

CONTRA COSTA COUNTY

RENEWABLE RESOURCE POTENTIAL STUDY

Stakeholder Meeting #2

July 25, 2018

Today's Meeting

- Review background on development of Renewable Resource Potential Study
- Updates on:
 - Resource Potential Assessment
 - Zoning Consideration
- Input from stakeholders on Study direction



Study Purpose

- Assess potential for expanding renewable energy generation in Contra Costa County, thereby contributing to **state, County, and city** sustainability goals
- Assess locations/regions for renewable energy development and estimate capacity to generate more power as well as rough relative costs
- Assess tradeoffs and long-term planning considerations in siting renewables
- Assess policy approaches that could result in more renewables



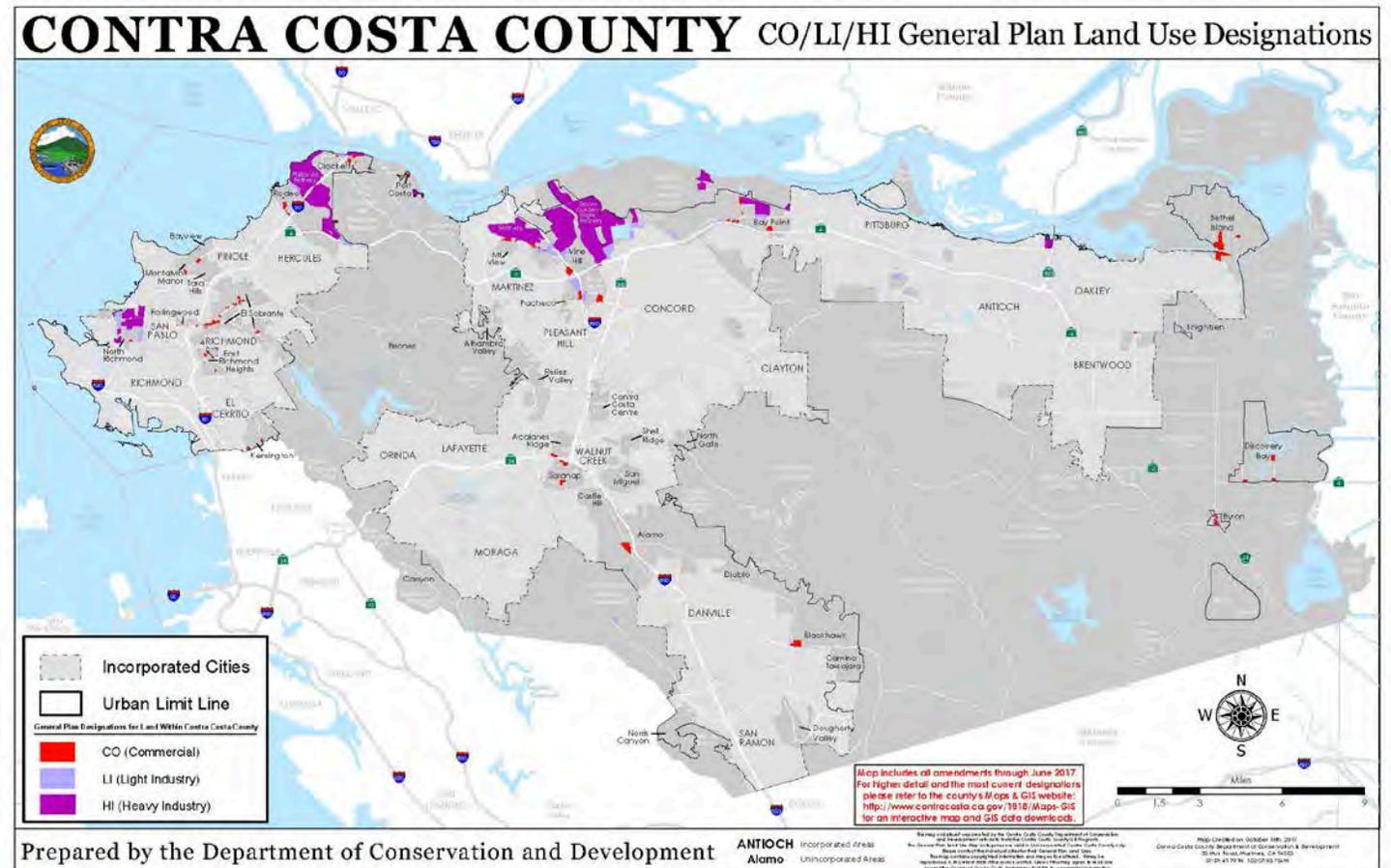
Resources Being Studied

- Solar
 - Rooftop
 - Ground-mounted
- Wind
- Biomass
 - California Energy Commission definition: Biomass consists of organic residues from plants and animals which are obtained primarily from harvesting and processing of agricultural and forestry crops.” In this presentation we use “biomass” as shorthand for biomass electricity generation through combustion.
- Biogas
 - Senate Bill 1043 definition: Biogas means gas that is produced from organic waste through anaerobic digestion or eligible noncombustion thermal conversion technologies.” In this presentation we presume that biogas will be processed and burned for electricity generation.



Commercial Installations

Board of Supervisors in December 2017 adopted a requirement for conditional use permits for larger solar systems on commercial buildings and warehouses that would sell excess energy commercially.



July 25, 2018



Community Energy

- Study will identify opportunities for community energy projects in Bay Point, Rodeo, North Richmond
- County will work with communities to assess interest, develop opportunities



Timeline

	April '18	May '18	June '18	July '18	Aug '18	Sept '18	Oct '18	Nov 18 →
Quantification	Active	Active	Active	Active	Completed	Completed	Completed	Completed
Planning & Zoning	Completed	Completed	Completed	Active	Active	Completed	Completed	Completed
Reporting	Completed	Completed	Completed	Completed	Completed	Active	Active	Completed
Community Energy Outreach	Completed	Active						
Stakeholder Meetings	Completed	Active	Completed	Active	Completed	Active	Completed	Completed



Questions? Comments?

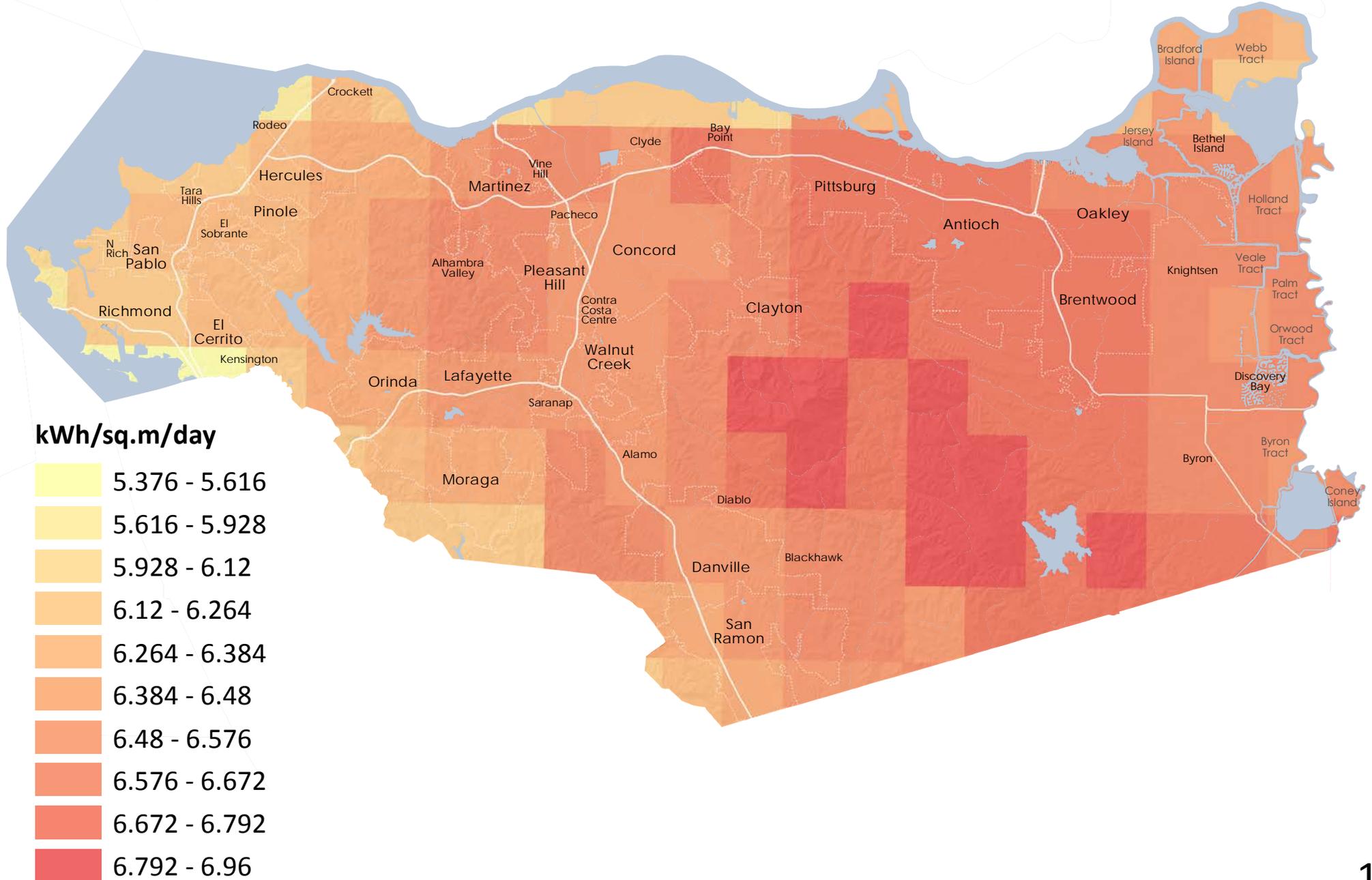
Jody London
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Thank you!



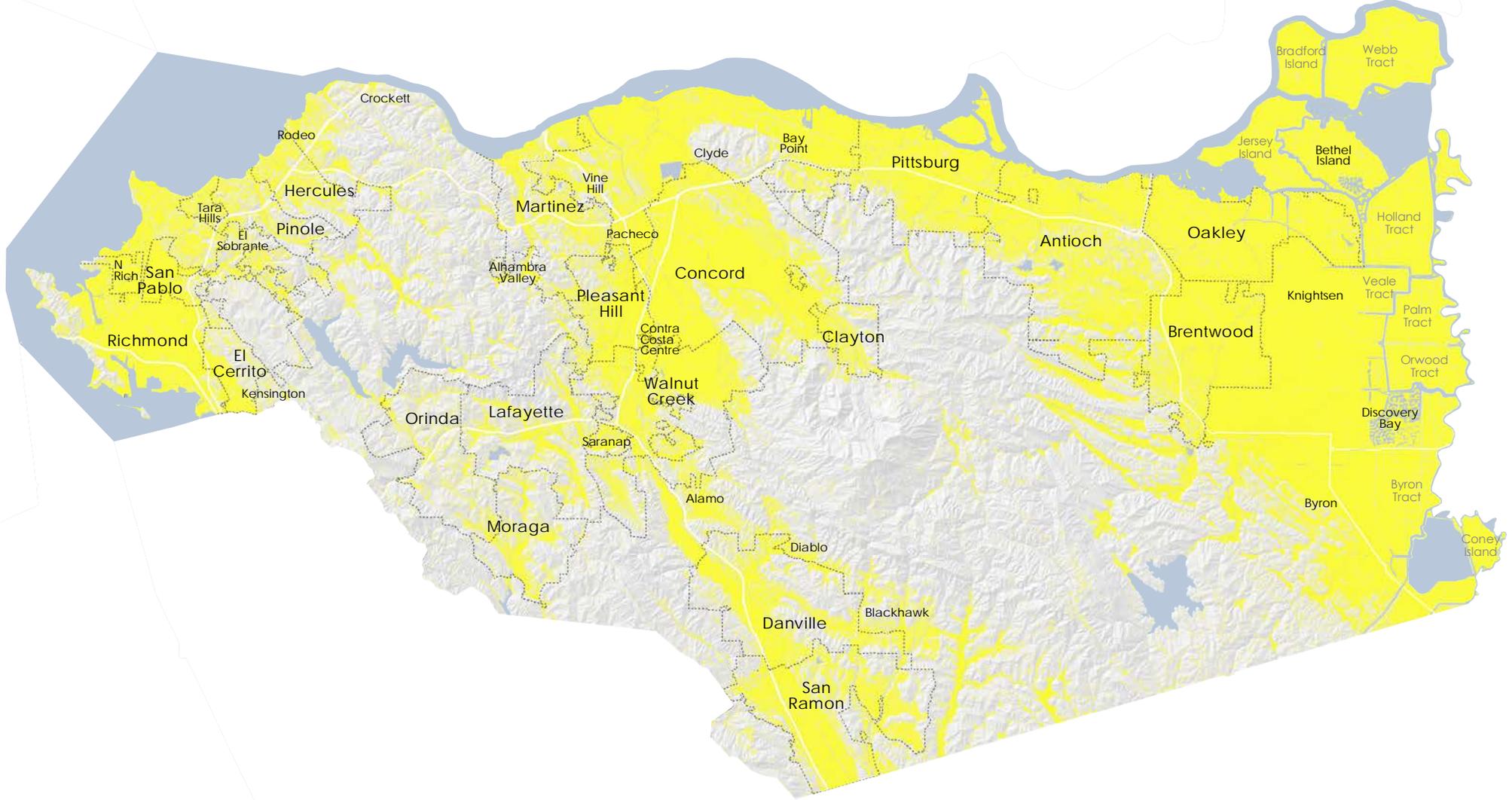
OPPORTUNITY

Multi Year Physical Solar Model (PSM) Direct Normal Irradiance (dni)



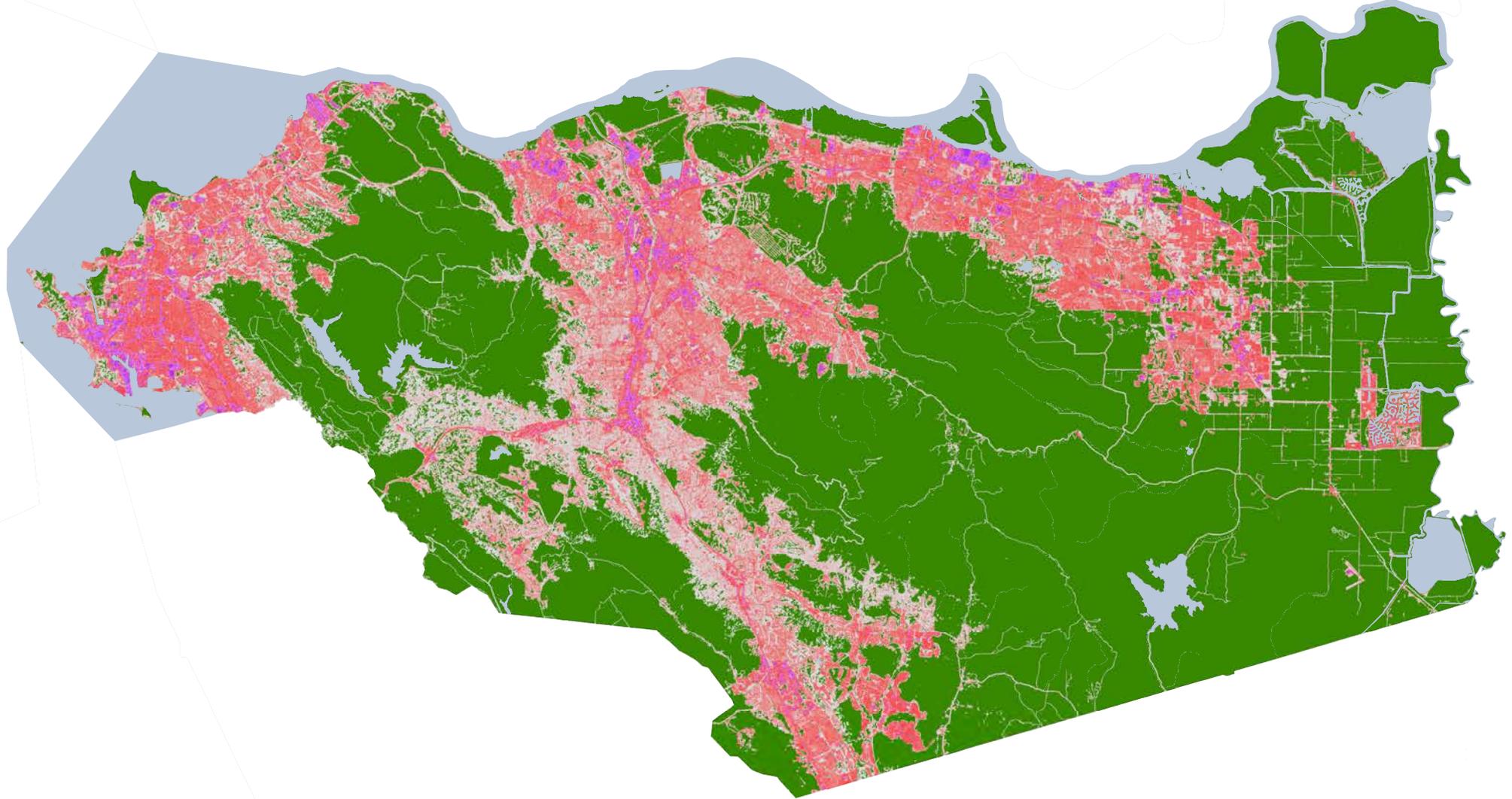
OPPORTUNITY

Slopes less than 10%



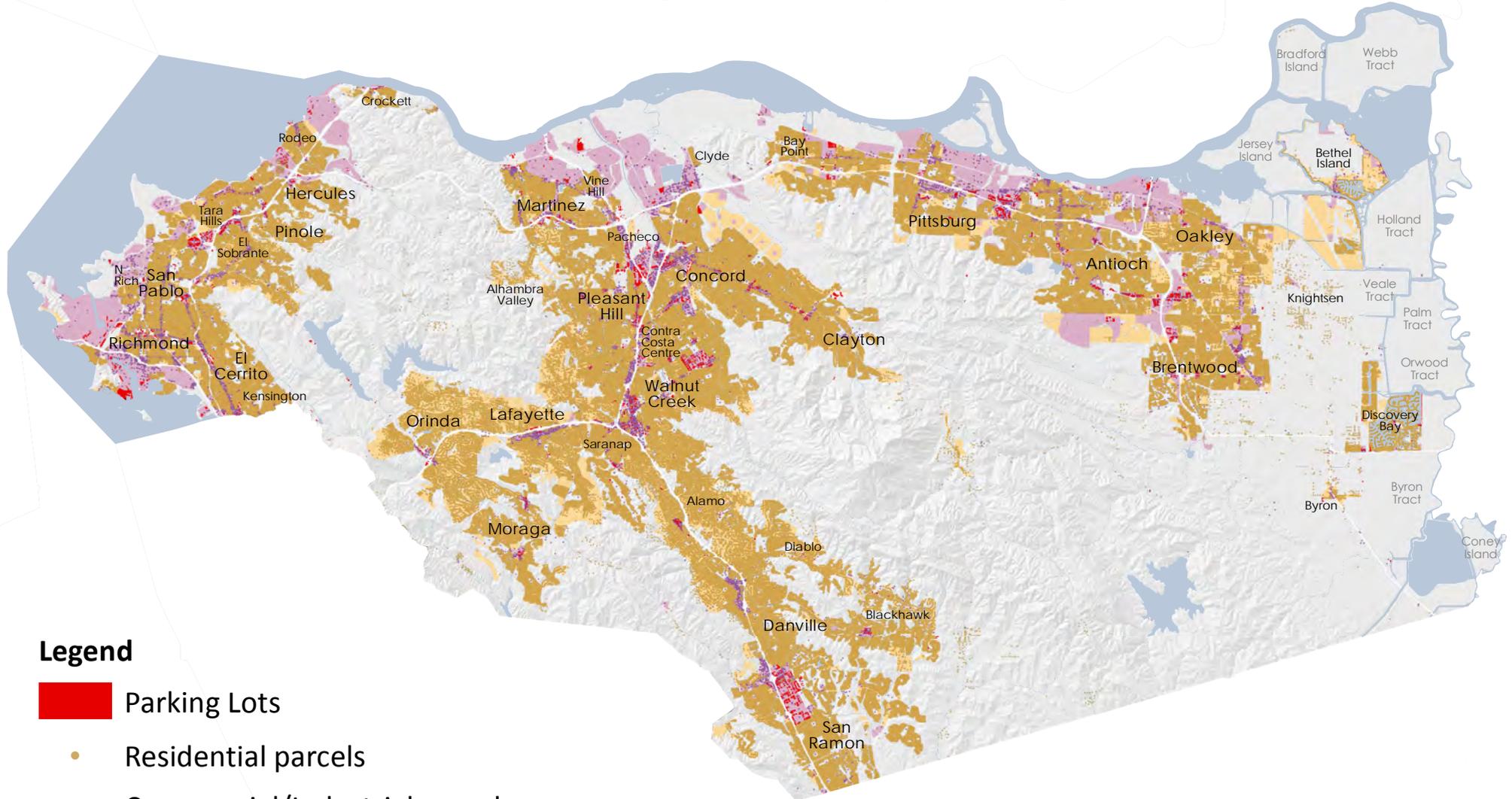
OPPORTUNITY

Multi-Resolution Land Characteristics (MRLC) National Land Cover Database (NLCD) Impervious Surfaces



OPPORTUNITY

Residential or Commercial/Industrial Land Use Designations - Rooftops and Parking Lots



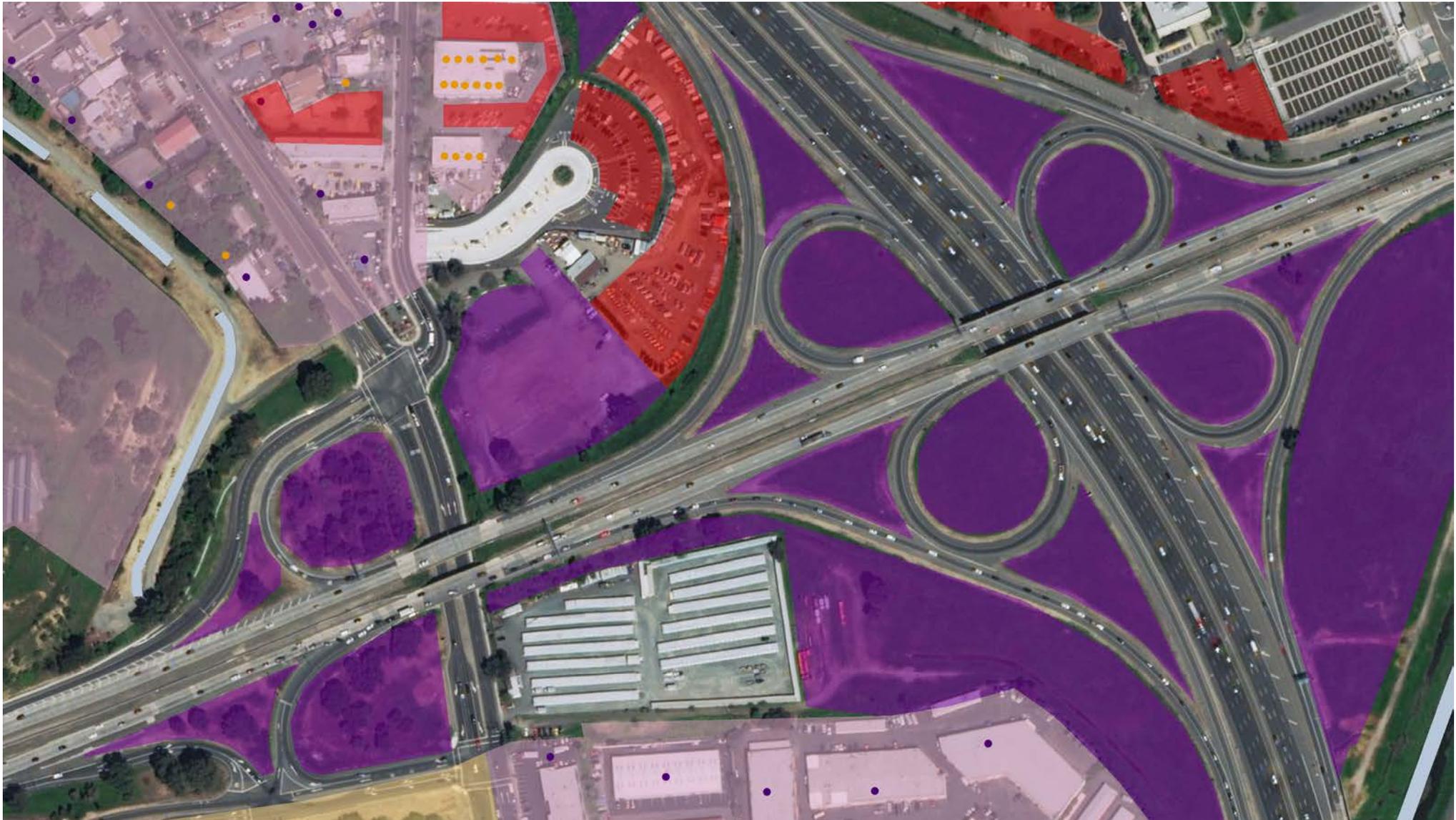
Legend

- Parking Lots
- Residential parcels
- Commercial/Industrial parcels
- Residential Designation
- Commercial/Industrial Designation

OPPORTUNITY

Residential or Commercial/Industrial Land Use Designations - Rooftops and Parking Lots

Land with limited development potential for jobs or housing, theoretically suitable for solar installations

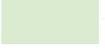
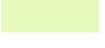


CONSTRAINTS

Parks and Open Space

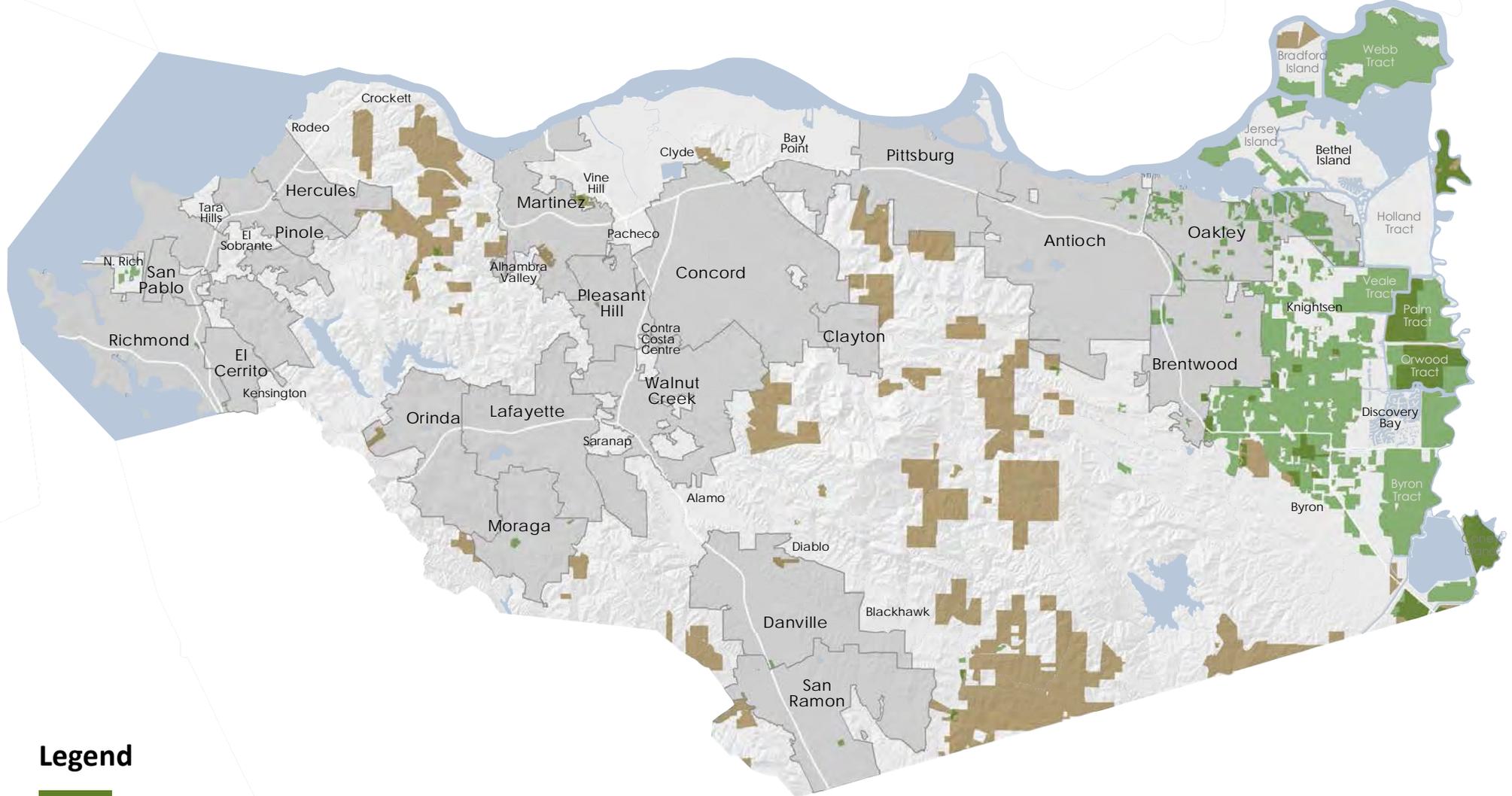


Legend

-  Regional Parks
-  Water District Watershed Lands
-  Conservation/Agricultural Easements (and other protected lands)
-  Publicly Owned Open Space

CONSTRAINTS

Important and Restricted Agricultural Lands

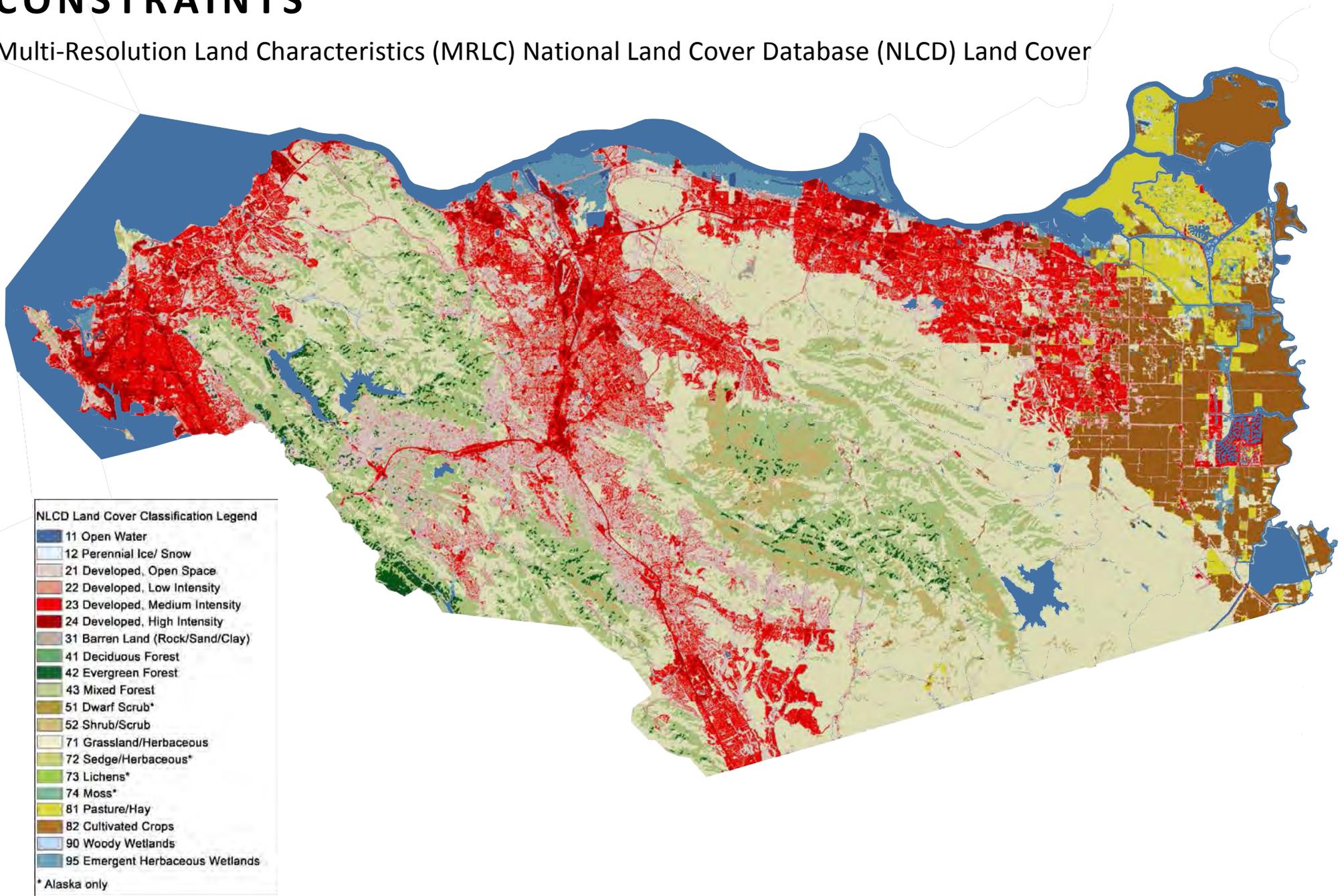


Legend

-  Both
-  Farmland Mapping & Monitoring Program (FMMP) - 2014 Prime, Unique & Farmland of Statewide Importance
-  Williamson Act - Agricultural Preserves

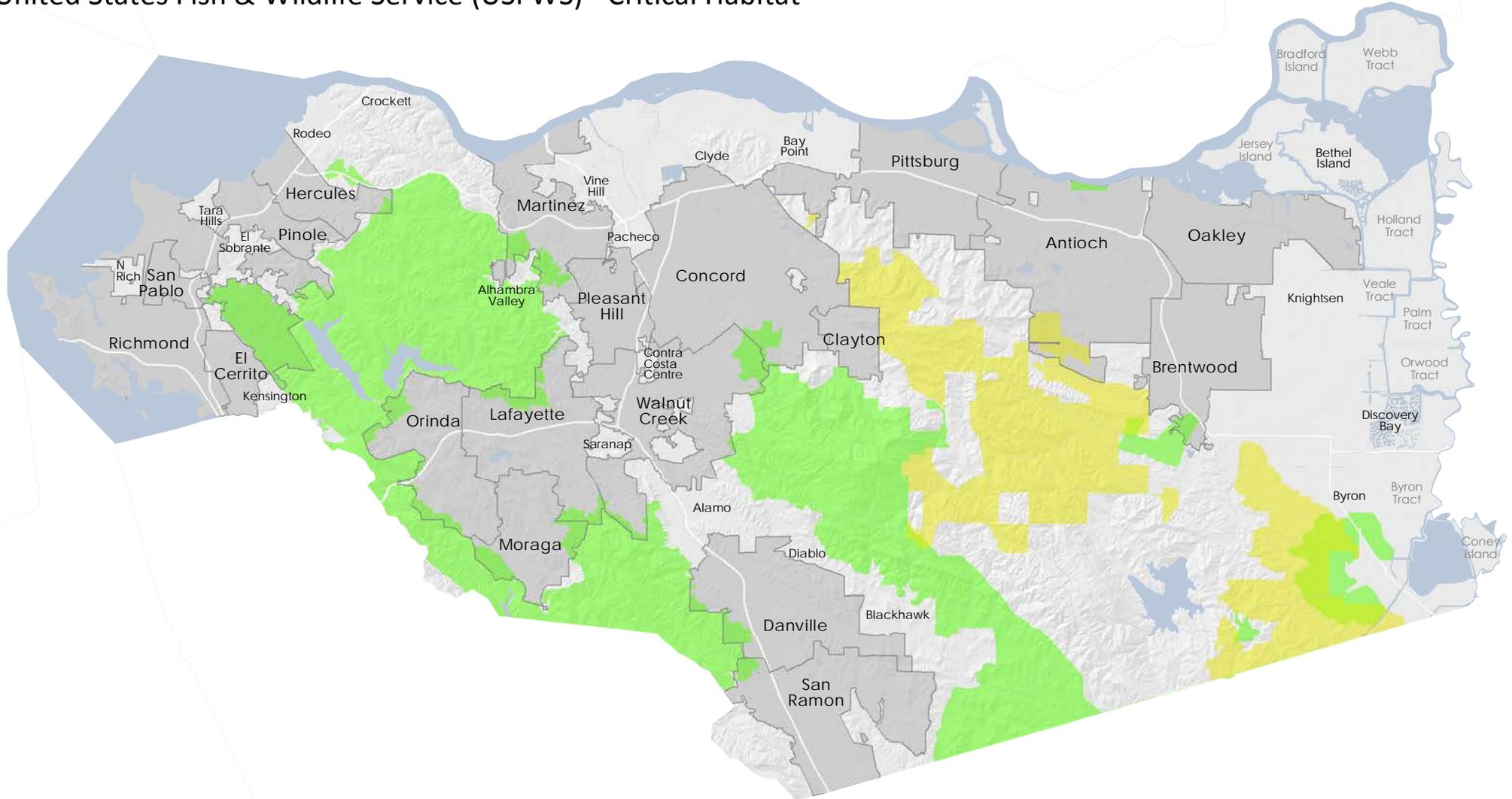
CONSTRAINTS

Multi-Resolution Land Characteristics (MRLC) National Land Cover Database (NLCD) Land Cover



CONSTRAINTS

East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP)
United States Fish & Wildlife Service (USFWS) - Critical Habitat

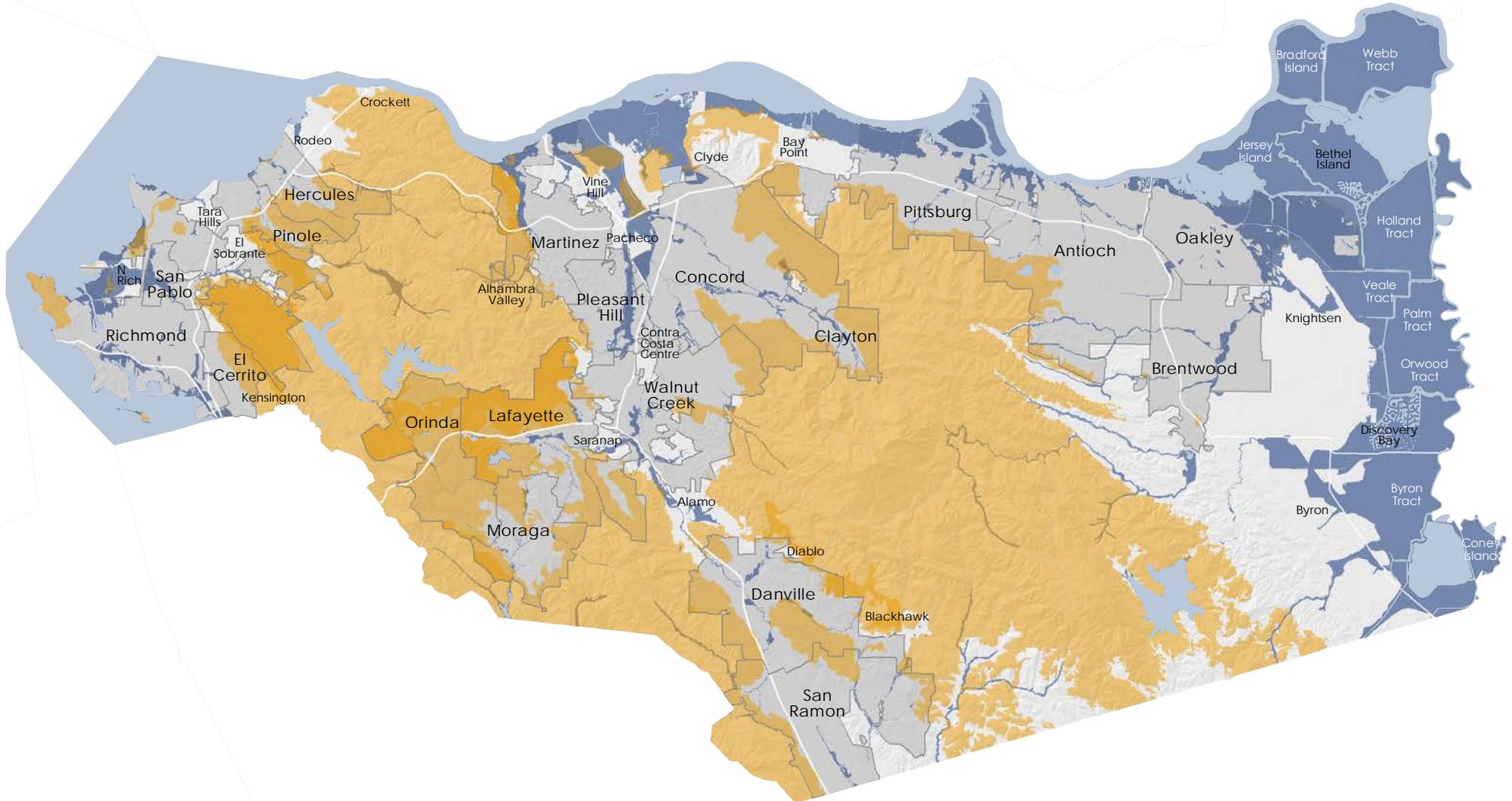


Legend

-  USFWS - Threatened & Endangered Species Active Critical Habitat
-  HCP/NCCP - Priority Acquisition Analysis Zones

CONSTRAINTS

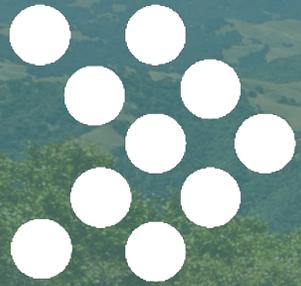
Fire Hazard and Flood Hazard



Legend

 CalFire - Fire Hazard Severity Zones (High & Very High)

 Federal Emergency Management Administration (FEMA) - Flood Hazard Zones



CONTRA COSTA COUNTY | RENEWABLE RESOURCE POTENTIAL STUDY PROJECT UPDATE



Philip Kreycik
July 25, 2018



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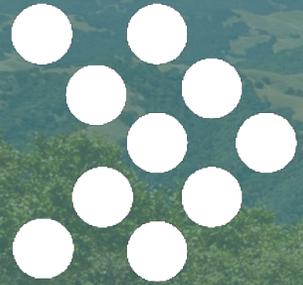
Planning and Zoning Research

- » County and municipal ordinances
- » County general plans
- » County energy plans
- » State and expert guidance documents and best practices
- » Data on CA county renewable deployment

Looking for examples from counties that face significant development pressure and that are careful to preserve habitat, farmland, and open space resources.

Specific counties examined: **Alameda, Marin, Sonoma, Solano, San Joaquin**

Additional counties in review: Imperial, Kern, Kings, LA, Madera, Riverside, Shasta, Tulare, Yuba



WIND PLANNING AND ZONING

Presentation by the
MCG Project Team

July 25, 2018



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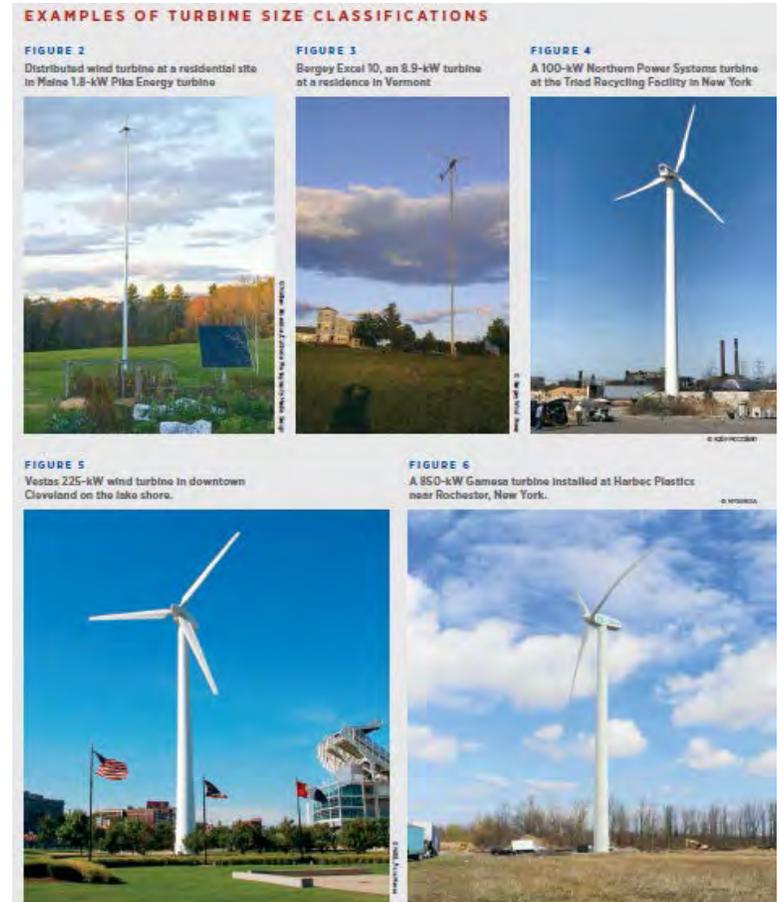
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Example planning concerns for wind

- » Small wind (stand-alone or building-mounted)
 - › Noise
 - › Flicker and glare
 - › Vibration
 - › Localized bird and wildlife issues
 - › Aesthetics
 - › Other
- » Large wind
 - › Noise
 - › Flicker and glare
 - › Site security
 - › Birds & wildlife
 - › Structural and setbacks
 - › Aesthetics
 - › Decommissioning
 - › Other

Wind Zoning: Resources

- » U.S. Dept of Energy WINDEXchange – library of zoning resources on small and large wind
- » Nat'l Assoc. of Regulatory Utility Commissioners
 - › Structural safety concerns that drive setbacks are often excessive (1.5x height maximum)
 - › Mitigation funds should be established in escrow to cover concerns such as liability, decommissioning, habitat mitigation, and noise/flicker complaints
 - › Exclusion zones in collaboration with state & federal wildlife agencies
- » Clean Energy States Alliance (CESA)
 - › 2017 report includes a model zoning ordinance



Source: CESA

Wind Zoning: Contra Costa Chapter 88-3

Example provisions:

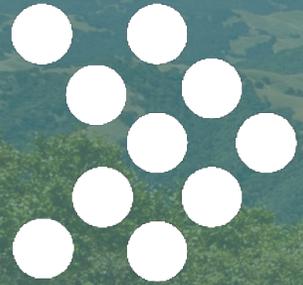
- » Land use permit required if commercial (>50kW)
- » Commercial systems only permitted in agricultural districts
- » Setback requirement – 3x machine height or 500 feet, whichever greater
- » Building permit required if residential
- » Lower decibel limit for residential (<60dB)
- » Decommissioning plans are important - financial surety, reclamation plan, etc.



Wind Zoning: Small Wind – CA examples

» Sonoma

- › Explicitly exempts small accessory wind from Special Use Permits and associated development standards: “...systems that are attached to a wall, roof or structural member of a legally established building”



BIOENERGY PLANNING AND ZONING

Presentation by the
MCG Project Team

July 25, 2018



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Example planning concerns for bioenergy

» Biomass

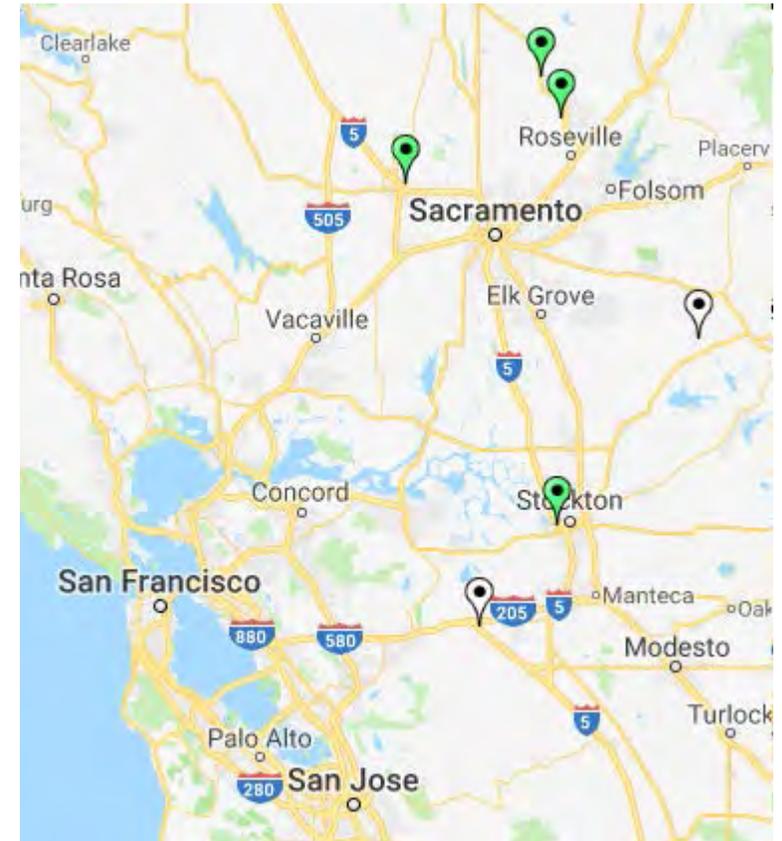
- › Air pollution & emissions (primarily particulates, also other criteria pollutants)
- › Traffic/transportation of feedstocks
- › Aesthetics
- › Is it carbon neutral?
- › Other

» Biogas

- › Air pollution & emissions (depending on if simply includes production or also combustion)
- › Traffic/transportation of feedstocks
- › Storage of slurries
- › Aesthetics
- › Use of residuals/byproducts
- › Odors
- › Other

Bioenergy Zoning: Biomass

- » Economics are causing more plants to idle and/or shut down
- » Currently less than half the facilities in the state still operate
- » Discussions could revolve around how biomass could be sent to an existing site
 - › Plant in Tracy is idled
 - › Plant in Stockton is operating



Source: CA Biomass Energy Alliance

Bioenergy Zoning: Biogas

» Existing sites

- › What is the **incremental** nuisance associated with harvesting biogas from sites that are already collecting waste?
 - › E.g. Wastewater treatment plants, landfills, farm-based anaerobic digestion
 - Drill methane wells, add digesters on the facility

» New sites

- » All likely require CA Air Resources Board (CARB) review

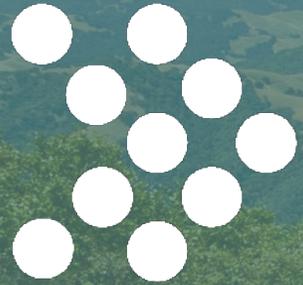
Bioenergy Zoning: Resources

- » SB1383 – “Short-Lived Climate Pollutants (SLCP): Organic Waste Methane Emissions Reductions”
- » CARB – “Air Quality Guidance for Siting Biorefineries in California”
- » Stoel Rives LLP – “Law of Biomass”
 - › California Energy Commission approval for projects greater than 50MW

Bioenergy Zoning: CA examples

» Sonoma

- › Commercial bioenergy (producing >125% of on-site energy demand)
 - › Conditional Use Permit process for most agriculture, resource, commercial, and industrial zones
 - › Not Prime Farmland, Farmland of Statewide Importance, or Unique Farmland
- › Accessory bioenergy (\leq 125%)
 - › **By right** if feedstocks produced or processed on-site
 - › **Use permit** if feedstocks are imported
 - › Exception to 125% threshold if participating in feed-in-tariff or a community choice aggregation and limited to existing developed area of site
- › 200 ft. setback from boundaries with residential uses



SOLAR PLANNING AND ZONING

Presentation by the
MCG Project Team

July 25, 2018



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Preliminary assessment of solar resources in Contra Costa County

- » Rooftop solar (could cover ~65% of County power consumption according to Google Sunroof)
 - › Millions of property owners each with their own barriers (e.g. physical limitations, risk tolerance, capital availability, scale/net metering)
- » Solar on land unlikely to be developed and on parking lots (~25% of County power consumption)
- » This is the preliminary **technical potential... it must be significantly discounted** due to the following additional factors
 - › **Economics**
 - › **Interconnection**
 - › **Variability/Storage needs**

Example planning concerns for solar

- » Parking lot canopies
 - › ADA-accessible parking
 - › Clearance for emergency vehicles
 - › Co-benefits (e.g. heat island, shade)
 - › Aesthetics and property-owner concerns
 - › Other
- » Land unlikely to be developed
 - › According to whom?
 - › On what timescale?
 - › At what cost?
 - › Aesthetics and property-owner concerns
 - › Other
- » Greenfield
 - › How to identify least-conflict areas
 - › Highest and best use
 - › Aesthetics and property-owner concerns
 - › Other

Solar Zoning: Parking Lots

- » Often simply over rows of parking stalls
- » Can also be taller to enable passage of taller vehicles
- » Also possible to cover *entire lot*



Solar Zoning: Parking Lots

- » Alameda County
 - › Parking lot requirements – solar, shade, or cool pavement
- » City of Los Angeles
 - › Loosen requirements for open spaces to be unobstructed from ground to sky:
 - › Exceptions for Solar Structures that provide shade – up to 25% of required open space
 - › “...exceptions for structures that solely support solar energy systems: reductions in parking stall length and width; limited waivers for non-conforming parking lots; and modified height exceptions;”



Solar Zoning: Other ground mounted – CA examples

» Sonoma

- › Minor Commercial Facilities
 - › Loosely follows CCPDA model – 15% of parcel up to 5 acres
 - › Habitat and farmland protection provisions
- › Commercial Facilities
 - › Detailed glare study
 - › Exclude Important Farmlands

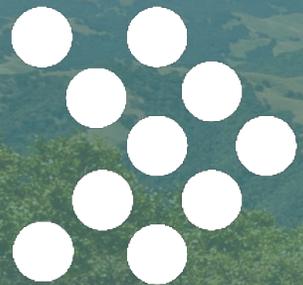
» Solano

- › Define commercial solar “...for the primary purpose of resale or off-site use”
- › Barred from exclusive agricultural zones
- › Financial assurance

Table 1. Permit Requirements

LAND USE/ZONING DISTRICT	Prime - WA	Non-prime - WA	Prime, Statewide, or Unique Farmland	Land Extensive Ag Non-prime or Grazing	Resource Lands	Timber Production	Renewable Energy Overlay Zone	Public Facilities	Industrial or Heavy Commercial	Industrial, Office or Business Park	General Commercial	Neighborhood Commercial	Foothill & Rural Residential 10+ ac	Rural Residential: 5 - 10 ac	Rural Residential: < 5 ac	Urban Residential
UTILITY & RESOURCE-BASED USES																
Solar Energy Facilities (PV)																
Direct Use																
On structures	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Ground-mounted up to 1/2 acre	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Accessory Use																
<15% of parcel up to 5 ac whichever is less	AP ¹	AP ¹	AP	AP	AP ¹	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	—
<15% of parcel up to 10 ac whichever is less	—	AP ¹	AP	AP	AP ¹	AP	AP	AP	AP	AP	AP	—	AP	AP	AP	—
Secondary Use																
< 30% of parcel up to 7 ac	MUP ¹	MUP ¹	AP ²	AP ²	AP ¹	AP	AP	AP	AP	AP	AP	—	AP	MUP	MUP	—
< 30% of parcel up to 10 ac	MUP ¹	MUP ¹	MUP ²	AP ²	AP ¹	AP	AP	AP	AP	MUP	AP	—	MUP	—	—	—
< 30% of parcel up to 20 ac	—	MUP ¹	CUP ³	MUP ²	AP ¹	MUP	AP	AP	AP	CUP	AP	—	CUP	—	—	—
Primary Use																
up to 15 ac	—	—	CUP ³	MUP ²	MUP ¹	CUP	AP	AP	AP	CUP	AP	—	—	—	—	—
up to 20 ac	—	—	CUP ³	MUP ²	MUP ¹	—	AP	AP	AP	—	AP	—	—	—	—	—
up to 30 acres	—	—	CUP ³	CUP ²	CUP ¹	—	MUP	MUP	MUP	—	MUP	—	—	—	—	—
exceeds thresholds above	—	—	CUP ³	CUP ²	CUP ¹	—	CUP	CUP	CUP	—	CUP	—	—	—	—	—
Notes:																
1. If under a Land Conservation Act (Williamson Act) contract, the facility must be listed as compatible use in the locally adopted Ag Preserve Rules; allowed by the type of contract; and, no more than 15% of the parcel up to 5 acres under prime contracted lands or up to 10 acres if under a non-prime contract or designated as grazing lands, unless findings are made by the Board of Supervisors that a larger site area meets the principles of compatibility in Gov. Code Section 51238.1																
2. Not on land under Land Conservation Act (Williamson Act) contract.																
3. Not allowed except when included in Renewable Energy Combining Zone																

TYPE OF PERMIT REQUIRED		
Tier 1	P	Permitted Use - Ministerial; CEQA Exempt; Building Permit
Tier 2	AP	Administrative Permit - Ministerial w/standards; CEQA exempt
Tier 3	MUP	Minor Use Permit - Zoning Administrator or staff approval; n conditions
Tier 4	CUP	Conditional Use Permit - noticed hearing before Planning C
	—	Not allowed



DISCUSSION



We'd Like Your Input

- Have we considered relevant opportunities? Restrictions?
- Are there additional information resources we should consider?
- Do you have suggestions on how we should synthesize the data?
- Are there conclusions, findings, and/or information the study could produce that would be useful?

