

# BAY AREA GREENPRINT

North Bay GIS Day

**Empowering Conservation Action**

March 14, 2018



# BAY AREA GREENPRINT

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AMERICAN FARMLAND TRUST

# What is a greenprint?

Strategic conservation plan or assessment tool that reveals the economic and social benefits that parks, open space, and working lands provide communities.



# The Bay Area



# Problem

- Conservation is not considered early enough in the planning and project development process
- Confusing access to data
- Multi-benefit and landscape-scale planning is uncommon yet desired



*photo by Teri Shore*

# Solution: Bay Area Greenprint

- Incorporate natural resource conservation **early in planning processes**
- Supply planners with a **one-stop shop** for natural resource data and assessments
- Raise awareness about **nature** and its benefits



*photo by Teri Shore*

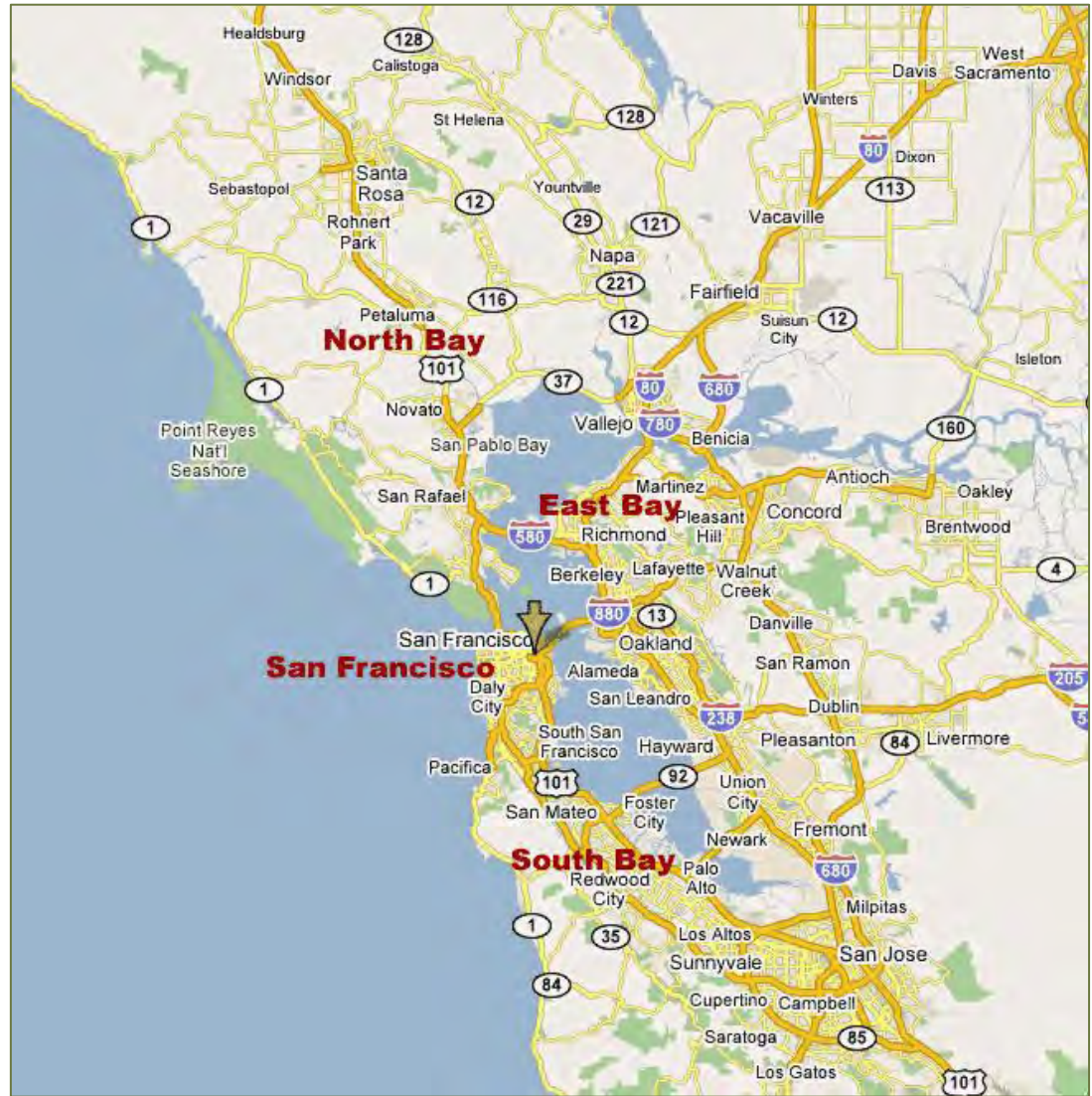
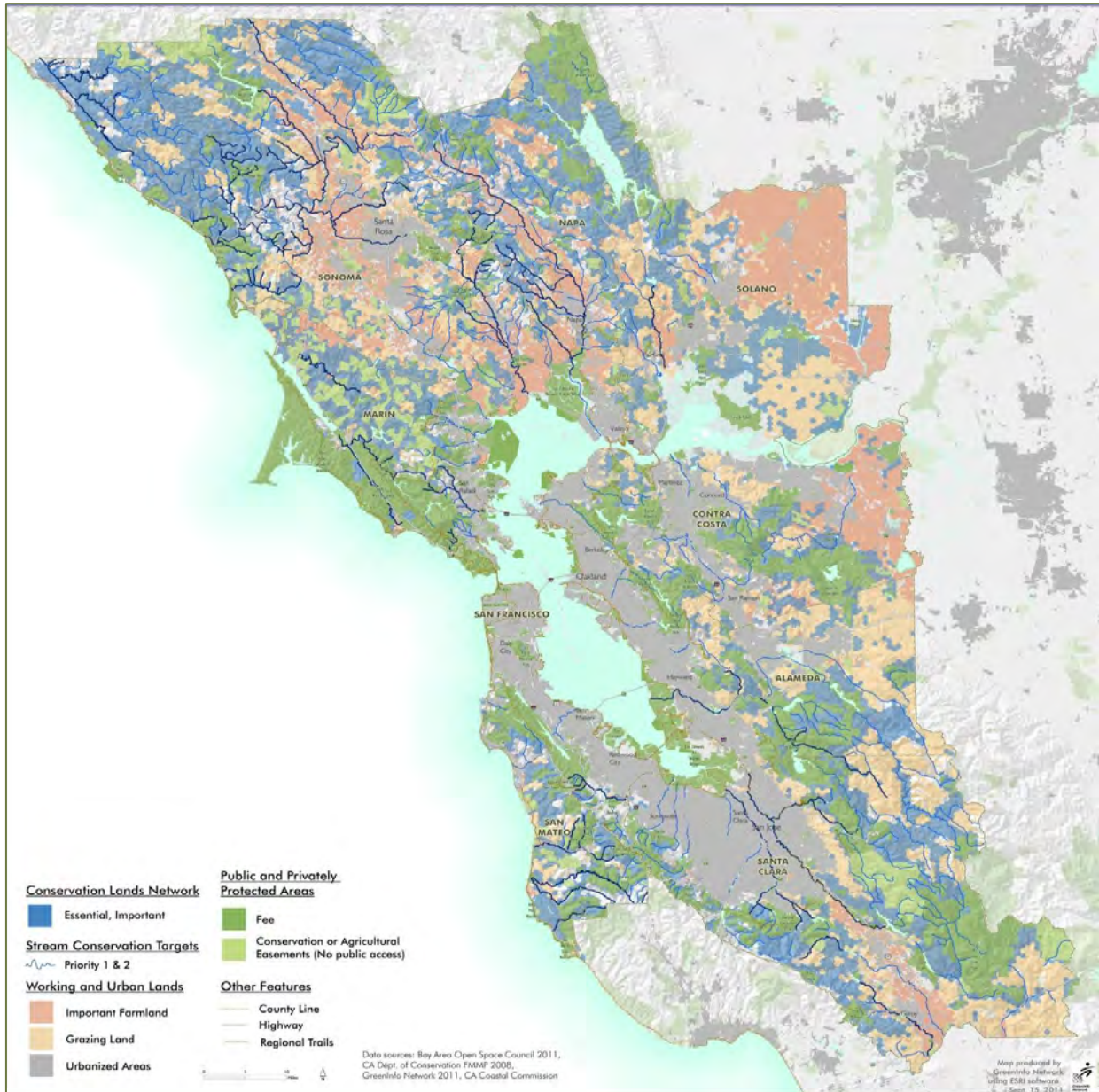
# BAY AREA GREENPRINT

## Goal of the Greenprint

**Sustainable growth and conservation informed land use decisions lead to the protection of natural resources**



*photo by Teri Shore*



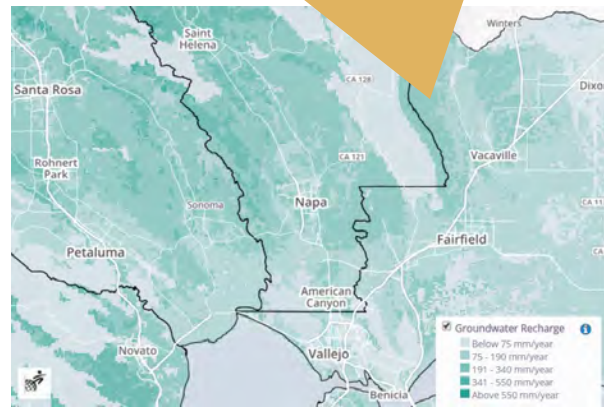
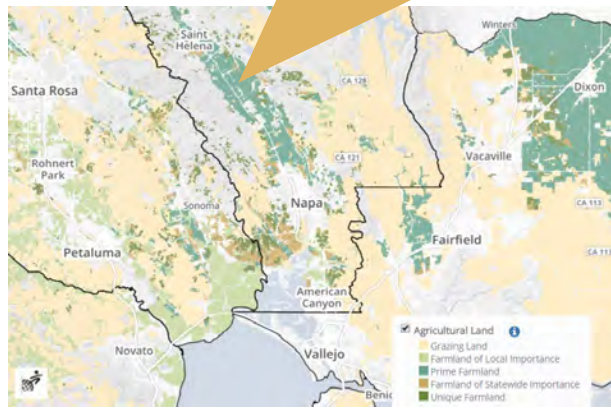


# BAY AREA GREENPRINT

American Farmland Trust



©Rob Badger



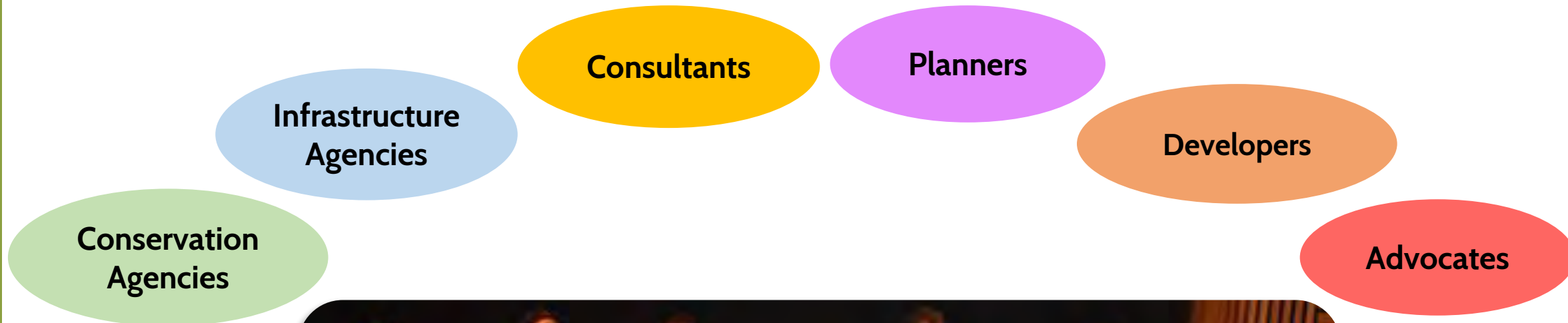
# BAY AREA GREENPRINT

## Reaching our Goal

- Get natural resource data into the right hands **early on**
- Revolutionize **thinking** and **build capacity**
- Keep the data **fresh, useful, linked**
- **Cited** and referenced
- **Bookmarked** on every planner's browser

# BAY AREA GREENPRINT

## Who is using the greenprint?



# BAY AREA GREENPRINT

## Strategic Advisors Group



Terrell Watt Planning Consultants



Nichols · Berman  
Environmental Planning



# BAY AREA GREENPRINT

## Science & Methods Committee

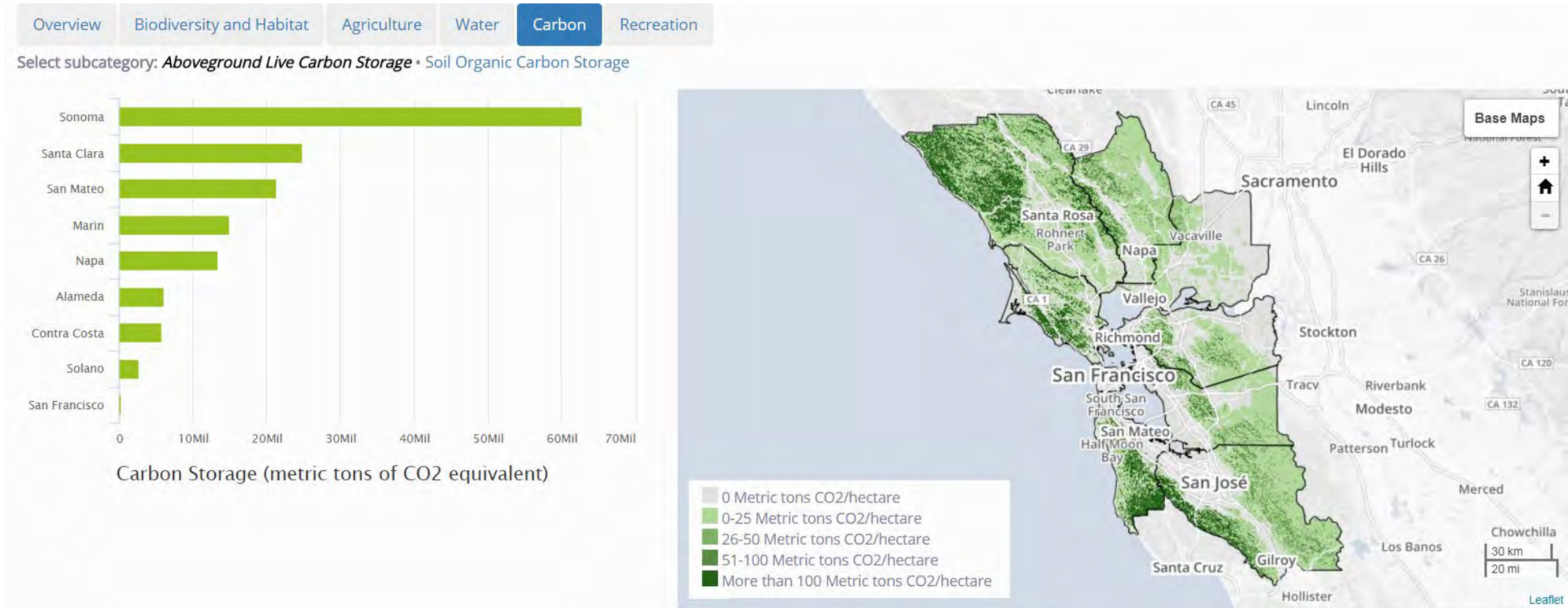


# BAY AREA GREENPRINT

**How this Greenprint is unique**

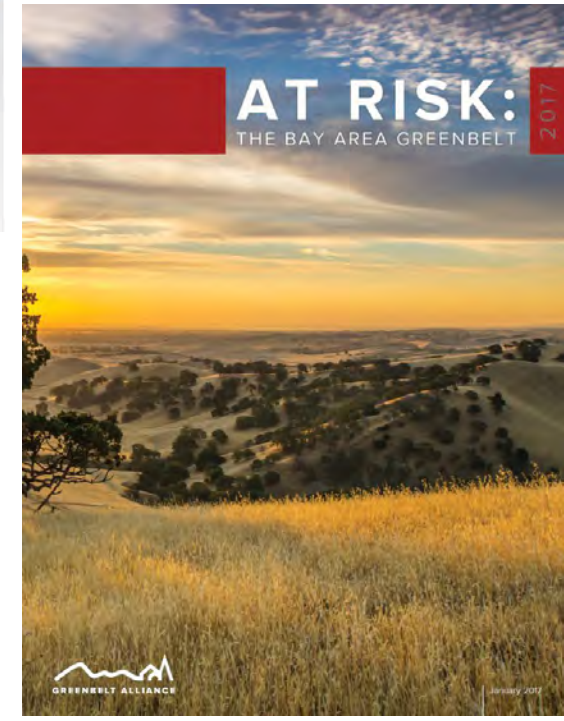
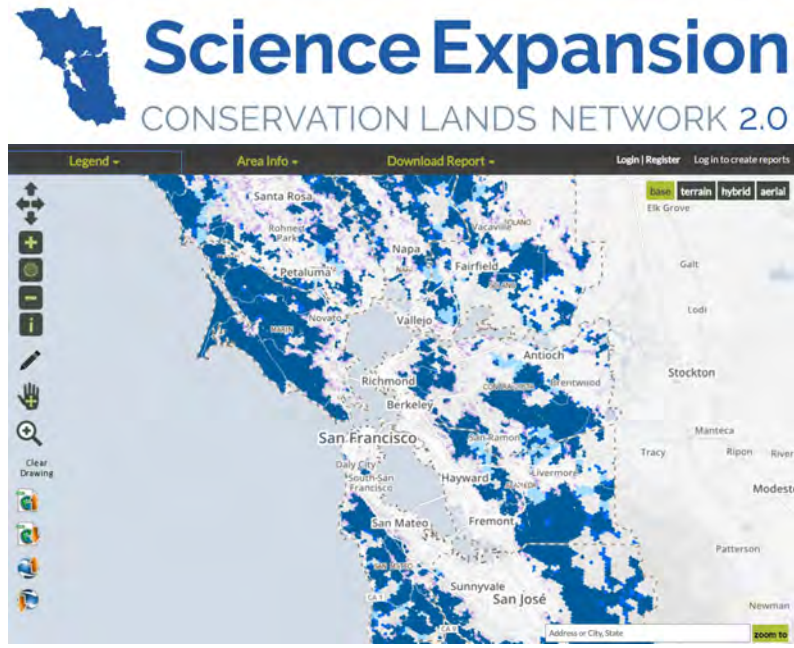
# BAY AREA GREENPRINT

## “Wall-to-wall”



# BAY AREA GREENPRINT

## “Living” Data Sources





# Nature's Values and Benefits

BAY AREA GREENPRINT



FOOD PRODUCTION



CARBON STORAGE



OUTDOOR RECREATION



WATER YIELD



WATER QUALITY



WATER HAZARD REDUCTION



COMPENSATORY MITIGATION

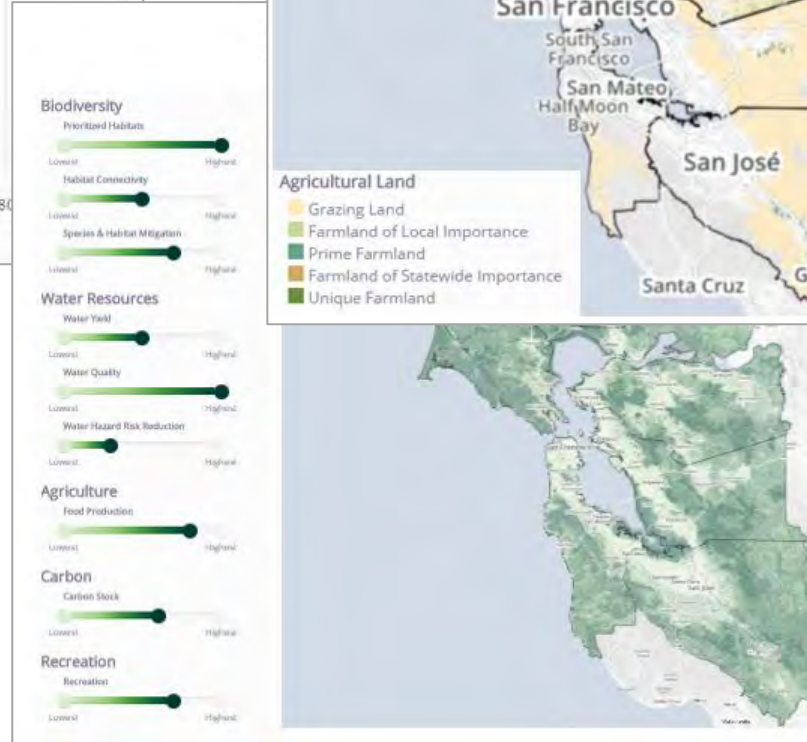
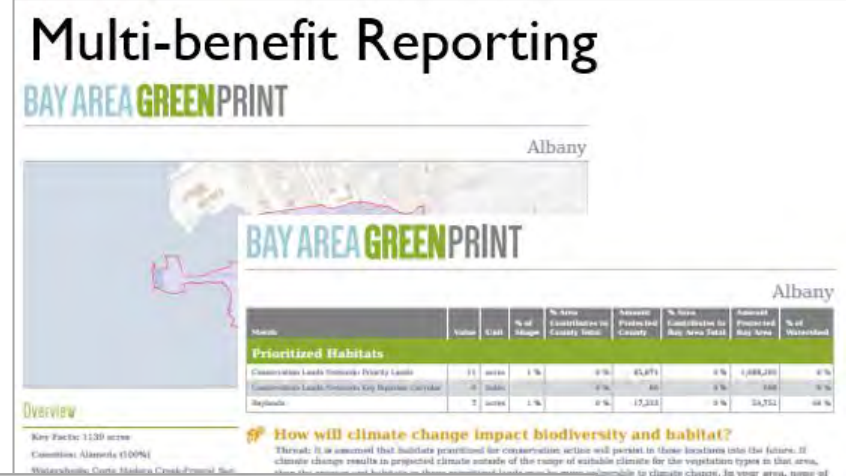
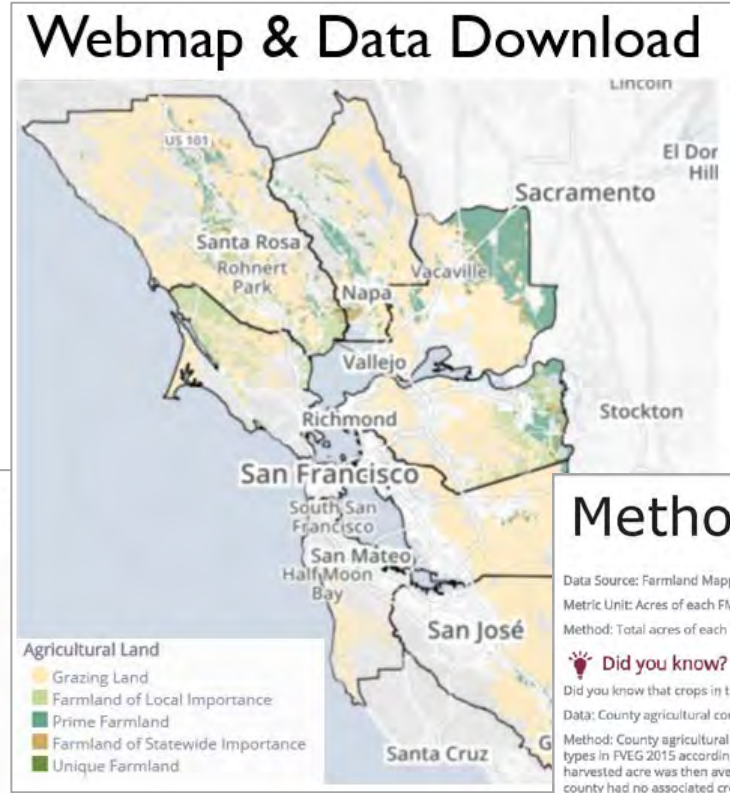
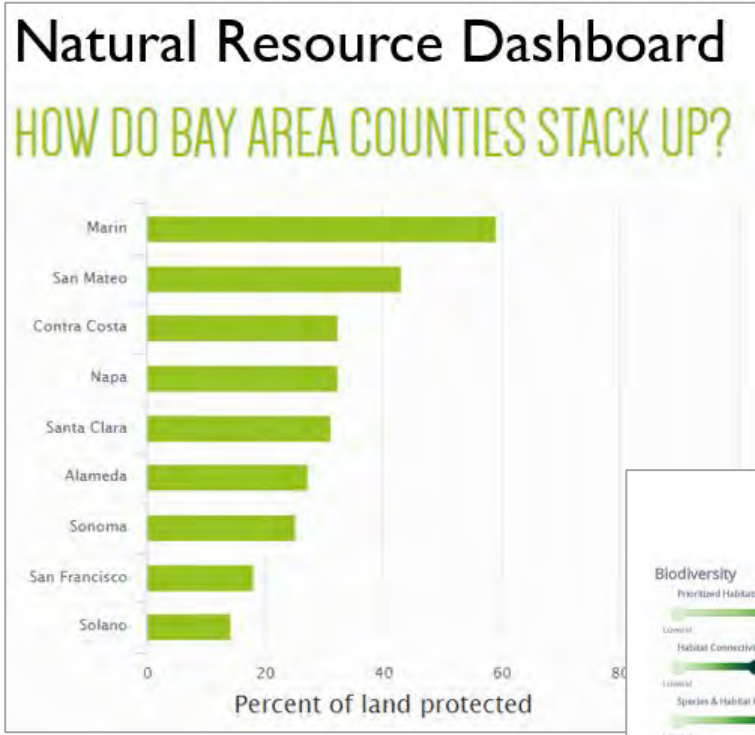


PRIORITIZED HABITATS



HABITAT CONNECTIVITY

# How can I access information in the Greenprint?



### Methods & Glossary

Data Source: Farmland Mapping and Monitoring Program (FMMP).  
 Metric Unit: Acres of each FMMP category.  
 Method: Total acres of each FMMP category were summed for an area of interest.

**Did you know?**  
 Did you know that crops in this area are worth as much as \$300,000?  
 Data: County agricultural commissioner data cross-walked to and summarized by FVEG 2015 agricultural types.  
 Method: County agricultural commissioner crop types were cross-walked to the agriculture California Wildlife Habitat Relationship (CWHR) types in FVEG 2015 according to CWHR type descriptions. These cross-walk relationships are listed in this table. The production value per harvested acre was then averaged across crop types associated with each CWHR agricultural type within each county. If a CWHR type in a county had no associated crop production value in the county crop report, a statewide average production value was used for that CWHR type. Value per acre was then converted to total dollar value per 30m grid cell (equation 1).

$$x \frac{\text{dollars}}{\text{acre}} \times \frac{1 \text{ acre}}{4046.86\text{m}^2} \times \frac{900\text{m}^2}{\text{gridcell}} = \text{dollar value per 30m grid cell}$$

Equation 1. Conversion of agricultural type value per acre to total production value of each grid cell

Production value was then summed across the area of interest.

**How will climate change impact food production?**  
 Threats to food production in a changing climate  
 A warmer and/or drier climate may require additional irrigation to maintain the same crop in the same location.  
 Metric: Acre-feet of additional irrigation needed to offset climate change.  
 Data: Delta Climate Water Deficit (CWD) (USGS 2014) in locations where CWD is expected to increase. CWD quantifies evaporative demand exceeding available soil moisture and is measured in mm/yr. Projected increases in CWD in agricultural areas will indicate the additional water that may be needed at a given location to maintain status quo in terms of agricultural production.  
 Method: Global Circulation Models (GCM) project future climate conditions based on greenhouse gas concentrations and oceanic

Irrigated cropland in Napa County. Photo by Craig Camp, CC BY, Flickr.

# BAY AREA GREENPRINT

Does this matter?

How much  
prime farmland?

68,000 acres



Is that a lot? More than **half** of the county's prime farmland

Is farmland  
already protected?

Only **2.5%** of the county's  
prime farmland is protected



## Did you know?

There are observations of **rare or protected species** in your area of interest

The **value of crops** in this area are worth as much as \$550,000

The groundwater recharge potential in this area is equivalent to the annual water use for 36,368 households

Your area is part of a municipal **drinking water supply** watershed

# BAY AREA GREENPRINT



## How will climate change impact nature's values and benefits?

### Threat

How is each resource threatened by climate change?



### Opportunity

What opportunities exist to protect these resources given a changing climate?



# BAY AREA GREENPRINT



## How will climate change impact food production?

**Threat:** A warmer and/or drier climate may require additional irrigation to maintain the same crop in the same location.



**Opportunity:** Growers in the Bay Area are particularly innovative and adaptable to changing conditions. Even in the recent drought, many agricultural lands in the Bay Area still supported crops.

# BAY AREA GREENPRINT



## What policies protect nature's values and benefits?

FOOD  
PRODUCTION



WATER  
QUALITY



BIODIVERSITY &  
HABITAT



OUTDOOR  
RECREATION

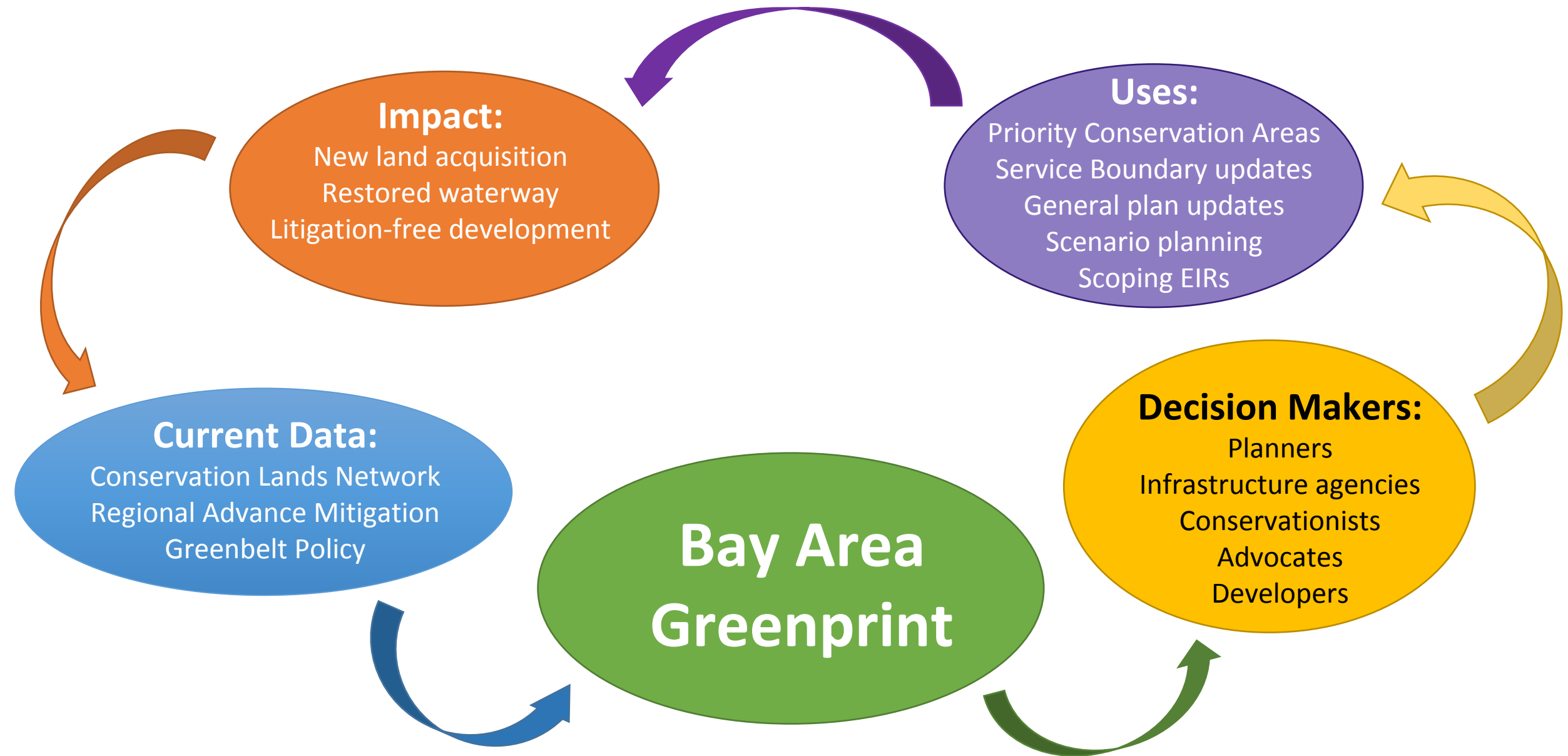


OPEN SPACE



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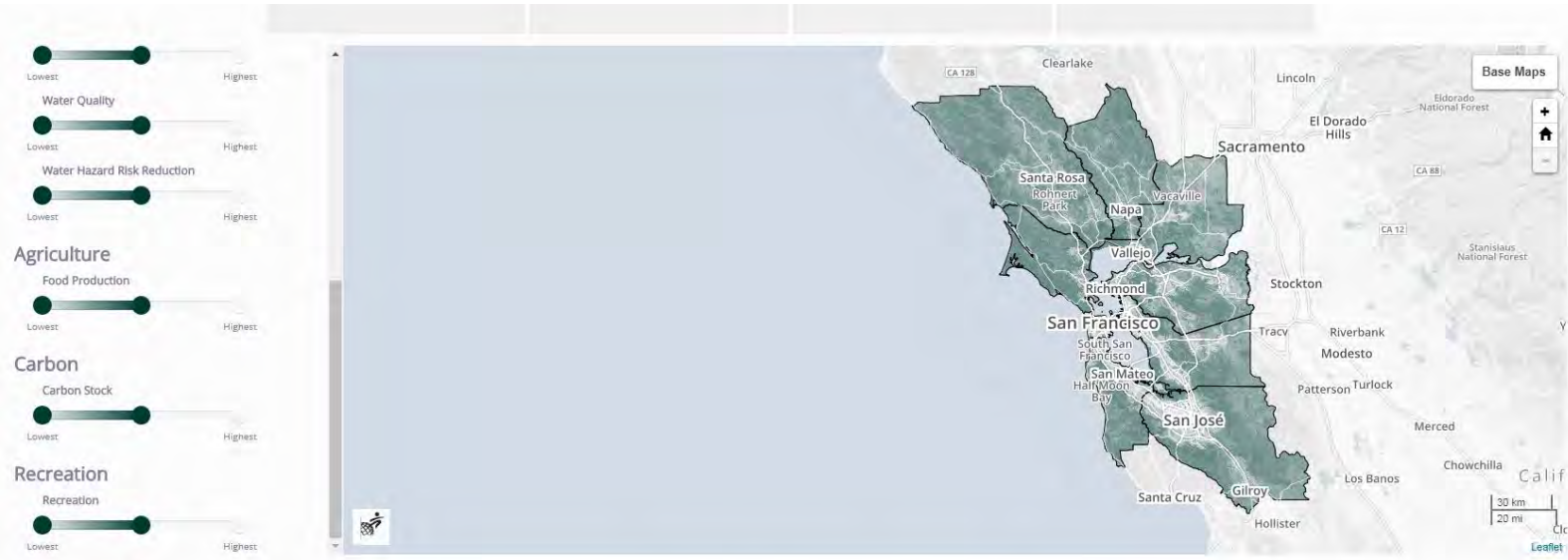
“Life Cycle”





# BAY AREA GREENPRINT

# Send us Feedback



BAY AREA GREENPRINT

**What is the Bay Area Greenprint?**  
The Bay Area Greenprint brings together a wide range of data to help you discover and highlight many potential benefits from the non-built environment, across a range of themes: Biodiversity & Habitat, Agriculture, Water, Carbon, and Recreation.  
[More about data and methods →](#)

**Who created the Bay Area Greenprint?**  
The Bay Area Greenprint is a collaboration of [The Nature Conservancy](#), [Bay Area Open Space Council](#), [American Farmland Trust](#), [Greenbelt Alliance](#), and [GreenInfo Network](#). Funding provided by the [S.D. Bechtel, Jr. Foundation](#).  
[More about the Greenprint →](#)

Maintained by: GreenInfo Network, 510.350.8700, [www.greeninfo.org](http://www.greeninfo.org)

[Send us feedback](#)

## Bay Area Greenprint Feedback Form

Thanks for trying out the Bay Area Greenprint website at [bayareagreenprint.org](http://bayareagreenprint.org). Since this is a new and complex system, we're sure there are quirks and things we need to improve, so we'd be thrilled to get your feedback!

Which feature are you commenting on? (check all that apply)

- Home page
- Dashboard
- Web map
- Report generator or report
- Glossary, methods, and documentation
- Other: \_\_\_\_\_

What would you like us to know?

Your answer \_\_\_\_\_

What browser are you using?

- Chrome on PC
- Firefox on PC

# BayAreaGreenprint.org

## Case Studies

- ~ **Scoping EIR** → Vacaville UGB-City Limit Gap
- ~ **General Plan Update** → Pick a City/County
- ~ **Scenario Planning & Measuring Impact** →  
Community Separators

# BAY AREA GREENPRINT

## Sonoma County Community Separator

## Expansion in 2017 from Measure K

## Results

	<u>1998 extent</u>		<u>2017 extent</u>
How much land is policy protected?	17,147 acres	3.1x larger	53,868 acres
Priority Conservation Lands Network	6,193 acres	+12,798 acres	18,991 acres
Agricultural value affected	\$25m	4.2x more	\$106m
Baylands	2 acres	+2,930 acres	2,932 acres <small>42% of county's baylands</small>
Prime Farmland	1,883 acres	4x more	7,503 acres
100-Year Floodplain	1,388 acres	+10,254 acres	11,642 acres <small>19% of county's floodplain</small>

# Discussion

**Stay in touch**  
**[info@bayareagreenprint.org](mailto:info@bayareagreenprint.org)**  
**BayAreaGreenprint.org**

**In appreciation:**

 **S. D. BECHTEL, JR.**  
**FOUNDATION**  
STEPHEN BECHTEL FUND