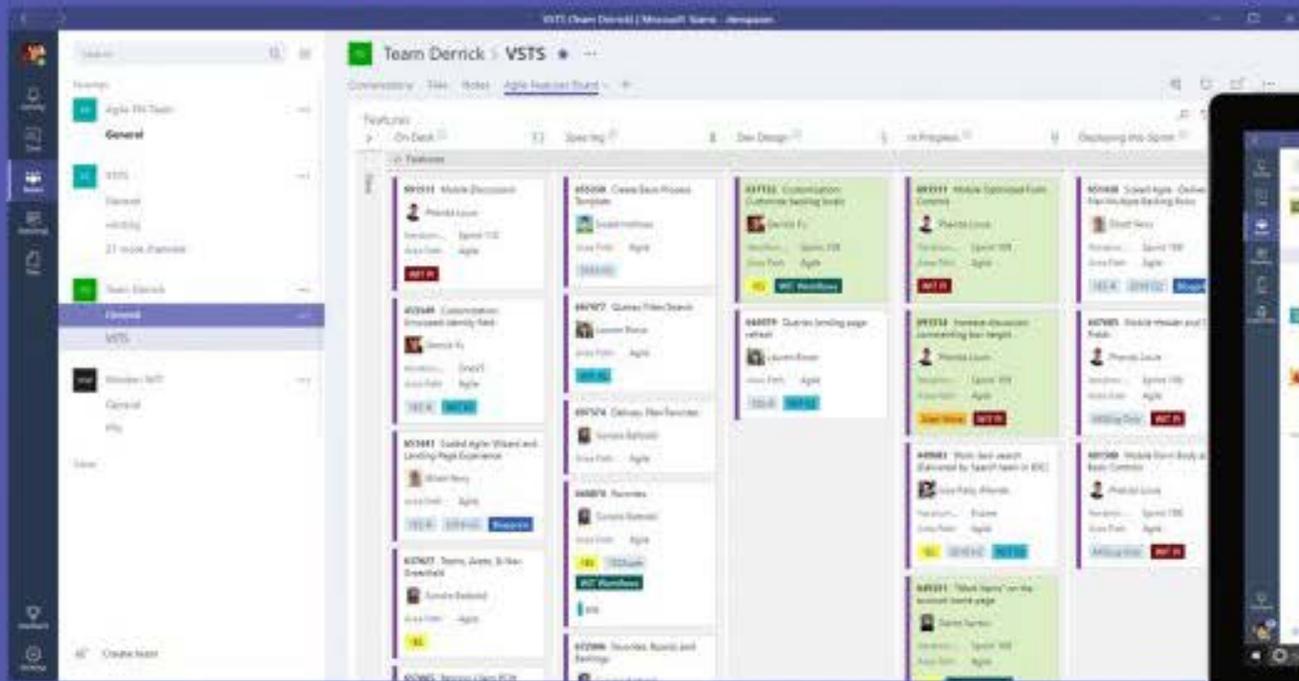


RICAPS Collaboration Online!

Testing out Microsoft Teams



Microsoft Teams



What is Teams and how will we use it?

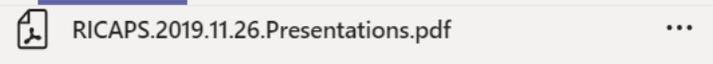
- Like Skype for Business used for:
 - Communication/chat
 - Meetings (Audio, Video , Sharing Screens and Recording)
 - File sharing
 - Wiki
 - Integration with SharePoint and Outlook
 - Office of Sustainability created a **Team** (just for RICAPS members) where we will have different **channels**. Right now we only have one channel for general conversation.
 - If you don't have the Teams app, you can use the web version

Teams

SR General Conversations Files Wiki +

Team 3 Guests

- Your teams
- Office of Sustainability
 - General
 - EW - Energy Programs**
 - EW - General
 - EW - RICAPS
 - EW- BayREN
 - OOS - Buzz
 - OOS - EVs
 - OOS - Interns
 - OOS - Non-work Related**
 - OOS - Outreach
 - 24 hidden channels
 - CW County_Wellness
 - SR SMC_RICAPS
 - General



Susan Wright 12/10 9:24 AM
 smichael (Guest) I've just uploaded the RICAPS presentation file in the "File" tab. This chat is associated with that file.

← Reply

Sigalle Michael (Guest) 12/10 9:21 AM
 Do you use this internally at the County?

2 replies from Susan

Sigalle Michael (Guest) 12/10 9:53 AM
 So if I have a question for the team, do they get an email notifying them? I am following the channel, but haven't gotten any emails yet. Sorry - this all new to me...

← Reply

Susan Wright 12/10 9:26 AM
 smichael (Guest) Here's how the wiki works... I just started the page. It has different sections that people can type in to.

Sigalle Michael (Guest) 12/10 9:55 AM
 Found it - nice!

← Reply

Yesterday

Susan Wright has added Rachael Londer to the team.

Start a new conversation. Type @ to mention someone.

Join or create a team

- Activity
- Chat
- Teams**
- Calendar
- Calls
- Files
- ...
- Apps
- Help

Teams

Your teams

- Office of Sustainability
 - General
 - EW - Energy Programs**
 - EW - General
 - EW - RICAPS
 - EW - BayREN
 - OOS - Buzz
 - OOS - EVs
 - OOS - Interns
 - OOS - Non-work Related**
 - OOS - Outreach
 - 24 hidden channels
- County_Wellness
- SMC_RICAPS
- General**

Join or create a team

General Conversations **Files** Wiki +

General

New Upload Get link Add cloud storage Open in SharePoint

✓	Type	Name	Modified	Modified by	Size	
		RICAPS.2019.11.26.Presentations.pdf	12/10/19	Susan Wright	3.87 MB	...

- Activity
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Teams

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 - OOS - Outreach
 - 24 hidden channels
- CW County_Wellness
- SR SMC_RICAPS
- General

Join or create a team

SR General Conversations Files **Wiki** +

RICAPS Wiki
Last edited: 12/10

Topics for future meetings

People could add content here...

What's next?

- We will invite all members of the RICAPS group
- You can get a head start to join:
<https://tinyurl.com/tz6rebd>
- Learn more with the Microsoft video training and guides:
<https://tinyurl.com/y3aws5hz>

Reach Code Round-Up

Jurisdictions that have reach codes approved by the CEC:

- Menlo Park
- San Mateo

Jurisdictions that have reach codes approved by their Council:

- Pacifica
- San Carlos (pre-wiring for electric appliances only)

Jurisdictions that are in the process with Council:

- Belmont
- Brisbane
- Burlingame
- Colma
- County of San Mateo
- Daly City
- East Palo Alto
- Foster City
- Hillsborough
- Millbrae
- Portola Valley
- Redwood City

Jurisdictions exploring reach codes in 2020:

- Half Moon Bay
- San Bruno
- South San Francisco

Council voted to not move forward:

- Atherton
- Woodside





Kim Springer, Susan Wright, and John Allan

SMCEW 2019 Recap and Look Ahead



SMC Energy Watch 2018 vs. 2019

- Resource vs. non-resource program
- Energy Savings Goals vs. KPIs
- Seeing through vs. referring EE projects
- Regular annual vs. competitive funding

SMC Energy Watch 2019 and 2020

2019

- Complete 2019 contracting and security review
- Shift to non-resource program design
- Settle on KPIs with PG&E
- Develop RFA for July 2020 onward (successful)
- Build relationships with TradePros and other program partners
- Continue RICAPS assistance and inventories
- RFQ to establish TradePro list
- Develop RFP (in process)

2020

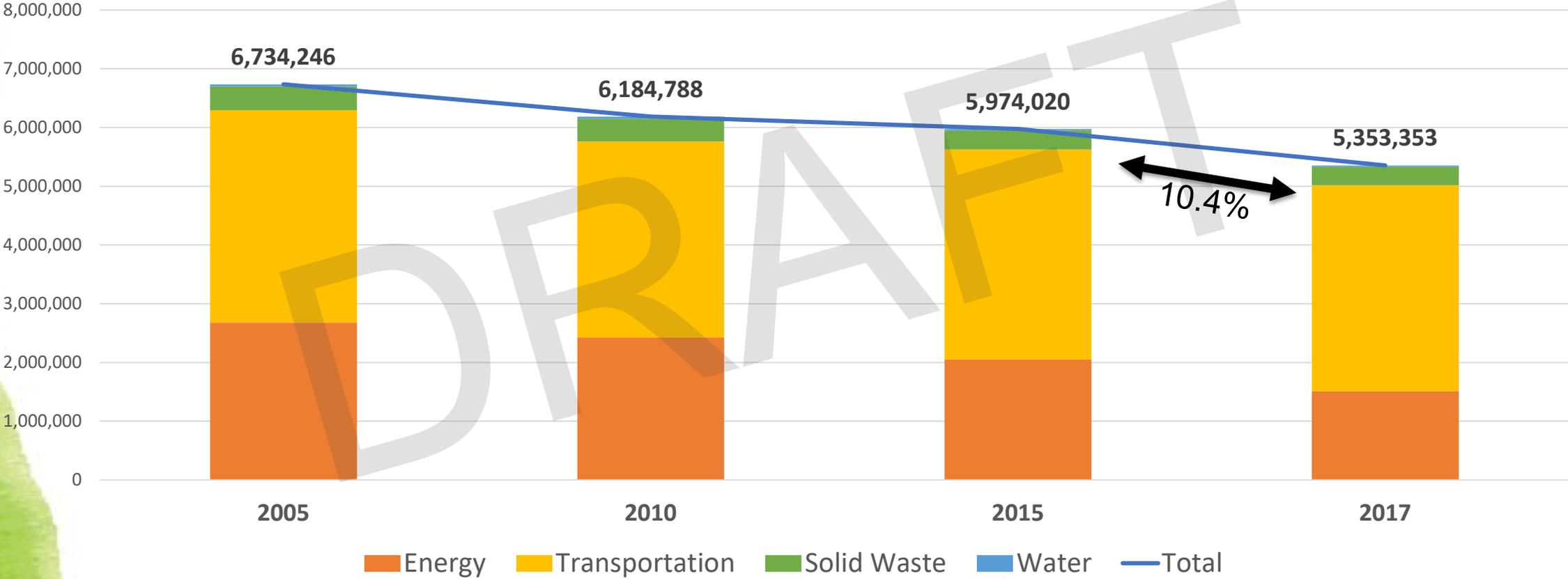
- Drive project referrals to TradePros and 3rd-Party programs
- Work on 2018 emissions inventory and continue RICAPS assistance
- Receive results of RFP (either wind down or three-year contracting)

Community GHG Inventory Update

- Currently in QA/QC for 2016 & 2017 Inventories
- Expected completion by end of 2019
- ***Preliminary*** results
 - 20.5% decrease in emissions countywide since 2005
 - 10.4% decrease in emissions from 2015 to 2017

Community GHG Inventory Update

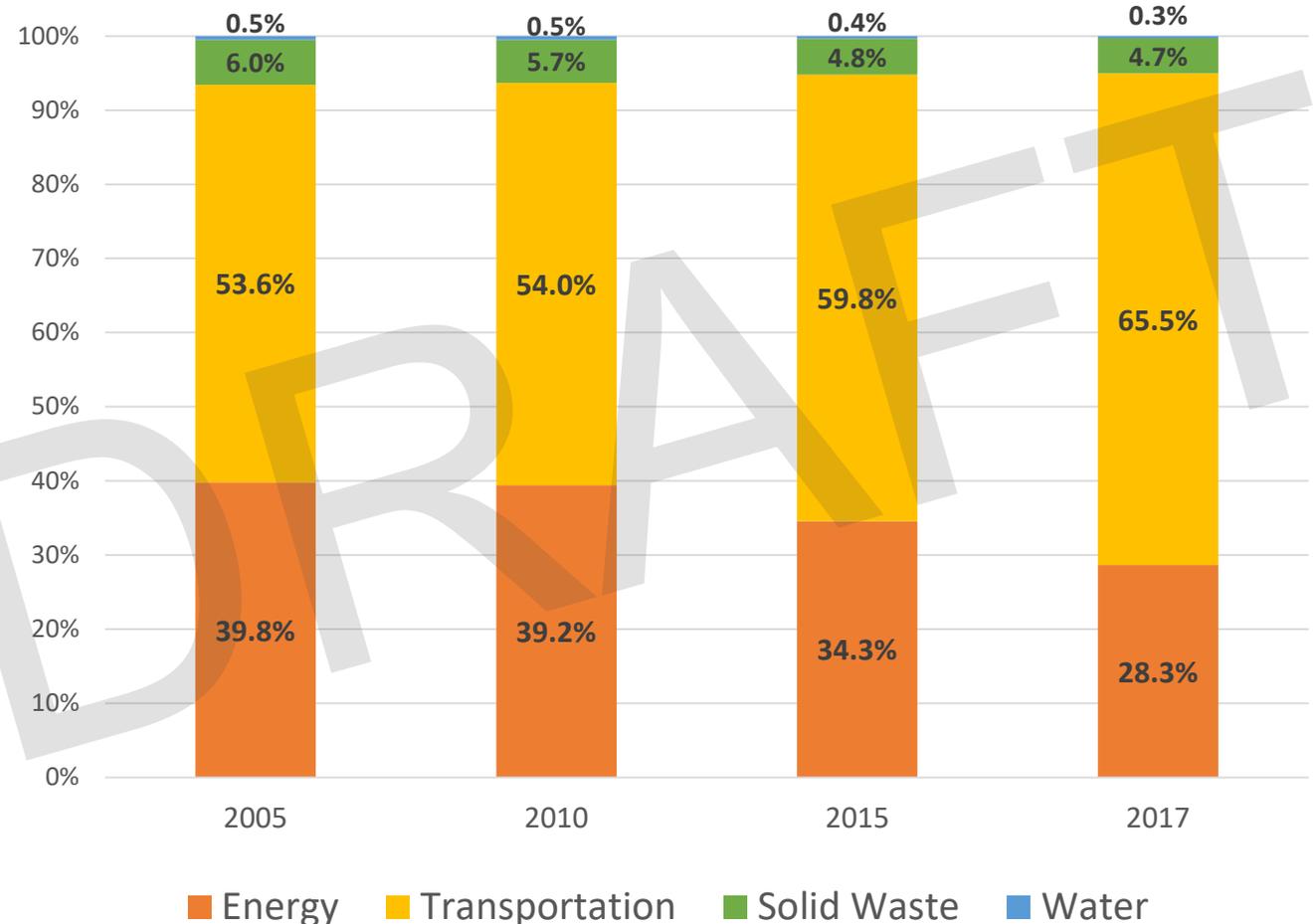
Countywide Community GHG Emissions (MT CO₂e)



Community GHG Inventory Update

- Decrease in energy emissions from 2015-2017 of 26%
 - Largely due to the launch of PCE
 - Decrease in electricity emissions of 57%

Countywide Community GHG Emissions by Sector



Data Project

- SMCEW Performance Tracking
- Showing “before and after” energy use
- Need approval to pull data for Call for Projects
- Please sign approval form

Coming Up...

Choices for November 2020 Webinar

Nov. 17: BayREN forum in AM, RICAPS in PM

Nov. 24: Two days before Thanksgiving

Next RICAPS Webinar

Tuesday, January 28, 1:30-3pm

Topic: Transportation

THANK YOU!

Questions?

Susan Wright, swright@smcgov.org

John Allan, jallan@smcgov.org

Kim Springer, kspringer@smcgov.org

Rachael Londer, rlonder@smcgov.org



OFFICE OF
SUSTAINABILITY

COUNTY OF SAN MATEO