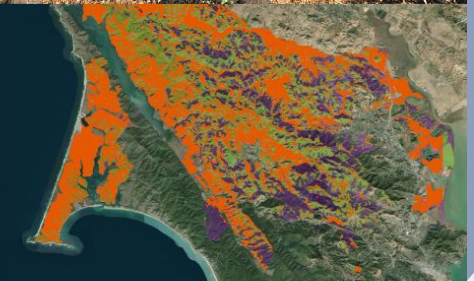
Scaling Resilient and Climate-Beneficial Agriculture through Local and Regional Partnerships

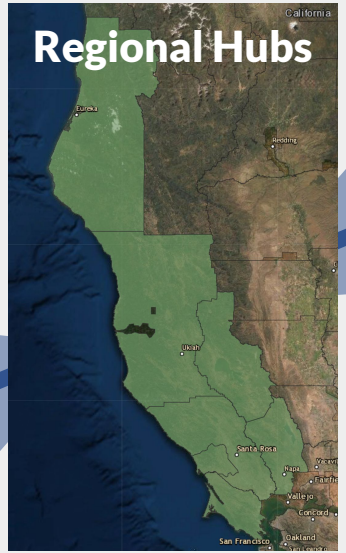
California Adaptation Forum, August 1, 2023

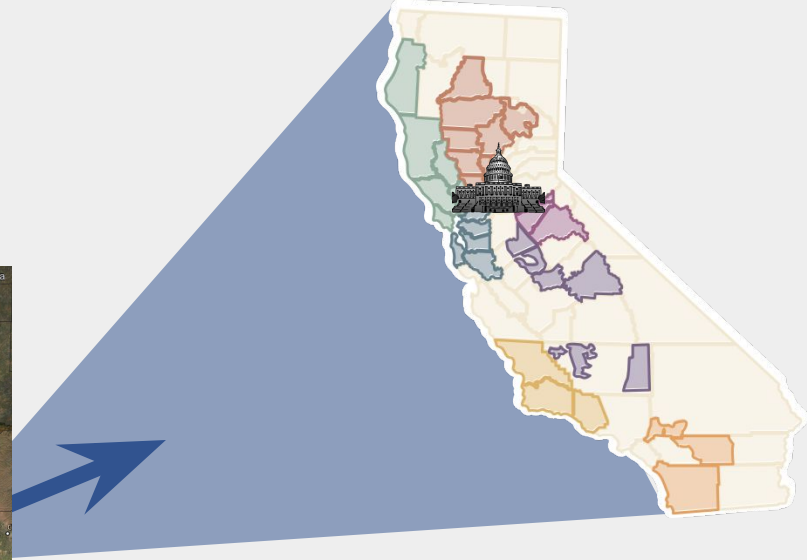
Jonathan Wachter, PhD

Carbon Cycle Institute

Facilitating scaled action and partnerships at local and regional scales

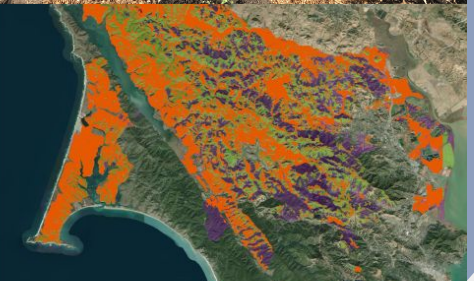






Informing policy, programs, strategies & targets at the State scale

Facilitating scaled action and partnerships at local and regional scales



Informing policy, programs, strategies & targets at the State scale

- Knowledge & resource sharing: equipment, staff, developing programs, building infrastructure
- Peer to peer learning and problem solving between farmers and agricultural support organizations
- Collaborative grant proposals
- Regional assessments and planning: carbon sequestration potential, adaptation planning, needs assessments, ag community engagement

Participatory scenario and strategy development at the local scale

Led by local agricultural conservation organizations

- Facilitating agricultural community voice and participation
- Enabling partnerships with County Staff, Ag Commissioner, Farm Bureau, etc.
- Building capacity of local ag organizations for increased technical assistance, project management, and program development

Place-based and community-driven process

- Estimate biophysical potential
  - field-based planning data
  - geospatial data
  - implementation data
- Engage producers throughout the process
  - Hold workshops, focus groups, interviews
  - Build awareness & agency among ag community
  - Understand needs and barriers, inform measures, ag goals and implementation targets
- Develop measures, implementation targets and countywide ag goals

Example: San Mateo County Climate Action Plan

Ag sector emissions ~7,000 MT $CO_2e\ yr^{-1}$
or ~1.5% of total County emissions

Implementation Targets

2030 Moderate Adoption Goal:
7,900 MT $CO_2e\ yr^{-1}$ sequestration

2045 Moderate Adoption Goal:
13,577 MT $CO_2e\ yr^{-1}$ sequestration

Supporting Measures

ACTIONS		DESCRIPTION
L-1.1	Carbon farming investments	Implement a County funding program, such as Santa Clara County's Agricultural Resilience Incentive, for farmers and ranchers to implement and maintain climate beneficial practices.
L-1.2	External funding programs for carbon farming	• Support the San Mateo Resource Conservation District (SMRCD) and other land partners to leverage private, regional, state, and federal funding for producers' implementation of climate beneficial agricultural practices. • Develop a program or mechanism for San Mateo County businesses, philanthropic institutions, and supportive community members to support local carbon farming projects.
L-1.3	Compost procurement	Where feasible, County-procured compost through SB 1383 compliance should be made available to producers at a reduced cost or for free.
L-1.4	Cost saving methods	Explore opportunities for establishing a bulk purchasing program for cost savings, such as for cover crop seed.
L-1.5	Climate-beneficial communications	Assess potential of a communication or labeling program to raise awareness of climate beneficial agricultural practices of San Mateo County producers, potentially as part of *As Fresh As It Gets*.[12] Assess potential of such program to increase revenue for producers.
L-1.6	Public benefit communications	Assess and report the estimated public benefits and cost savings provided by climate beneficial agricultural practices to the agricultural and larger San Mateo County communities.
L-2.1	Technical assistance provider support	Support the SMRCD and other land partners in providing technical assistance to agricultural producers to scale carbon farming and GHG reducing practices. Support adequate staffing for technical assistance providers to undertake outreach, planning, implementation, monitoring, and maintenance.
L-2.2	On-farm research and demonstration	Support trials, research, and monitoring by the SMRCD and other land partners to refine local data on carbon sequestration and GHG reduction occurring from existing and new climate beneficial practices.
L-2.3	Educational opportunities for land managers	Support the SMRCD and other land partners in providing educational opportunities to assist producers in evaluating and adopting climate beneficial agricultural practices.

Regional agricultural planning efforts are expanding

RCDs working directly with their counties on Ag Climate Action & Resiliency Planning

- Alameda RCD
- Cachuma RCD
- Coastal San Luis Obispo RCD
- Gold Ridge RCD
- Napa RCD
- RCD of Greater San Diego
- Sonoma RCD
- Yolo RCD

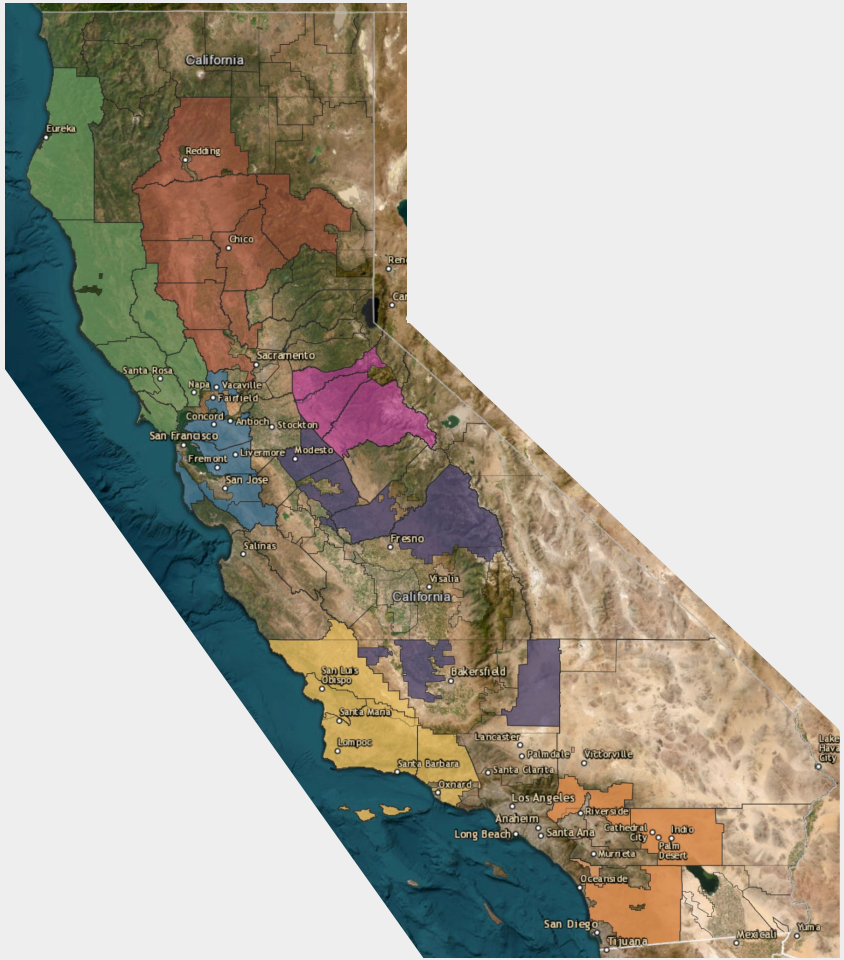
DOC SALC funded Ag Chapter Development through RCDs

- Contra Costa County
- Marin County
- Mendocino County
- San Mateo County
- Santa Clara County

but limited by funding, local capacity and understanding of intersections between agriculture & climate change

Facilitating scaled action and partnerships at local and regional scales

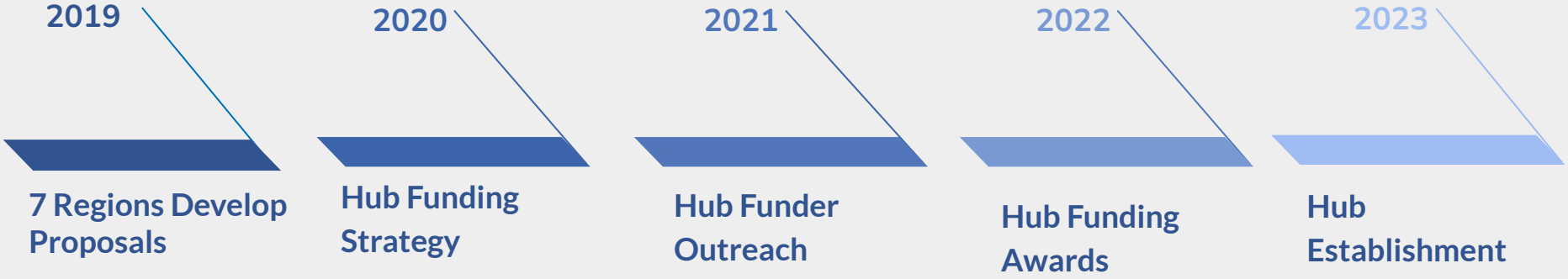
Informing policy, programs, strategies & targets at the State scale



Policy Support Priorities

1. State funding to create a pipeline of trained and experienced conservation planners
2. Baseline staffing and program support for our local, public sector natural resource conservation organizations (RCDs and UCCE)
3. Dedicated funding for local and regional agricultural climate action and resiliency planning
4. Implementation dollars tied to local and regional implementation plans and targets
5. Ambitious climate goals for the NWL sector

Establishing RCD Regional Carbon Farming/Soil Hubs



Currently:

- Hiring 6 regional coordinators
- Hiring 1 statewide coordinator at CARCD
- Funding for RCD participation in their hubs
- Onboarding & training cohort process
- Initiating regional assessments

Different climate impacts are felt at different scales, but it starts at the local level. Our greatest barrier is the lack of investment in local and regional conservation partnerships as a core strategy in creating healthy, climate-resilient farming systems.

Building economic resilience and agroecological adaptation

through

Recarbonization and reducing GHG emissions

contributing to

Global climate change mitigation

Thank You

jwachter@carboncycle.org

Carbon Cycle Institute

Cultivating Regional Resilience Through Collaboration:

The North Coast Soil Hub & Carbon Farming Network

California Adaptation Forum
Emilie Winfield
August 1, 2023

NORTH COAST SOIL HUB

Resource Conservation Districts:
Focused on Community & Natural Resources

Balancing human well-being and environmental stewardship

Addressing the natural resource issues facing our community

Providing technical assistance on the ground

RCD Program Offerings

Ventura County Resource Conservation District

What We Do


Habitat Restoration


Water and Soil Health


Education and Outreach


Agricultural Water Conservation


Wildfire Preparedness

NAPA RCD

Our Services

Forest Health

We support our current forest land stewards with coordination, planning, on-the-ground projects, and education. The goal is forests that support communities and wildlife, which we can achieve by enhancing their carbon sequestration and reducing extreme fire behavior.

LEARN MORE

Agriculture

We help farmers, ranchers and landowners evaluate and plan irrigation and explore carbon farming. We offer plans for testing soil health, evaluate habitats and helps land managers meet their natural resource management goals while supporting productive lands and thriving streams.

LEARN MORE

Streams & Habitats

From fish monitoring to monarch habitat restoration, we work closely with land managers to make sure there is space for wildlife to eat, hide, reproduce, move, and rest in Napa County.

LEARN MO

Youth & Community

People are then number one asset to building a more resilient and sustainable future. We work with many members of the community to provide opportunities for residents to connect with, understand, and steward

SAN MATEO RESOURCE CONSERVATION DISTRICT

HOME | ABOUT THE RCD | PROJECTS | NEWS | RESOURCES

Wildlife

San Mateo County is a hotspot of biological diversity and home to over 40 species of plants and animals at risk of becoming extinct. Our work helps give them a fighting chance.

Water

Water is one of the most significant forces shaping the future of California. We help ensure clean and reliable water in San Mateo County for fish, farms, and people who share the precious resource.

Climate

We work to reduce greenhouse gas emissions, remove greenhouse gases from the atmosphere, and prepare our community and wildlife habitat for resilience to extreme weather.

Agriculture

Agriculture is at the heart of coastal San Mateo County. Our services to farmers and ranchers help ensure viable local agriculture while also helping agriculture to be of service to the environment.

Fire

Wildfires are a serious threat in our region. We work with communities to reduce the risk of catastrophic fire, improve forest health, and heal the land after fire does occur.

TAHOE RESOURCE CONSERVATION DISTRICT

ABOUT US | OUR WORK

OUR WORK

- Aquatic Invasive Species Program
- Fire Adapted Communities Program
- Restoration & Land Management Program
- Stormwater Program
- Environmental Services Program

North Coast Soil Hub & Carbon Farming Network

A collaboration between RCDs and our partners in Humboldt, Lake, Marin, Mendocino, Napa, and Sonoma Counties.

We coordinate an inclusive network of farmers and ranchers, technical assistance providers, researchers, educators, and industry representatives dedicated to advancing climate-friendly agriculture in California's North Coast region.

North Coast Soil Hub: Community-Driven

Rooted in the unique opportunities and challenges of the region

Through partnerships and collaboration, we seek to promote stewardship of agricultural lands in a way that supports the social, economic, and geographic diversity of farmers and ranchers on the North Coast.

Core Regional Hub Activities

ADVISE Provide trusted one-on-one guidance to farmers and ranchers as they seek to make environmentally friendly decisions.

LEARN & INSPIRE Host workshops and trainings that facilitate hands-on learning about climate-friendly agriculture, with an emphasis on peer to peer learning.

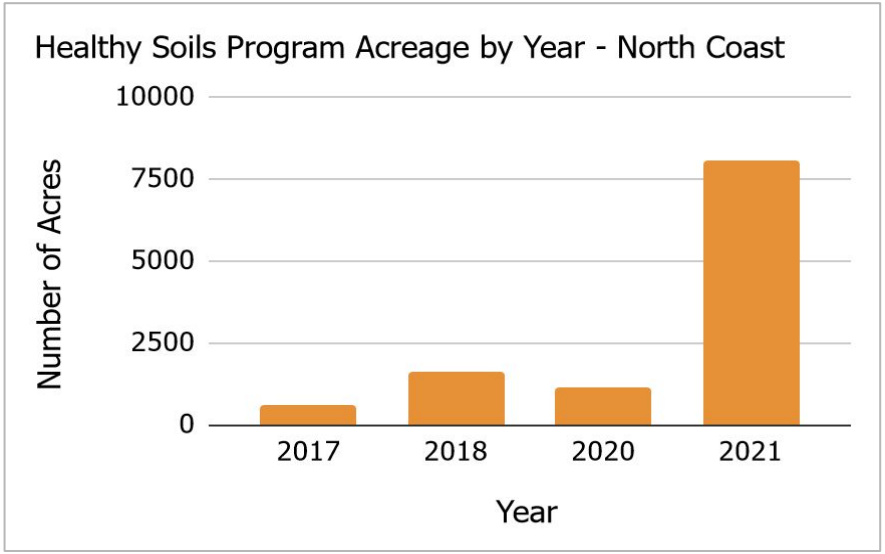
STUDY, ASSESS & MONITOR Bring research onto farms to accelerate the development of practical and effective solutions.

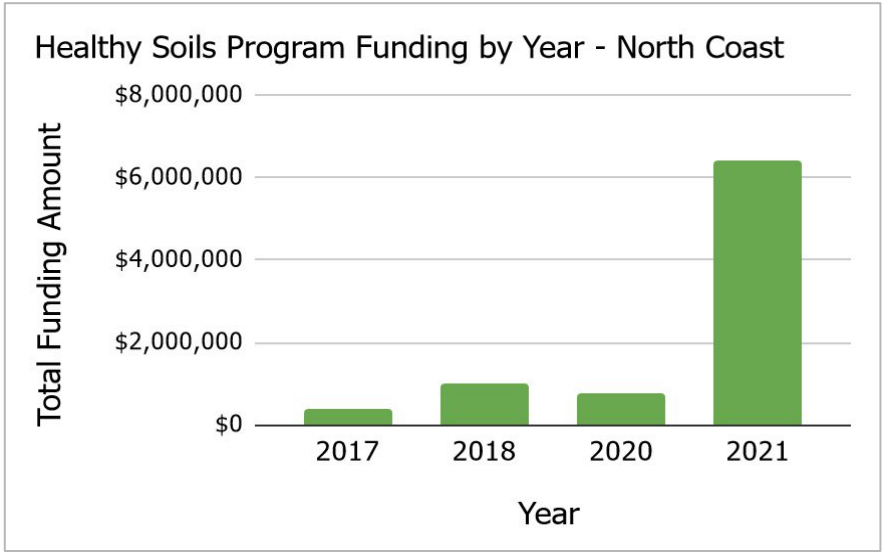
Local Demand for Climate-Friendly Agriculture: Carbon Farm Planning

			Modeled	
	# Carbon Farm Plans	# Acres	GHG benefits per year (Mg CO2e/yr)	20 year GHG benefits (Mg CO2e @ 20 yr)
Completed	93	25,969	52,365	1,055,274
In Progress	77	18,469		
Total	170	44,438		
Equivalent # of vehicles off the road each year:			11,388	229,501

Producers on the waitlist for a carbon farm plan: 75+

Local Demand for Climate-Friendly Agriculture:
CDFA Healthy Soils Program





Regional Hubs Leverage and Expand Existing Agricultural Conservation Partnerships and Programs To:

Foster innovation and development of regionally appropriate farmer-centered solutions

Enable greater communication between and among producers, and agricultural conservation organizations, researchers, and policymakers

Assess regionally-specific opportunities and needs through understanding agricultural, ecological, and social landscapes

Collectively shape agricultural conservation programs and policies to support farmer-centered strategies

CA CLIMATE ADAPTATION FORUM

FARMERS AS ALLIES AND LEADERS

FOODSHED
AGRICULTURA DEL PUEBLO

WHY I'M HERE TODAY

- To share our journey towards a more just and resilient food system
- To demonstrate how this work is a public/private partnership
- Share how our approach integrates land-based climate solutions with economic, health and social justice co-benefits.

SOLIDARITY FARM

THE OFFICE OF ENVIRONMENTAL FARMING & INNOVATION
healthy soils program

NRCS
Natural Resources Conservation Service

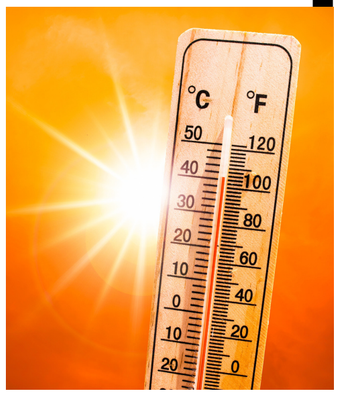
SAN DIEGO COUNTY FOOD VISION 2030

USDA
PARTNERSHIPS FOR CLIMATE-SMART COMMODITIES

Pilot Carbon Farming Program

2012

2023



CARBON SINK farming convergence

FOODSHED
SMALL FARM COOPERATIVE

CO_2 CARBON SINK INCENTIVE PILOT

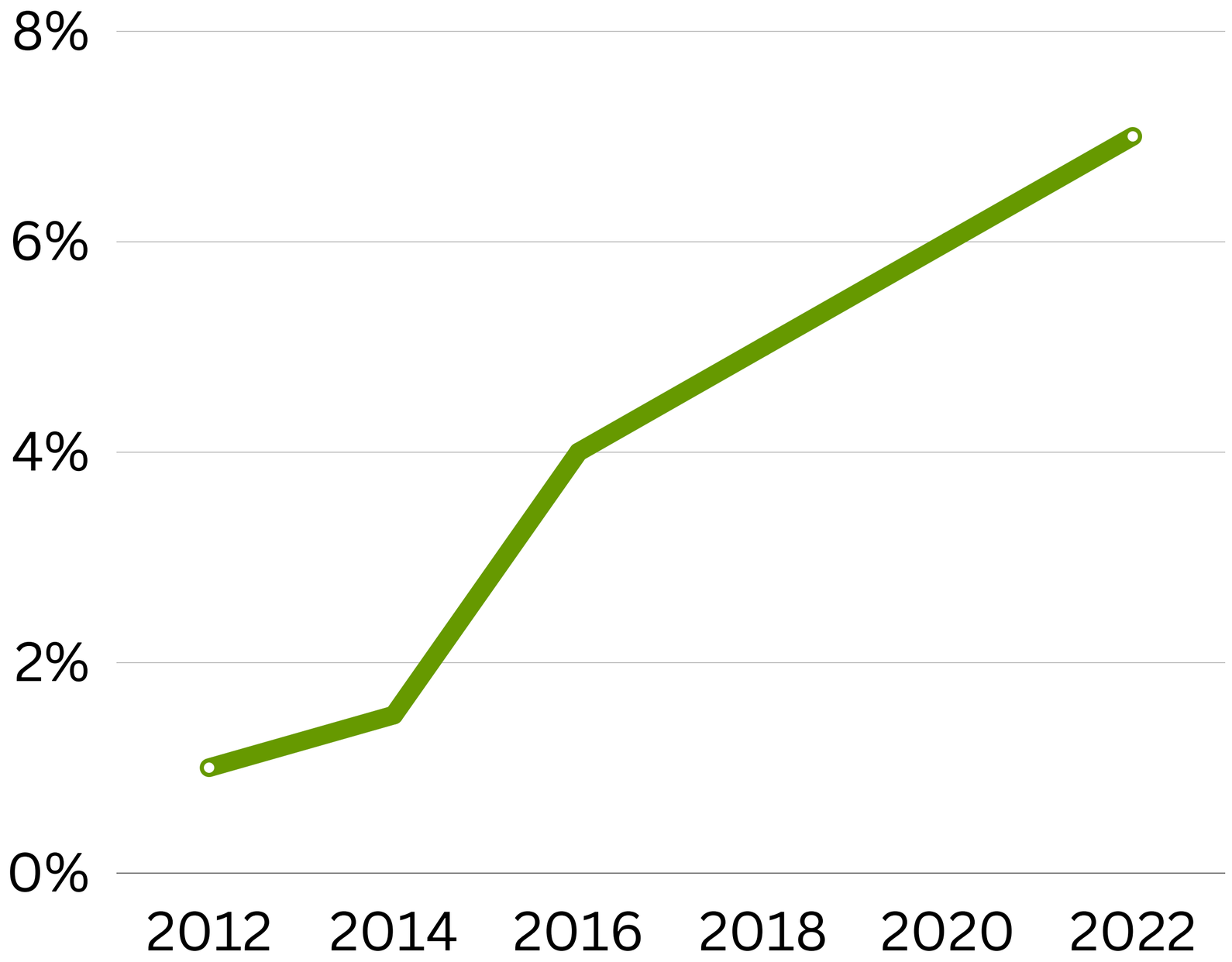
COUNTY OF SAN DIEGO climate action plan

GETTING TO ZERO
SAN DIEGO COUNTY
REGIONAL DECARBONIZATION FRAMEWORK


CARBON
SINK
FARMS
@ PAUMA TRIBAL FARMS

SOIL HEALTH CHANGE

Rising SOM at an average rate of .5% per year



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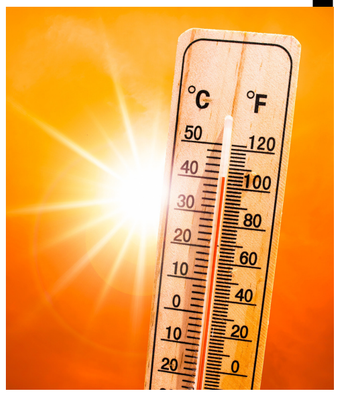

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CARBON
SINK
farming
convergence

SAN DIEGO COUNTY FOOD VISION 2030

“The biggest issue is, how to get food to people who really need the food—and still make a living as a farmer.”


FOODSHED
AGRICULTURA DEL PUEBLO
FOODSHED
AGRICULTURA DEL PUEBLO
NUESTROS PILARES
PRUEBA
NUESTROS PRODUCTOS
FRESCOS Y LOCALES
NOTICE

CARBON SINK FARMS

To: Honorable Chair Fletcher and Supervisors

From: Carbon Sink Farms, San Diego

Date: November 11, 2021

RE: Climate Smart Agriculture Policy in San Diego County

Dear Mr. Fletcher,

Carbon Sink Farms is a collaboration of small farms across San Diego who are committed to reducing greenhouse gas emissions and improving climate resilience by shifting our agricultural practices. For the last few years, we have been innovating our practices and participating in training to ensure we are informed partners in the policy making process. The signatories on this letter agree that there are **three areas** where the Board of Supervisors and County staff can take **immediate action** to improve the resilience of our farms and food system.

Area One: County Climate Action Plan

It is our understanding that the CAP has restrictive requirements that limit creativity, however, we are aware that Santa Clara County and others have found a way to incorporate carbon farming into their CAP mitigation calculations and are confident that San Diego can do the same.

The State of California and US Department of Agriculture have already validated the use of two tools--Carbon Farm Plans and COMET-Planner--to calculate the specific sequestration of greenhouse gas emissions of 32 carbon farming practices. A "Carbon Farm Plan" can be utilized to document potential sequestration and monitor practice implementation. COMET-Planner can be utilized to quantify the specific sequestration of each carbon farming practice. Given the availability and verification of these tools, we recommend the following actions:

Recommendation 1: The San Diego County CAP includes a voluntary and incentivized opportunity for farmers to contribute new and additional carbon farming sequestration to mitigation targets.

Recommendation 2: San Diego County provides free technical assistance for the voluntary development of Carbon Farm Plans by individual farms to calculate GHG sequestration capacity and verify practice completion.

Recommendation 3: San Diego County validates the use of COMET-Planner as the mechanism for quantifying and verifying offset amounts.

2020 Report to the California Legislature on the Farmer Equity Act

CALIFORNIA FARMER JUSTICE COLLABORATIVE

SOLIDARITY FARM

THE OFFICE OF ENVIRONMENTAL FARMING & INNOVATION
healthy soils program

NRCS
Natural Resources Conservation Service

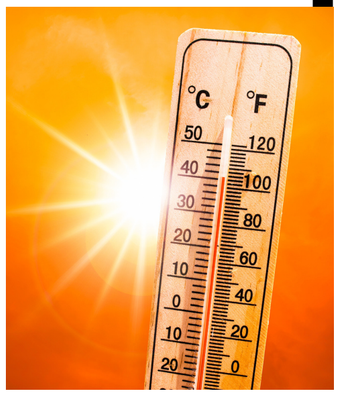
SAN DIEGO COUNTY FOOD VISION 2030

USDA
PARTNERSHIPS FOR CLIMATE-SMART COMMODITIES

Pilot Carbon Farming Program

2012

2023



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GETTING TO ZERO
SAN DIEGO COUNTY
REGIONAL DECARBONIZATION FRAMEWORK

CARBON SINK INCENTIVE PROGRAM

CSIP At-A-Glance

14

Participant Farms

45.50

Combined Acreage

TOTAL SALES:

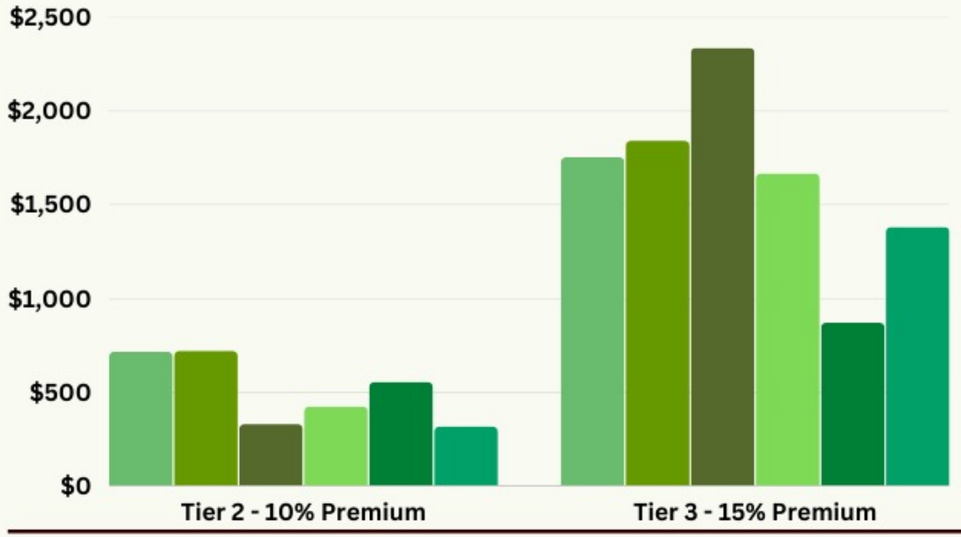
$98,685

Combined Total Sales in $ from all participant farms (June/Nov)

SALES VOLUME:

56,391

Combined Total Sales Volume (units) (June/Nov)
Avg price $1.75 per unit



INCENTIVE PAID

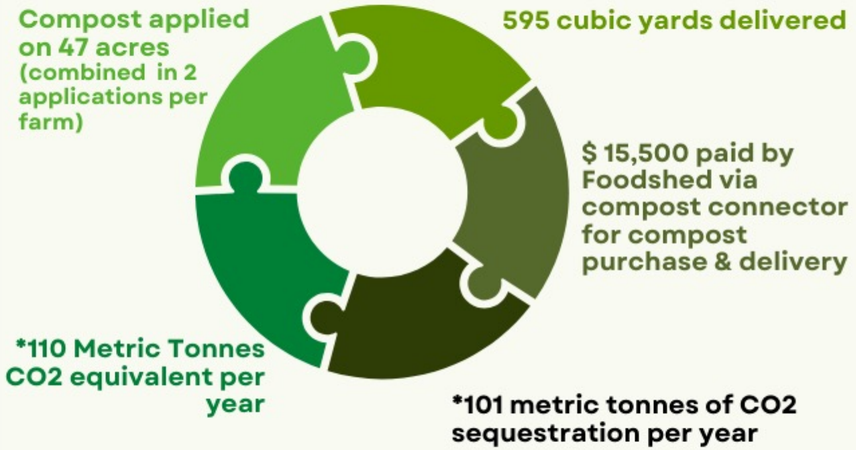
$12,895

Carbon Sink Premium payments on all food purchased for equitable distribution (June/Nov)
Tier 2 - 10% / Tier 3 - 15%
(graph shows track sales on Quickbooks)

CARBON SINK INCENTIVE PROGRAM

COMPOST APPLICATION

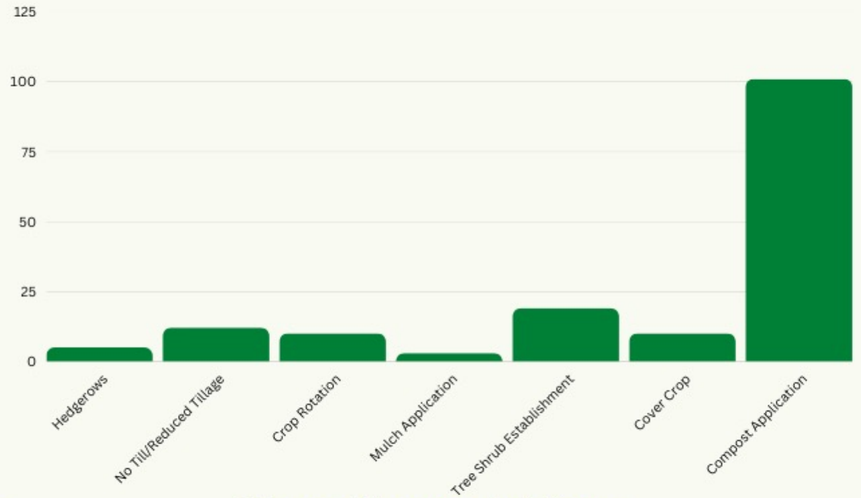
Implementation of SB1383. In collaboration with Zero Foodprint's Compost Connector program, we provided FREE Compost and documented compost application/carbon sequestration. Free compost program funded by 11th hour project.



NRCS CONSERVATION PRACTICES

*Metric Tonnes of CO2 sequestration per conservation practice

Total 160 *Metric Tonnes of CO2 sequestration - 7 conservation practices.



*CommetPlanner calculations - http://comet-planner-cdfahsp.com/

EMISSIONS OFFSETS

4

Average SD County Households*

12

Average number of San Diegans whose emissions are offset*

ORGANIC MATTER

4.44%

(range from 1.2% to 13%)

Avg 32 Samples from 11 farms - 0/15cm soil depth

SOIL ORGANIC CARBON

2.57%

(range from 1.16% to 7.5%)

Avg 32 Samples from 11 farms - 0/15cm soil depth

Avg **OM 1.53%** calculated on 21 map units from 15 soil types - Soil Web Survey https://casoilresource.lawr.ucdavis.edu/soil_web

*GHG CAP 2020 - https://www.sandiego.gov/sites/default/files/cap-2020-annual-report-appendix.pdf

$1 MILLION PER YEAR FOR 5 YEARS TO:

1) Establish more resilient, climate smart farms in San Diego
2) Incentivize more sales to the San Diego communities most vulnerable to climate change

FARMERS WILL BE TRAINED TO:

- Reduce tillage
- Increase organic matter through addition of compost and mulch
- Keep soil covered
- Increase perennial plantings
- Reduce/eliminate herbicides/pesticides
- Access funding at private/state/federal level

FARMERS WILL ALSO:

- Measure and report soil organic matter changes & other key indictators of soil health to County staff
- Work with Zero Foodprint (COMET Farm) to monitor & quantify volume of compost added/GHG reduction
- Work with advisors at RCD to create Carbon Farm Plans

FARMERS WILL BE PAID 15% EXTRA TO SELL CLIMATE-SMART FRESH FOODS:

- Into communities experiencing health disparities (farmers markets, CSA, farm stands, corner stores)
- Through market channels that reach historically underserved communities (schools, hospitals, prisons, etc.)

CALIFORNIA
Healthy Places Index™

San Diego

HPI Score (3.0): 4.5 percentile

Less → More healthy conditions

This Tract

City / Town Avg: 67.7

County Avg: 67.9

This Tract has healthier community conditions than 4.5% of other California Tracts.

San Diego

HPI Score (3.0): 6.7 percentile

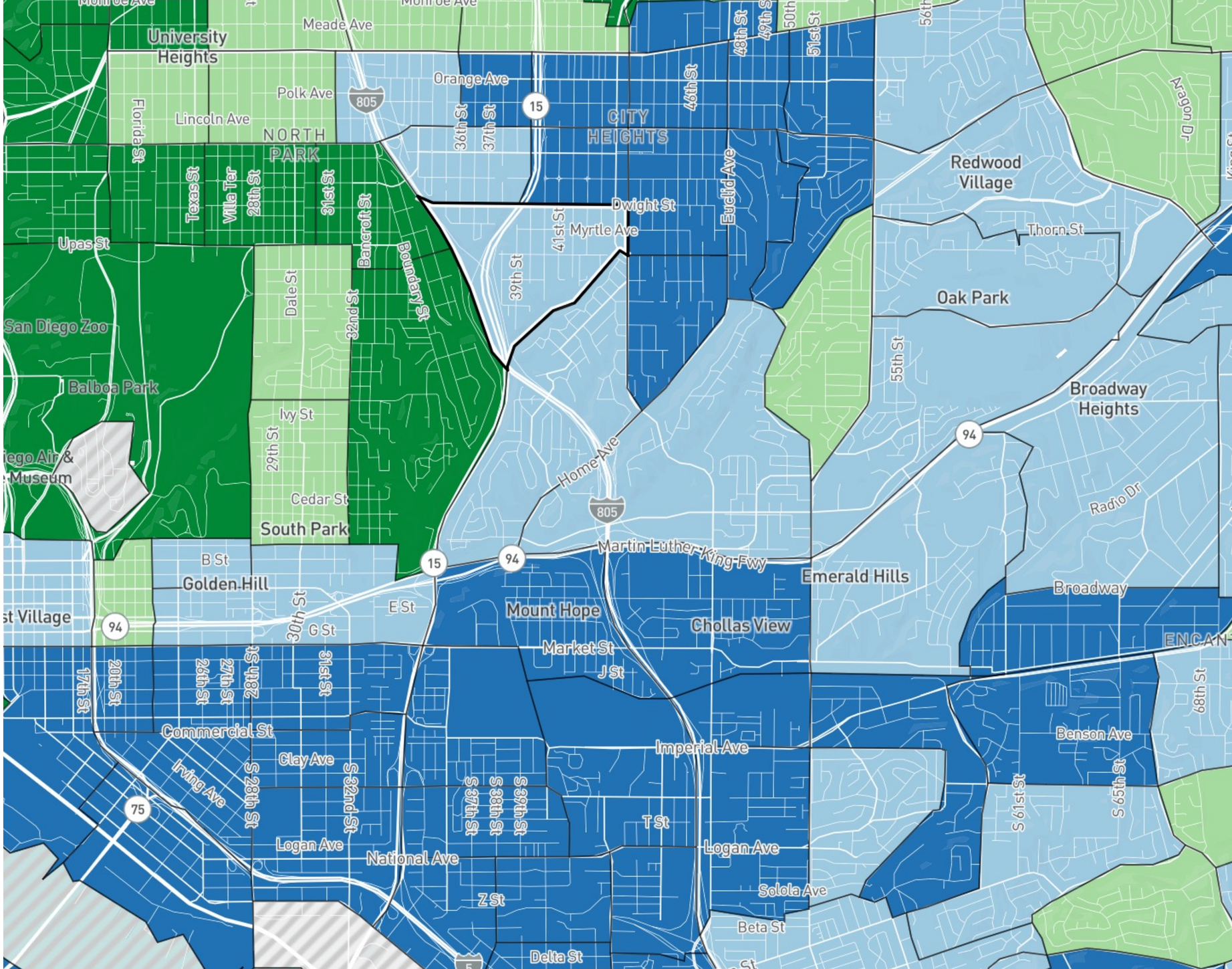
Less → More healthy conditions

This Tract

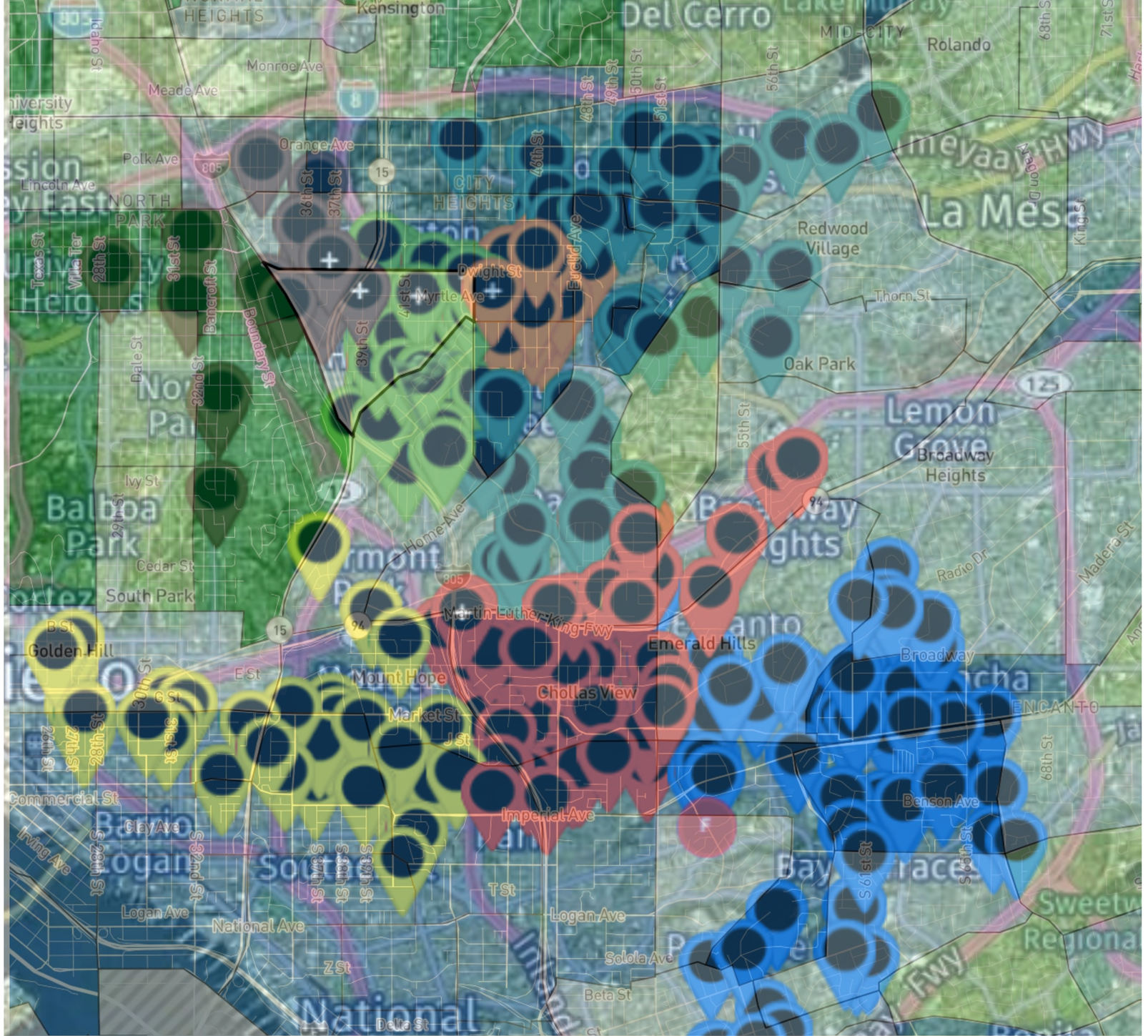
City / Town Avg: 67.7

County Avg: 67.9

This Tract has healthier community conditions than 6.7% of other California Tracts.



Mapping to verify equity impact



Pilot Carbon Farming Program

Project Contacts:

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Project

The County of San Diego Planning & Development Services is developing a Pilot Carbon Farming Program (Program) to help avoid and reduce greenhouse gas emissions through carbon farming efforts in the unincorporated county. The Program, through stakeholder input and best practice research, will identify how the County can best support local agriculture producers in implementing different carbon farming techniques and will result in the development of options for the Board to consider along with the Climate Action Plan Update in 2024.

STRATEGY SUMMARY

- Lead with real, on-farm realities of doing business
- Document carbon sequestration with affordable, farmer-centric methodology
- Link production and distribution to communities that will be most affected by climate change (full spectrum resilience)
- Leverage existing programs & engage TA providers to learn with us so they can teach others

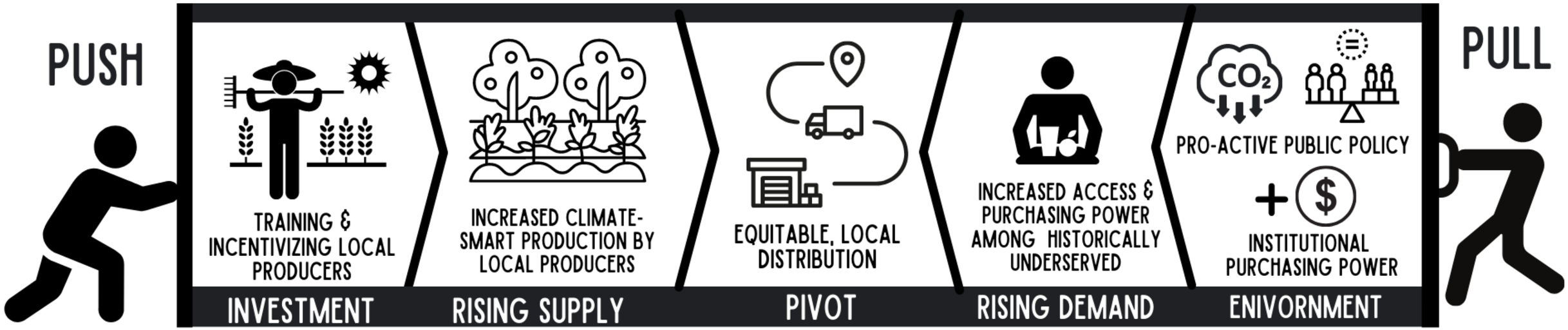
PRIVATE INVESTMENT

- Taking risk to try something new
- Time spent learning and adapting production techniques & training employees
- Dealing with complicated applications & reimbursable expenses
- Purchasing new equipment
- Taking risk to establish equitable market channels
- Mentoring new/beginning/ neighboring farmers

PUBLIC INVESTMENT $$$

- Funding implementation of experimental practices
- Funding technical experts to evolve their climate-adaptation tool box
- Encouraging technical experts to contract with farmers to provide mentorship
- Encouraging public agencies to work together in hubs to improve their customer service
- Valuing and quantifying co-benefits and compensating producers for ongoing social and environmental services

THEORY OF CHANGE



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