

Public Open House Review

Business Plan for

THE CLIMATE CENTER

At The Sonoma Developmental Center

October 4, 2023

6 - 7:30PM





Project Vision

The Climate Center is envisioned as a hub that utilizes the Sonoma Developmental Center's natural and built environment to bring together environmental leaders, stakeholders, and the public to research and demonstrate climate change solutions.

SDC Site



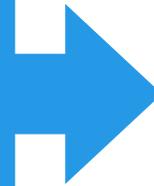
Comments?
< Submit Here



SDC Planning Processes

Approved SDC Specific Plan

Guides future development of the
entire SDC Site
*through land use and
development frameworks*



Climate Center Business Plan

Identifies stakeholders and
opportunities for a Climate Center
across the entire SDC site
*following the
Specific Plan frameworks*

Developer Proposal

Proposes a development vision for the
SDC Core Area
*following the
Specific Plan frameworks*

PARTICIPATION



Online Survey

*Link available
throughout
presentation*

- Today's meeting is in **presentation mode**
- Public participation is invited through the **online survey accessible via the QR code** as well a link provided in the chatbox
- We will also host **two 15-minute virtual breakout rooms** to collect comments

AGENDA

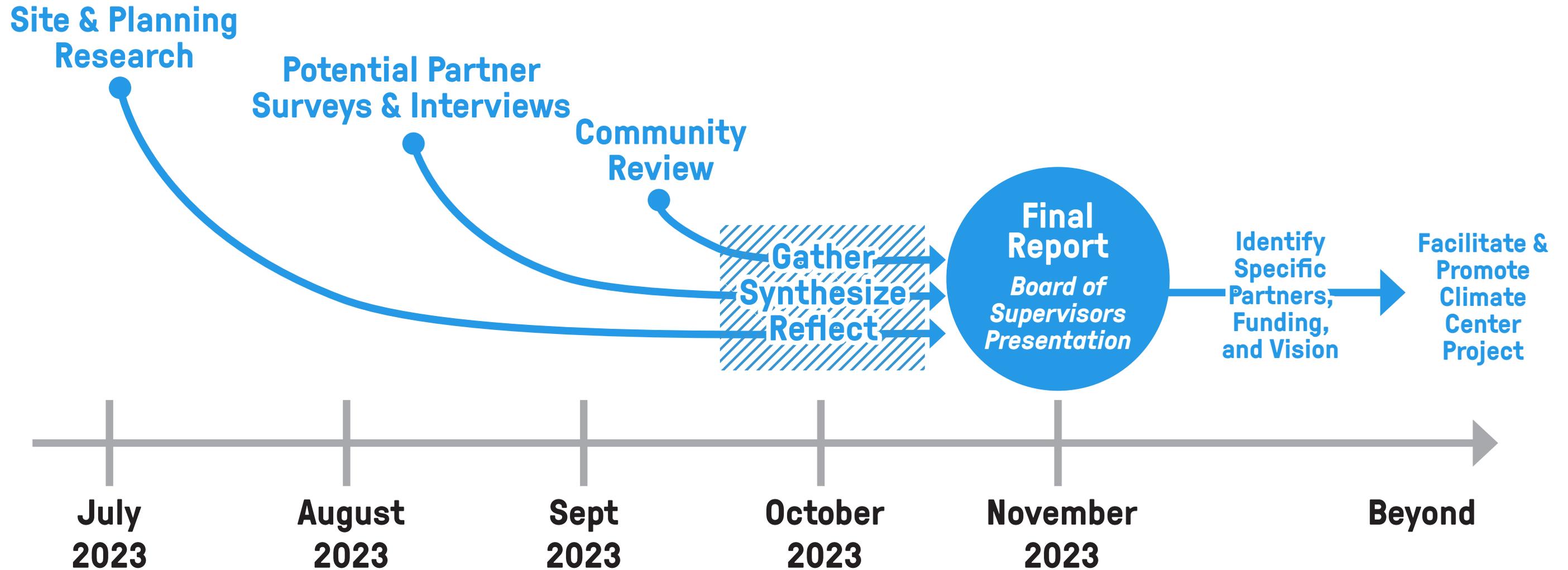
- **Project Introduction**
- **Partnership Models**
- **Climate Center Site & Themes**
 - Site Introduction
 - Biodiversity / Agriculture / Wildfire
 - Breakout Discussion (15 min)
 - Water / Mobility / Energy
 - Breakout Discussion (15 min)
- **Closing Comments**



PROJECT INTRODUCTION



Project Process



SDC Location

Santa Rosa

15 miles to SDC
Pop: 178,100
Labor Force: 75,400
Jobs: 70,500

Rohnert Park

**Sonoma
Developmental
Center**

Glen Ellen

Eldridge

Yountville

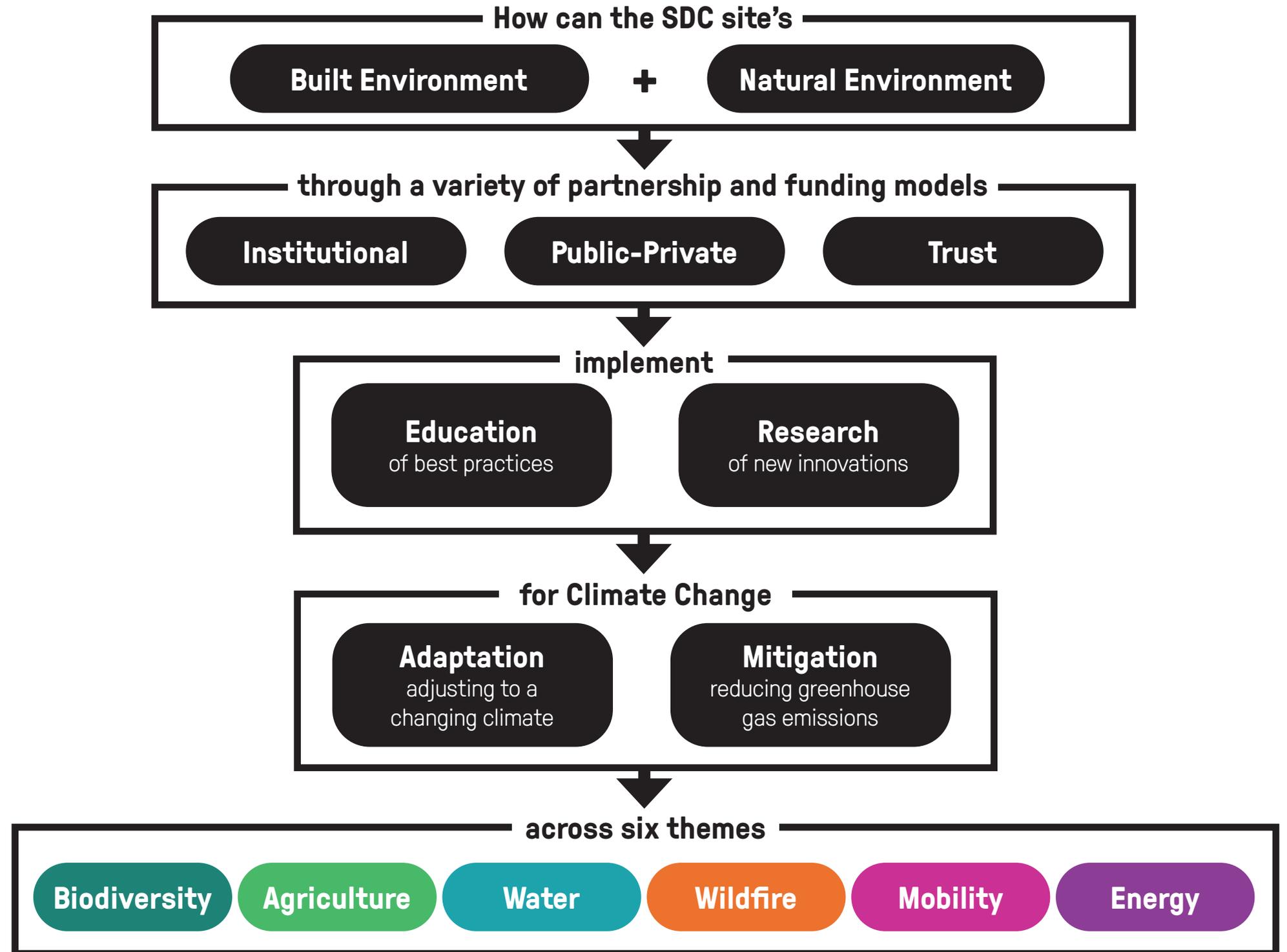
Napa

Sonoma

6 miles to SDC
Pop: 10,700
Labor Force: 4,100
Jobs: 6,900

Petaluma

PROJECT FRAMEWORK





PARTNERSHIP MODELS



Stakeholder Engagements

Highlights

Agriculture

Ag Innovations SRJC
- Schone Farm
CAFF
TomKat Ranch

Water

Sonoma Water
Sea Rise Solutions
Valley of the Moon

Energy

Sonoma Clean Power
Regional Climate
Protection Authority
(RCPA)
PG&E

Biodiversity

Pepperwood Preserve
Sonoma County
Regional Parks
Sonoma Ecology Center
Sonoma Land Trust
Suscol Intertribal

Wildfire

Audobon Ranch
Pepperwood Preserve
Resources Legacy Fund
Suscol Intertribal
UC Agriculture &
Natural Resources
(UCANR)

Mobility

Glydways
Regional Climate
Protection Authority
(RCPA)

General

Cal Poly Pomona
Lanterman Campus
EPA
Lift Economy
Presidio Trust
UC Berkeley Law &
Climate Project

Case Studies



New York Climate Exchange
Governor's Island,
NYC



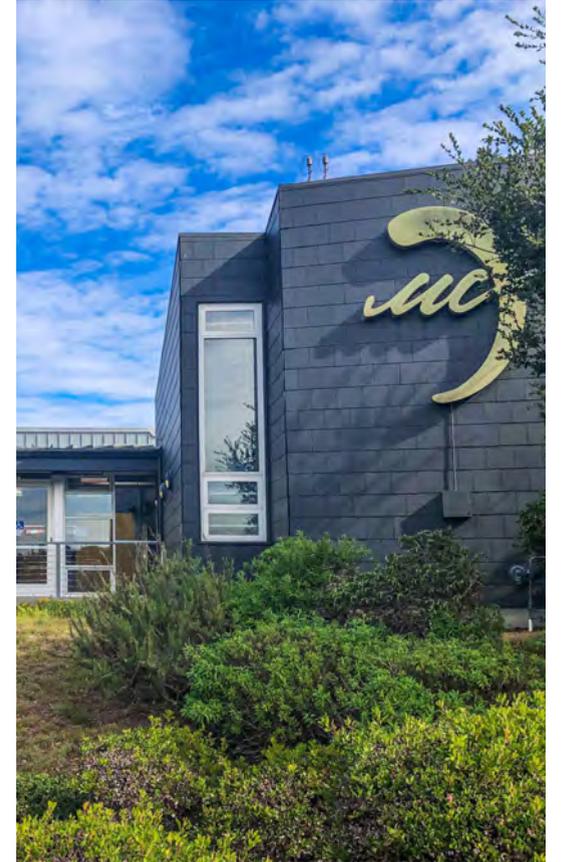
Pepperwood Preserve
Santa Rosa,
California



Pier 70
San Francisco,
California



Presidio Trust
San Francisco,
California



UC MBEST Center
Marina,
California

Key Governance Considerations



- Adopt policies that require development go above and beyond
- Determine clear metrics for success and accountability
- Encourage divergent viewpoints and innovation
- Appeal to strengths and capabilities of public and private sectors
- Identify revenue sources

Key Funding Considerations



- County and State tax increment (e.g., EIFD applied to climate projects)
- CFD/assessment district (ongoing ops and maintenance)
- Impact investor proceeds
- Organizational seed and operating capital (public/private [including VC])
- Dedicated sources in perpetuity (preferred over grants)
- Revolving loan fund potential

Potential Funders Roadmap

Federal/International

- Army Corps
- Department of Energy (DOE)
- Department of Transportation Build America (DOT Build America)
- Economic Development Association (EDA)
- EDA Infrastructure Grant (UC MBEST)
- Environmental Protection Agency (EPA)
- National Oceanic and Atmospheric Administration (NOAA)
- National combined with international (EU) funding (Potsdam)
- Ongoing Federal Appropriations (Presidio)

State/Local

- California Coastal Conservancy
- California Department of Water agency
- City or County General Fund Allocation (Governor's Island)
- Enhanced Infrastructure Financing Districts (Climate Resilience District)
- Governor's Office of Business and Economic Development (Go Biz).
- Mello-Roos Community Facilities District (infrastructure and/or services)
- Museum/scientific/educational institution (Pepperwood)
- Office of Planning and Research/ Strategic Growth Council.
- University Endowment/Other Funds (Governor's Island)

Private

- Initial funding options:
 - Corporate fund/investor allocation
 - Impact investor funds
 - Venture capital
 - Development equity, construction, and take-out debt
- Other sources:
 - Conference Fees
 - Dedicated Foundation(s) (e.g., Bloomberg)
 - Asset leasing (Presidio, Asilomar)
 - Service district charge (Presidio)



CLIMATE CENTER SITE & THEMES



Sonoma Developmental Center



SDC Site



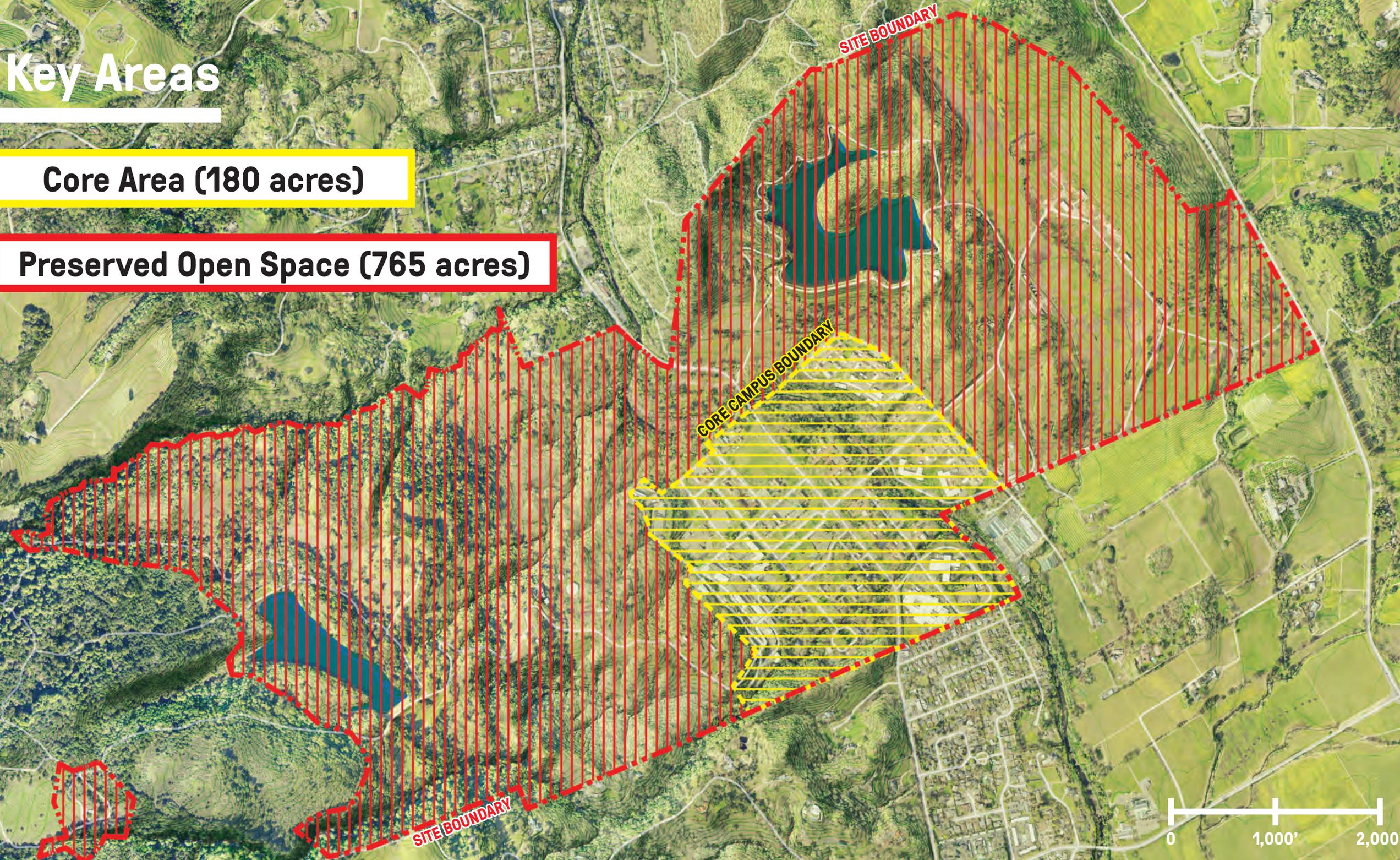
SDC Key Areas



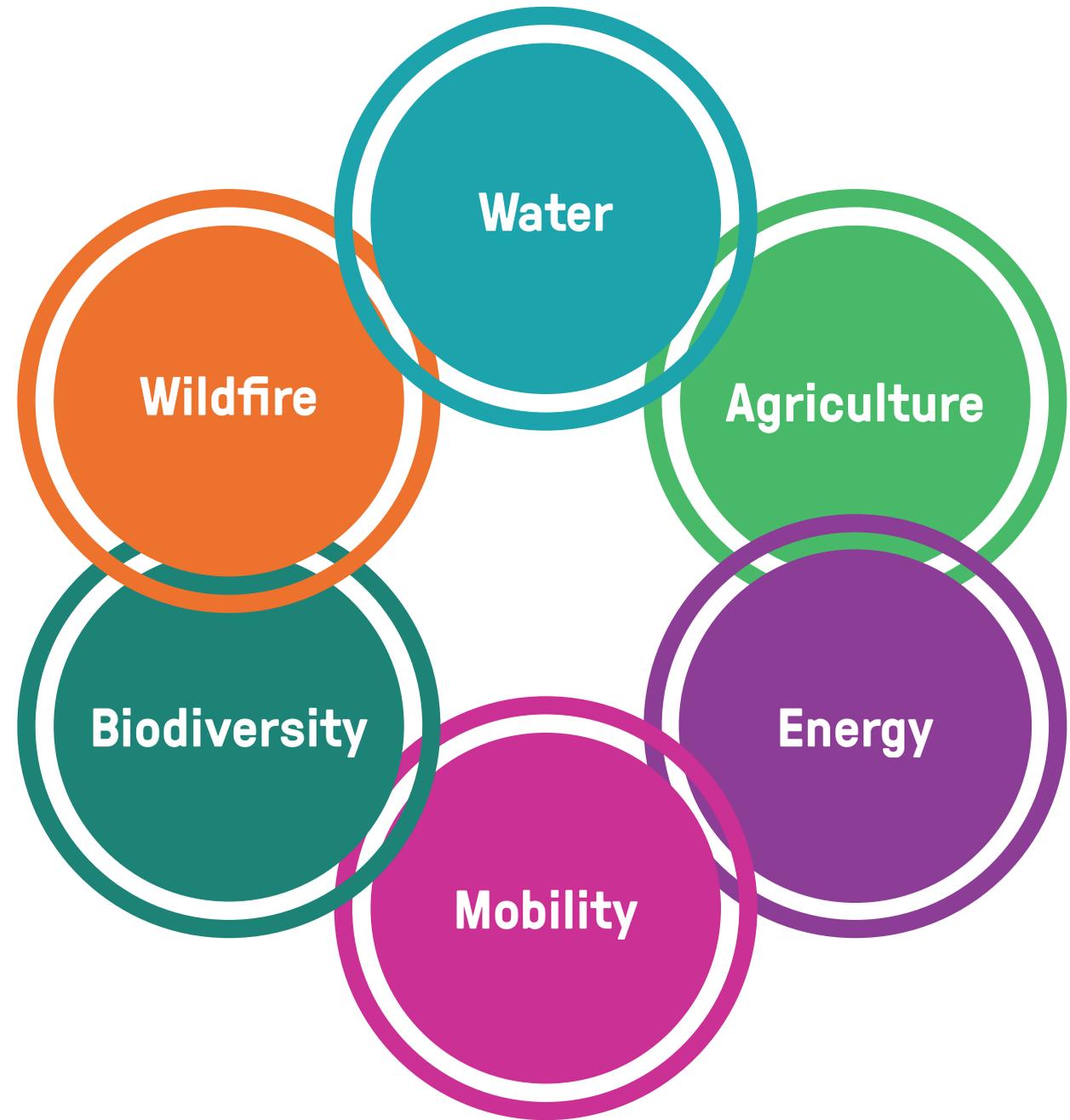
Core Area (180 acres)



Preserved Open Space (765 acres)



CLIMATE CENTER THEMES



Wildfire Resilience Opportunities

Site map with example locations



Comments?
< Submit Here



① Wildfire Education & Research Center



② Good Fire: Controlled & Cultural Burning Areas



③ Wildfire Buffer Park
SPECIFIC PLAN CONNECTION



④ Wildfire Detection & Warning Technology



⑤ Fire Break Trail System



⑥ Community Wildfire Resilience Network



⑦ Fire Ecology Research Areas



⑧ Vegetation Management Research Areas

Opportunities with a Specific Plan Connection

SDC Climate Center Business Plan | 40

Expanded and new opportunities



Comments?
< Submit Here



**CLIMATE CENTER THEME
BIODIVERSITY**





Biodiversity Context

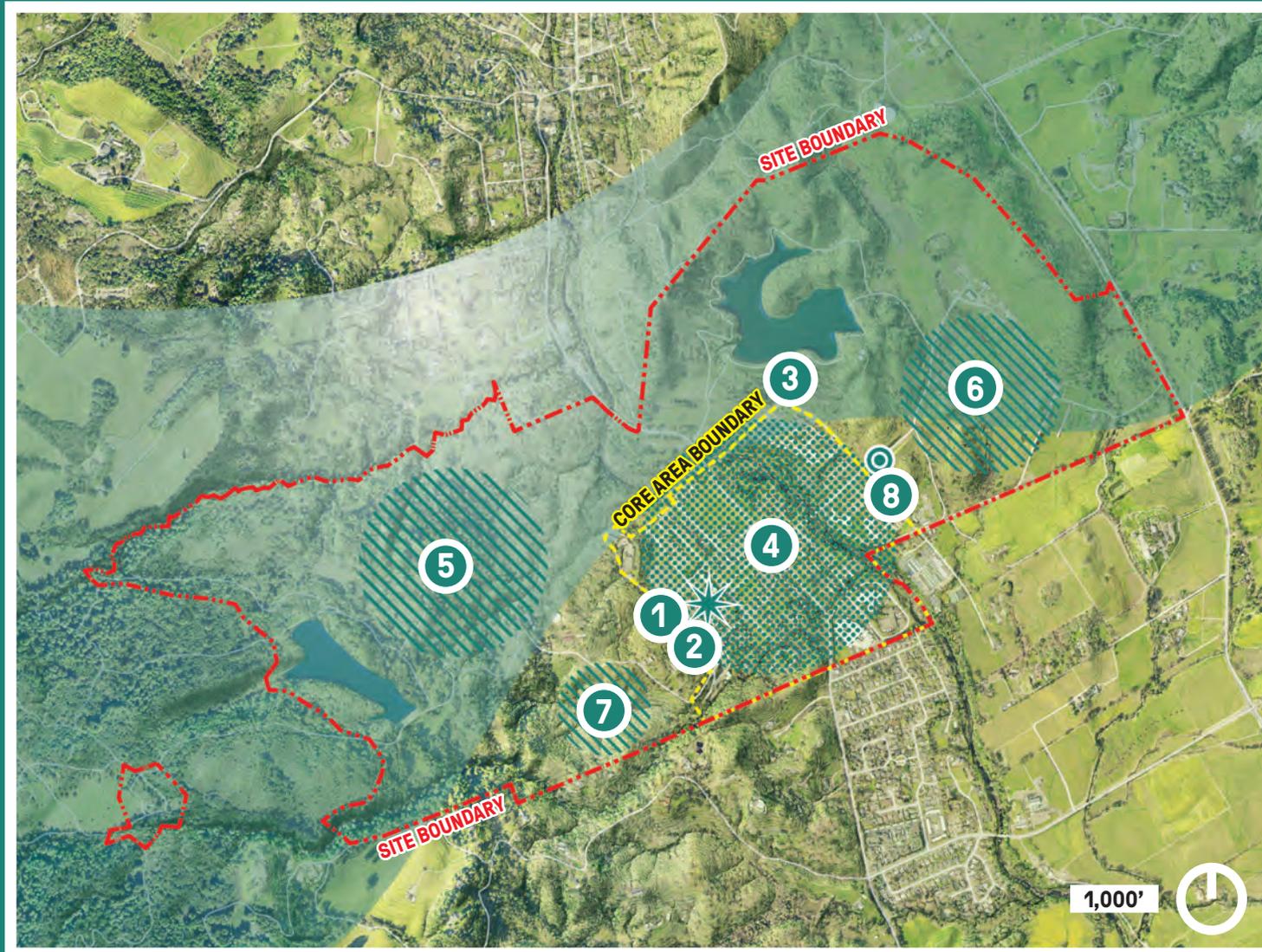
- Sonoma County is one of the **most biologically diverse** regions in California
- **SDC is representative of this diversity**, with a wide array of landscapes
- **Sonoma Valley Wildlife Corridor** is a key east-west wildlife connection

Key Biodiversity Questions

How can we **preserve, restore, and enhance** biodiversity at the SDC, especially in connection to surrounding parks and preserves?

How can **education and research** at the Climate Center improve biodiversity throughout the region and beyond?

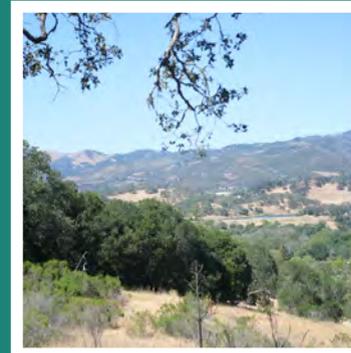
Biodiversity Opportunities



1
Biodiversity
Research &
Education
Center



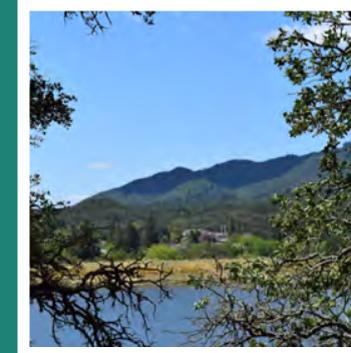
2
Biodiversity-
focused
Biotechnology
Research Center



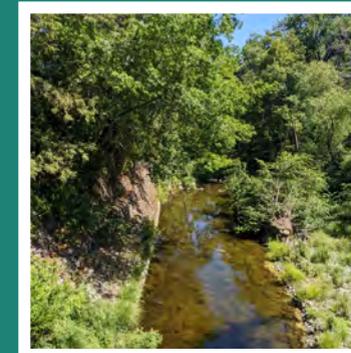
3
Sonoma
Valley Wildlife
Corridor
Protection
**SPECIFIC PLAN
CONNECTION**



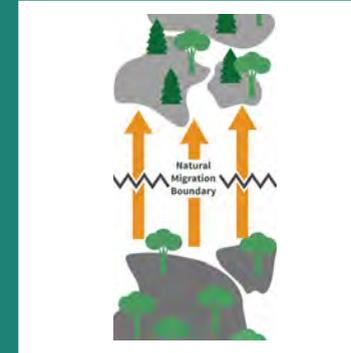
4
Biodiverse Public
Realm
**SPECIFIC PLAN
CONNECTION**



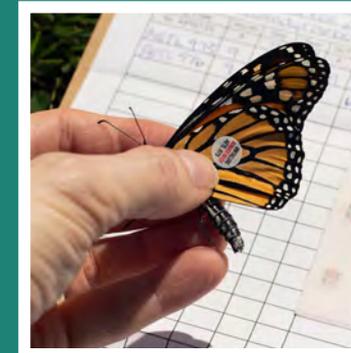
5
Open Space
Habitat
Restoration &
Preservation
**SPECIFIC PLAN
CONNECTION**



6
Land-Based
Carbon
Sequestration
Mgmt Science
& Monitoring



7
Assisted
Species
Migration
Study Areas



8
Citizen
Science
Initiatives

Biodiversity Research & Education Center



Potsdam Institute for Climate Impact Research
Potsdam, Germany

- Center to **research biodiversity through studies and collaborations**
- Center can also function to **educate the general public** on biodiversity
- Center can be designed with key **biophilic features**, such as green roofs, green facades, and natural areas

Sonoma Valley Wildlife Corridor Protection

SPECIFIC PLAN CONNECTION



- Maintain and enhance the permeability of the **Sonoma Valley Wildlife Corridor**
- **Reduce the Core Area footprint** to better accommodate the Corridor
- Incorporate **protective strategies** such as **educational programs** and **limited** fencing, lighting, recreational uses, mowing, and domestic animal grazing.
- Promote **wildlife crossings** over/under roadways

Assisted Species Migration Study Areas



Study Field for Douglas-Fir Heredity Study
Launched in 1912, Oregon & Washington

- Assisted species migration aims to **maintain ecosystems and biological diversity** that are at risk because of climate change
- Identify site areas to **study the migration of plant species** to more suitable habitats for long-term survival



CLIMATE CENTER THEME
AGRICULTURE





Agricultural Context

- SDC is situated in a region known for its **agricultural heritage**, with a series of vineyards, farms, and fields defining Sonoma Valley's character
- SDC was historically a **farming hub for local residents**, with a series of pastures, fields, and barns on the eastern side of the site
- Today, Sonoma's agricultural community is challenged by **increased droughts and wildfires along with shifting growing seasons**
- **Farmworker community** faces acute needs

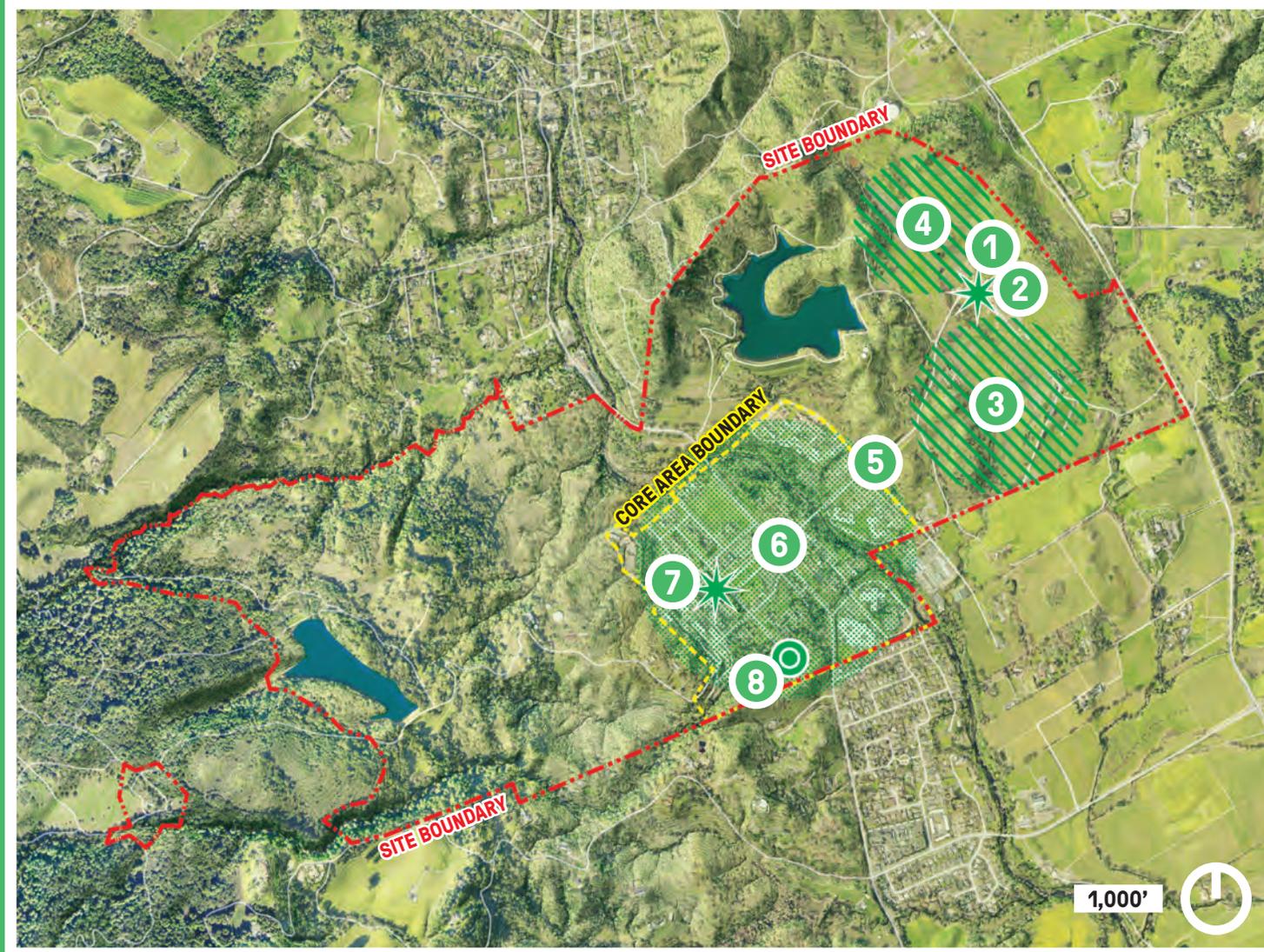
Key Agricultural Questions

How can we **recall SDC's deep agricultural heritage** with regenerative and resilient proposals?

How can our proposals serve a **diverse community** of farm/vineyard owners, farmworkers, and local residents?

How can our proposals **connect our agricultural communities with environmental leaders and research** to promote healthy agriculture into the future?

Agricultural Opportunities



1
Farm Incubator
Education &
Events Center
SPECIFIC PLAN
CONNECTION



5
Compost
Program
SPECIFIC PLAN
CONNECTION



2
Local Food Hub &
Farmers Market
SPECIFIC PLAN
CONNECTION



6
Edible
Landscapes
SPECIFIC PLAN
CONNECTION



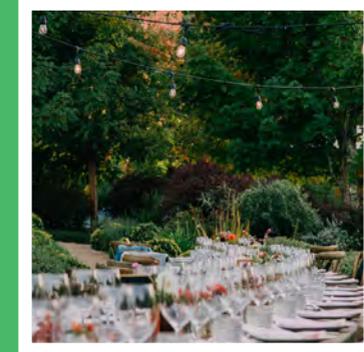
3
Food Crop
Production
SPECIFIC PLAN
CONNECTION



7
Agricultural
Resiliency
Research
SPECIFIC PLAN
CONNECTION



4
Regenerative
Grazing &
Agroforestry
SPECIFIC PLAN
CONNECTION



8
Farm to Table
SPECIFIC PLAN
CONNECTION

Farm Incubator Education & Events Center

SPECIFIC PLAN CONNECTION



- Create center as a vibrant hub, **bridging agriculture, education and hospitality.**
- Farmer training and entrepreneurship education is supported by short and longterm workforce housing where **farmers can live, learn and incubate an enterprise** on site.
- Passionate educators **lead workshops, seminars, and hands on activities**, sharing their expertise and empowering individuals to become stewards of the land.
- Interconnected fields, orchards, and gardens, showcase the principles of regenerative farming in a **living classroom.**

Local Food Hub & Farmers Market

SPECIFIC PLAN CONNECTION



- A designated and bustling farmers market can bring together farmers, artisans, entrepreneurs, and community members to **celebrate the abundance of local culinary and farming traditions**
- A collective processing space, cooking classes, value added products, and community events **can expand the market's offerings**, attract locals, and grow agritourism.

Regenerative Agriculture & Agroforestry

SPECIFIC PLAN CONNECTION



- **Rotational grazing** enhances soil health, capturing water and preventing erosion. It's a **sustainable cycle that strengthens ecosystems**, bolsters watershed resilience, and contributes to wildfire prevention all while producing food.
- **Agroforestry** is an economically viable and climate resilient approach that not only **yields food** but also strategically **combats fires and conserves water**.



CLIMATE CENTER THEME
WILDFIRE





Wildfire Context

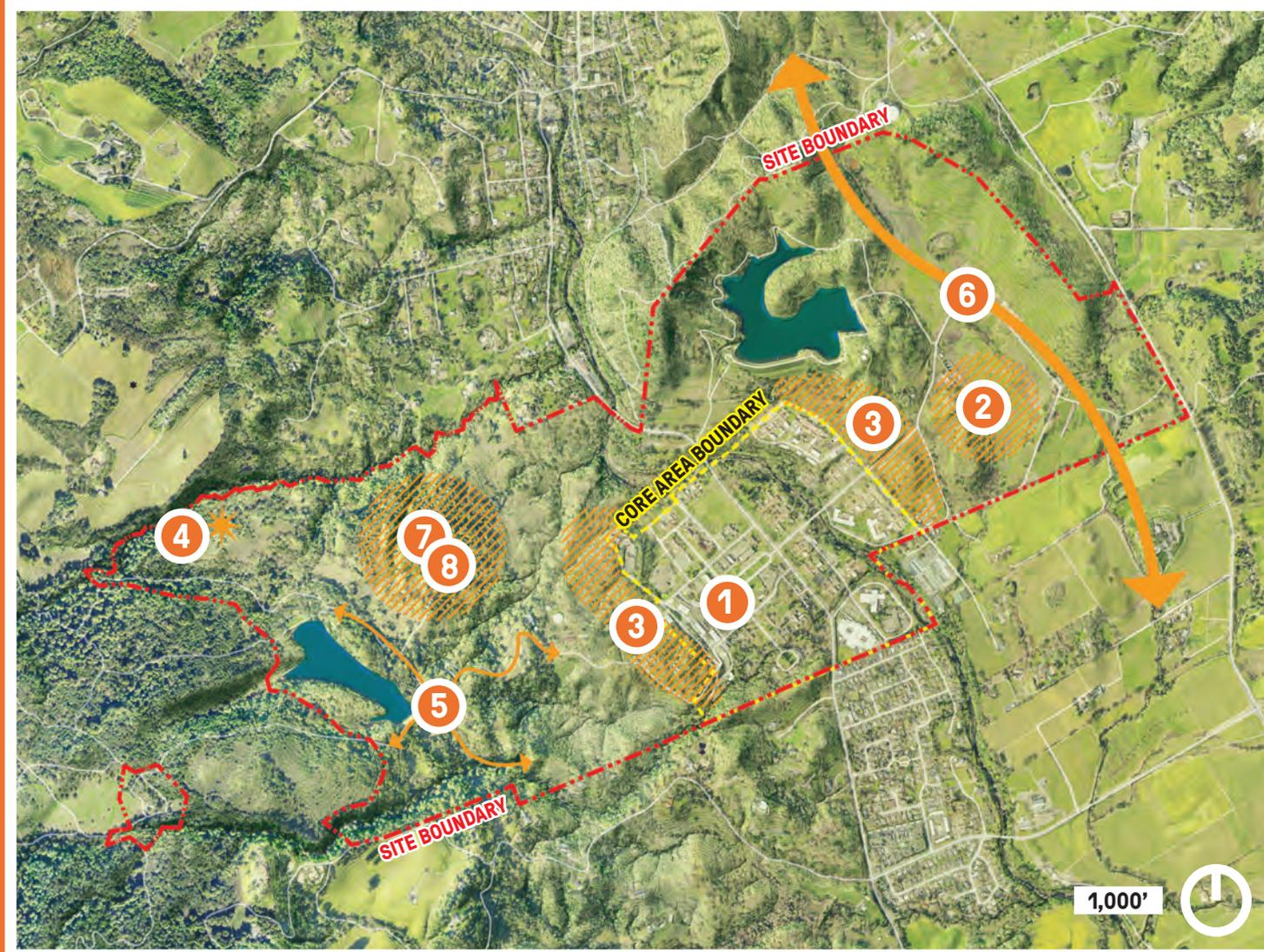
- **Wildfire is one of the most challenging issues for SDC**
- The **Wildland-Urban Interface (WUI)** defines SDC and Sonoma Valley
- The site was severely impacted by the **2017 Nuns Fire** and threatened by the **2020 Glass Fire**
- A **holistic approach to wildfire management** can reduce risk

Key Wildfire Questions

How can we **decrease wildfire risk** at the SDC site and the surrounding community?

How can **wildfire education and research at Climate Center** improve resilience throughout the region and beyond?

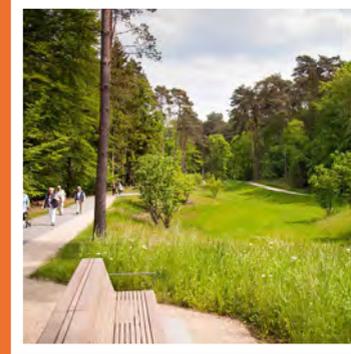
Wildfire Resilience Opportunities



① Wildfire Education & Research Center



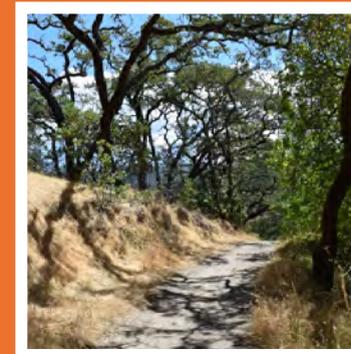
② Good Fire: Controlled & Cultural Burning Areas



③ Wildfire Buffer Park
SPECIFIC PLAN CONNECTION



④ Wildfire Detection & Warning Technology



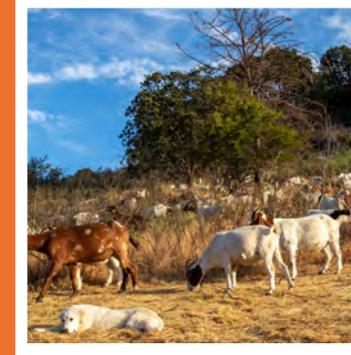
⑤ Fire Break Trail System



⑥ Community Wildfire Resilience Network

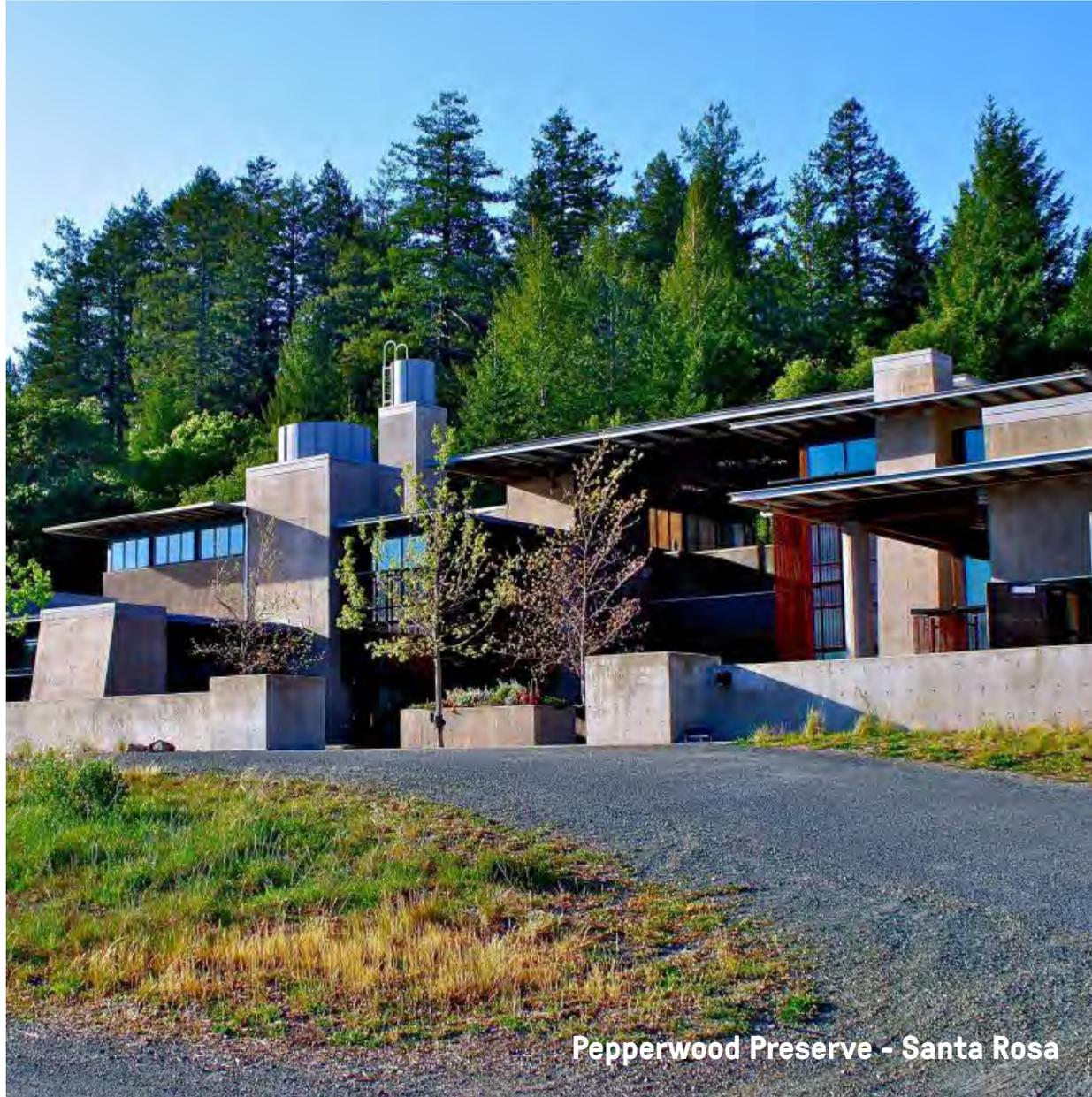


⑦ Fire Ecology Research Areas



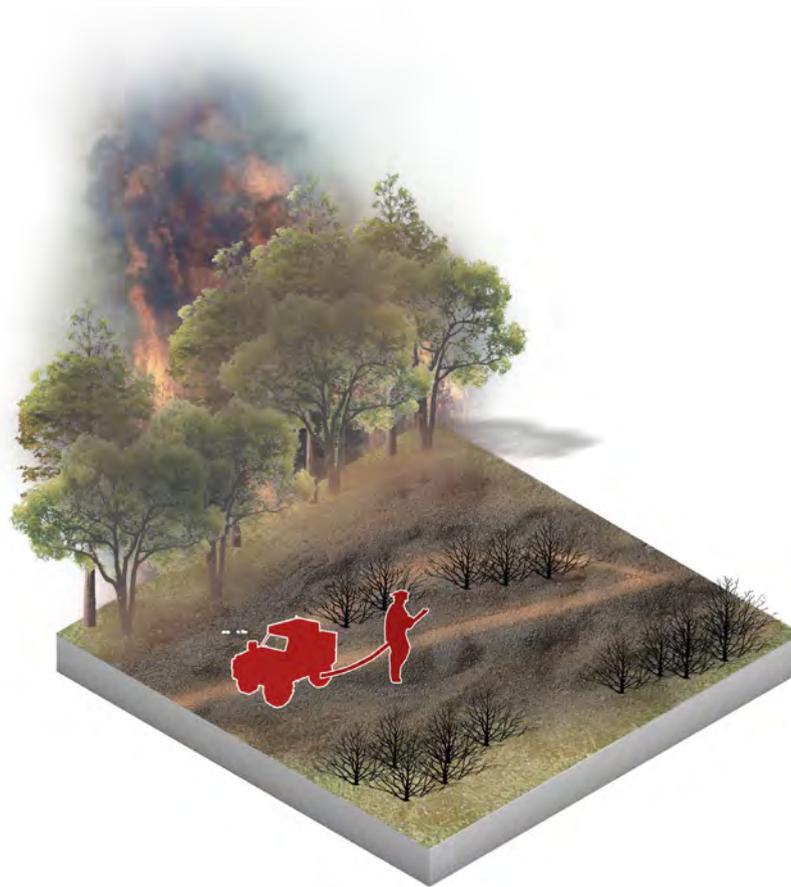
⑧ Vegetation Management Research Areas

Wildfire Education & Research Center



- A center for **wildfire studies** and **public education**
- Designed to showcase **fire-resistant materials and building techniques**.
- The research center could be the nexus for a series of **land-based designs, demonstrations, and research** across the site

Fire Break Trail System



Improve, expand, and connect the trail system to **dually function** as both an **enhanced trail system** while also creating a **protective network of fire breaks** across the site.

Good Fire: Controlled & Cultural Burning Areas



- Identify areas within the open space to practice **controlled and/or indigenous cultural burning practices**
- This practice can **reduce long-term wildfire risk** within the development core and surrounding area while also **demonstrating techniques** to the broader public

**Gather your Questions & Comments
for the 15 Minute**

BREAK-OUT DISCUSSION

**You'll be automatically assigned to a
room and provided instructions.**

BREAK-OUT DISCUSSION

In the previous slides you learned about Climate Center opportunities for Biodiversity, Agriculture, and Wildfire. Potential discussion questions:

- **Which opportunities were the most important for you? Which are most important to the broader Sonoma County community?**
- **Which opportunities did you find the most exciting, novel, or new and would like to see happen?**
- **Which opportunities did you think should happen immediately?**
- **Are there other key opportunities that we missed and you would like to share?**

Mute Yourself

Raise Your Hand
(Reactions > Raise Hand)

Keep Comments to 30 seconds

Answers/Session Recorded

Also Fill Out Survey



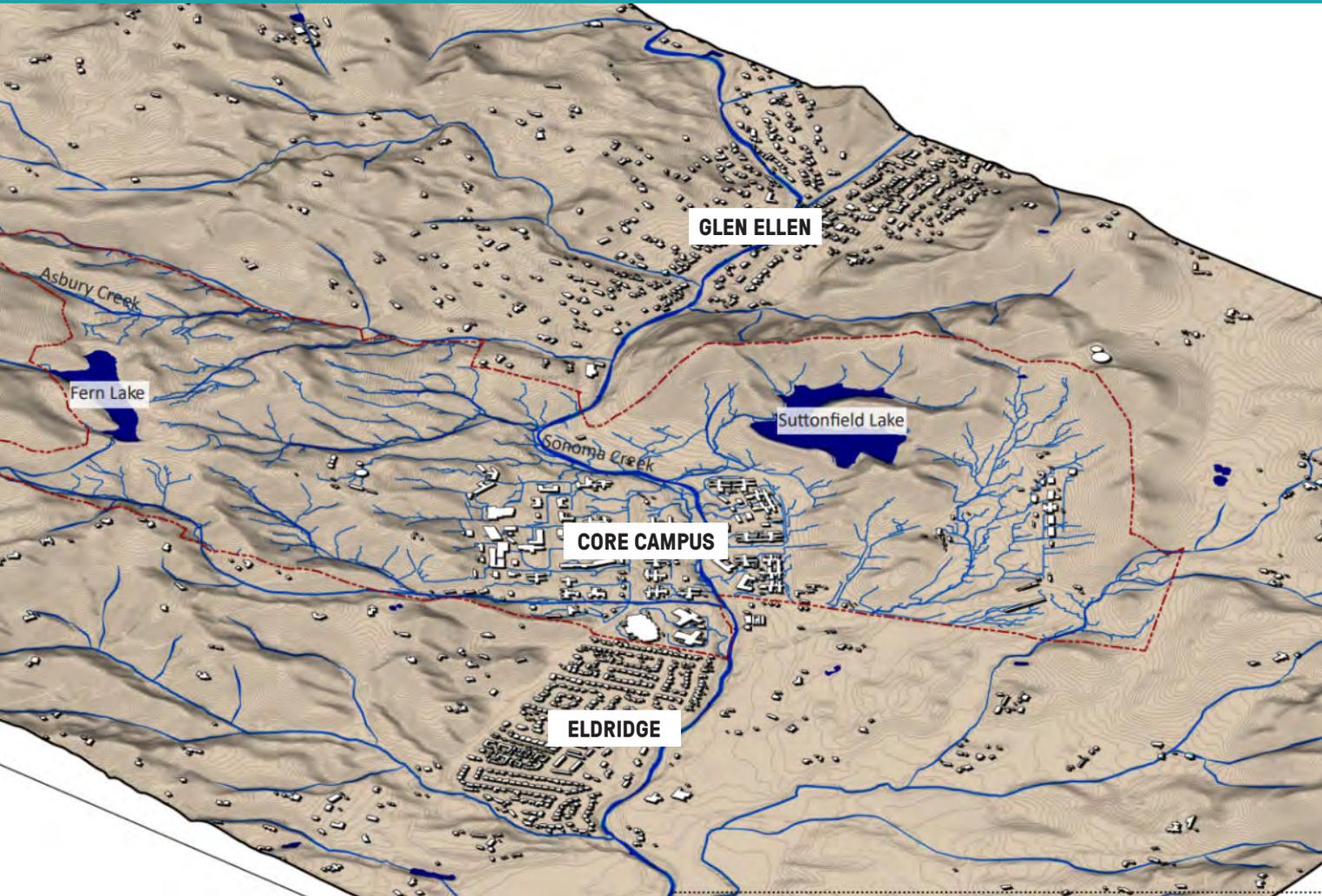


CLIMATE CENTER THEME
WATER



Water Context

- **Stormwater, Creek Water, Potable Water, Wastewater, and Groundwater**
- Almost all **existing water infrastructure** will need to be replaced for the Specific Plan development
- **Reuse** of the existing reservoirs and water rights is critical
- The local aquifer and streams are vulnerable to **groundwater pumping** and should be protected



Comments?
< Submit Here

Key Water Questions

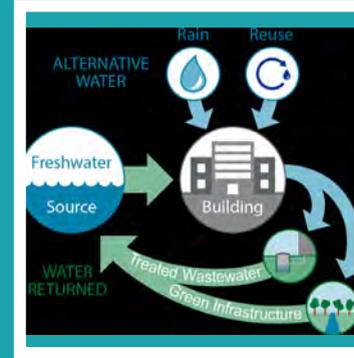
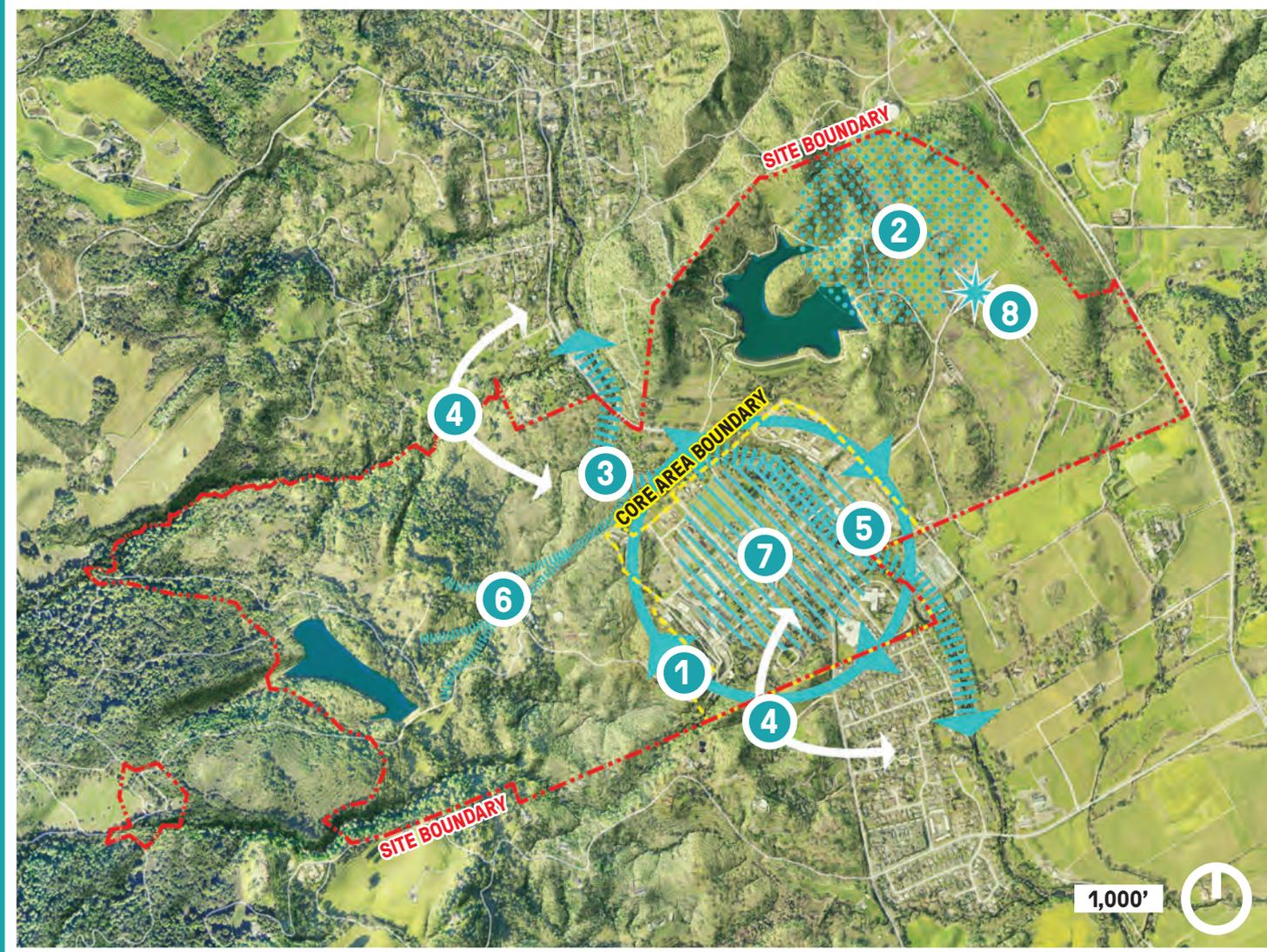
How can the SDC and Climate Center help **restore the creeks and watershed** to manage flooding?

How can the SDC and Climate Center water systems **provide water resilience to immediately surrounding communities?**

What types of **innovative water infrastructure R&D** can help the region evaluate approaches and manage for the future?

What is the **most appropriate long term ownership, financing, operations, and resource management structure** for optimizing the resources and assets of the project site?

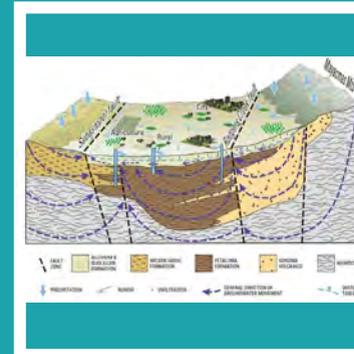
Water Opportunities



1
Net-Zero
Water Supply



5
Water
Recycling
Systems
SPECIFIC PLAN
CONNECTION



2
Groundwater
Recharge
SPECIFIC PLAN
CONNECTION



6
Seasonal
Streamflow
Enhancement



3
Wetland/
Riparian
Restoration
and Flood
Control
SPECIFIC PLAN
CONNECTION



7
Dual Plumbed
Water &
Non-Potable
Utilization
SPECIFIC PLAN
CONNECTION

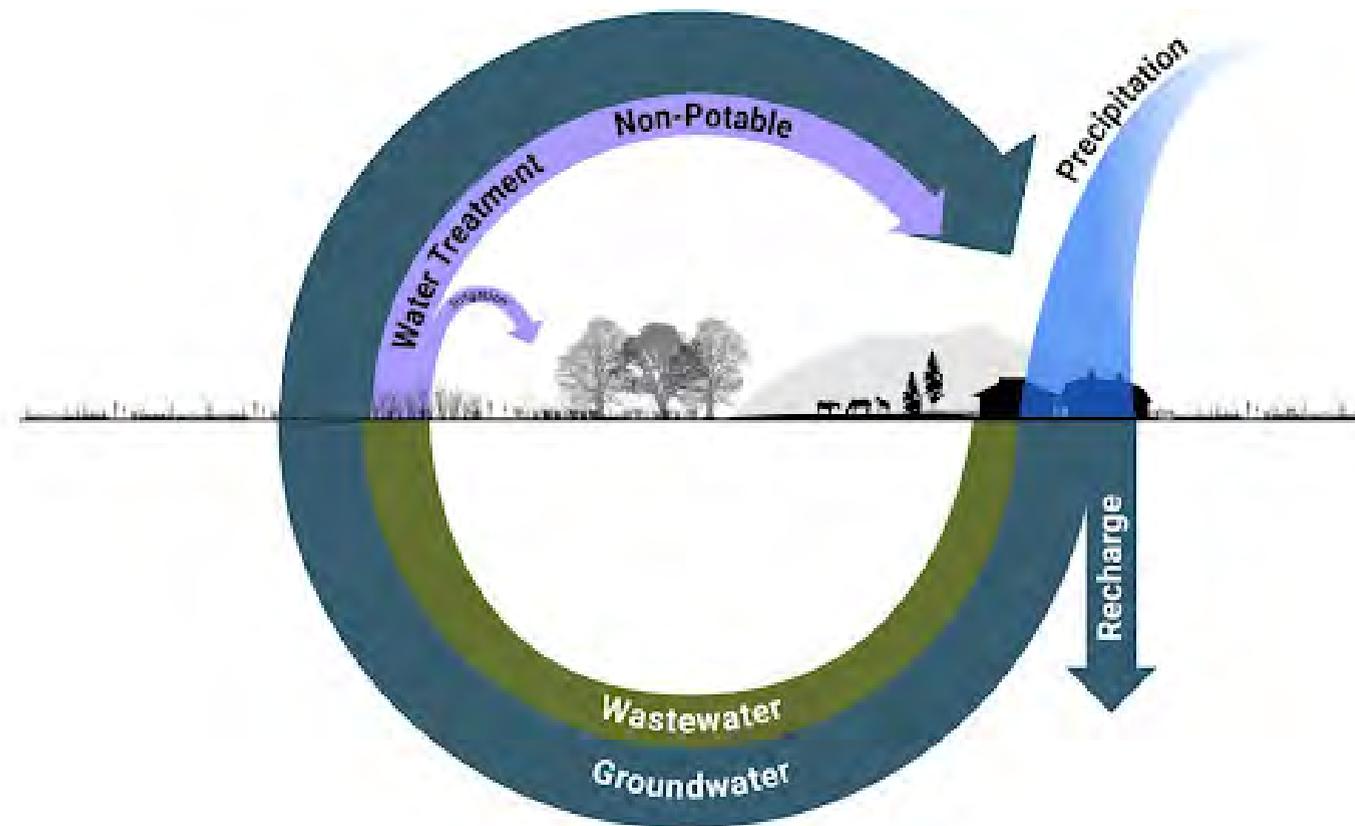


4
Back-up
Resilience to Local
Water Supplies
SPECIFIC PLAN
CONNECTION



8
Pilot Resource
Recovery
(Biosolids,
Nutrients,
etc.)

Net Zero Water Supply



- **More water generated than used**
- Continued use of the **existing reservoirs and water rights** is critical for site and regional sustainability and resilience
- An innovative **Water Lab** can demonstrate how rural re-developments can improve groundwater, restore stream flows and promote regional water resilience.

Water Recycling System

SPECIFIC PLAN CONNECTION



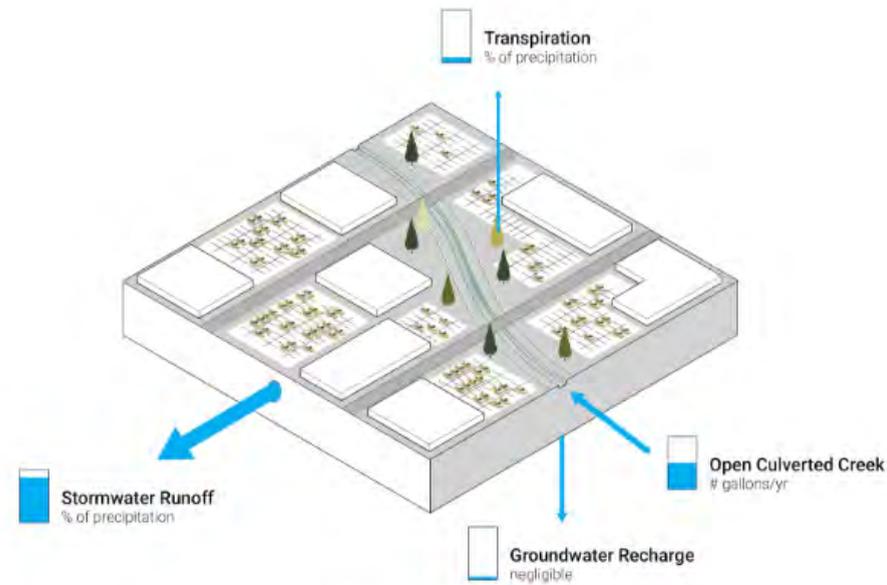
Sidwell Friends School
Washington, DC

- Site wastewater can be recycled for irrigation, toilet flushing, and other uses to **“close the loop”** rather than discharge
- **Integrated multi-benefit green technology** provides habitat, site amenities, and the ability to study urban ecology
- **Harvesting additional wastewater** from the Sonoma Valley sewer trunk can provide additional recycled water to neighboring communities and farms

Groundwater Recharge

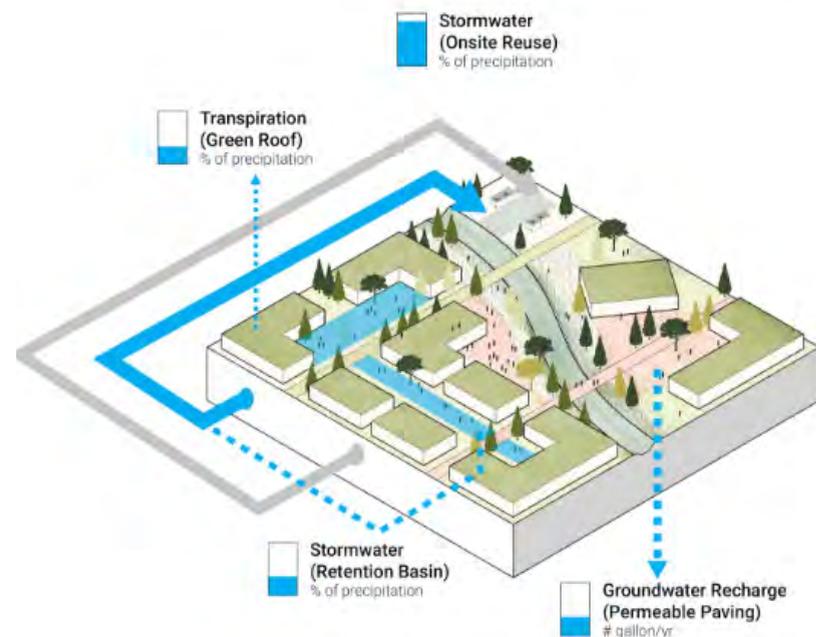
SPECIFIC PLAN CONNECTION

PRESENT
CONDITIONS



- By responsibly using **harvested surface water, reservoir storage, and recycled water**, the site would **not need to pump any groundwater**
- Excess reservoir water could be used for **Groundwater Injection Well** projects already underway in Sonoma Valley

FUTURE
NET POSITIVE
VISION





**CLIMATE CENTER THEME
MOBILITY**





Mobility Context

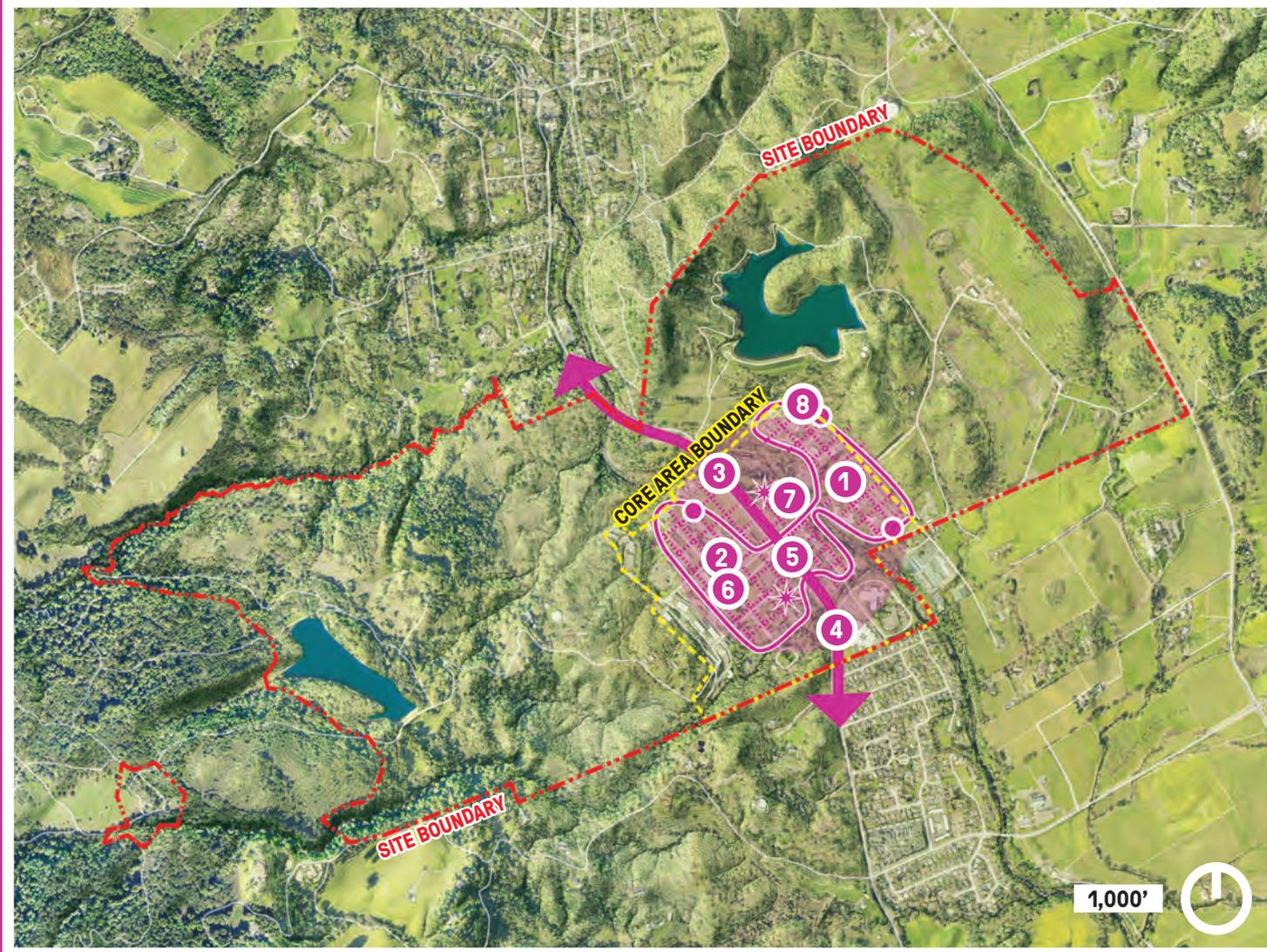
- An **existing & interconnected network** of streets, sidewalks, and trails
- The Specific Plan establishes **an ambitious multimodal transportation system**
- Ideas for an **expanded & experimental low-carbon mobility campus**

Key Mobility Questions

How can we **integrate and expand upon the Specific Plan mobility goals** with the Climate Center concept?

What are **innovative, low-carbon transportation technologies** that could benefit from testing ideas in **SDC's rural and campus setting**?

Mobility Opportunities



1
Pedestrian
Friendly Design
SPECIFIC PLAN
CONNECTION



5
Mixed Use
Neighborhood
SPECIFIC PLAN
CONNECTION



2
Bicycle Friendly
Design
SPECIFIC PLAN
CONNECTION



6
Bicycle &
Micro-Mobility
Sharing
Program
SPECIFIC PLAN
CONNECTION



3
Transit
Connections
SPECIFIC PLAN
CONNECTION



7
Electric Bike
& Vehicle
Charging
SPECIFIC PLAN
CONNECTION



4
Car & Ride-
Sharing Programs
SPECIFIC PLAN
CONNECTION



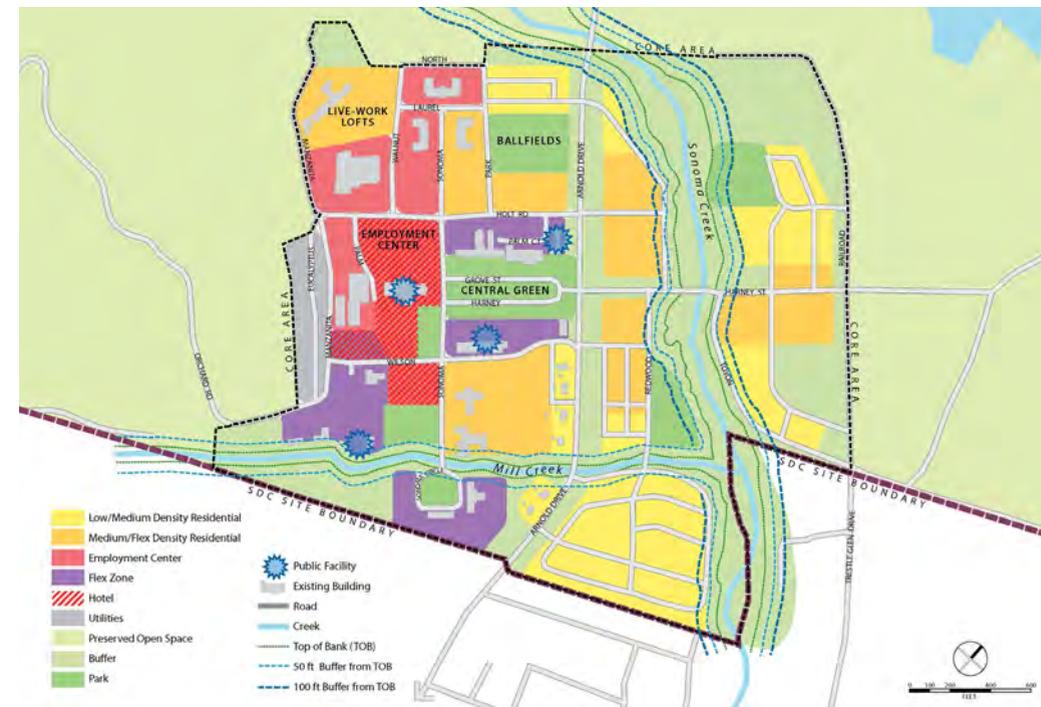
8
Electric &
Autonomous
Shuttle/Taxi
Program

Mixed Use Neighborhood

SPECIFIC PLAN CONNECTION



Promote the development of a **broad mix of uses** to encourage employees and residents to **live, work, and play on campus** and reduce the need for vehicular travel outside of the site.



Electric Bike & Vehicle Charging

SPECIFIC PLAN CONNECTION



- Create a system of charging stations for electric bikes and vehicles, potentially with renewable energy integration
- System can be used by **residents, Climate Center employees, and the general public** to encourage the increased adoption of electric vehicles and electric bicycling

Electric & Autonomous Shuttle/Taxi Program



- Develop an **electric and autonomous vehicle or shuttle program** for Climate Center employees and local residents to quickly traverse the campus and access buildings, open space areas, and public transportation connection points
- Once established, explore **expanding program to surrounding communities**



CLIMATE CENTER THEME
ENERGY



Energy Context

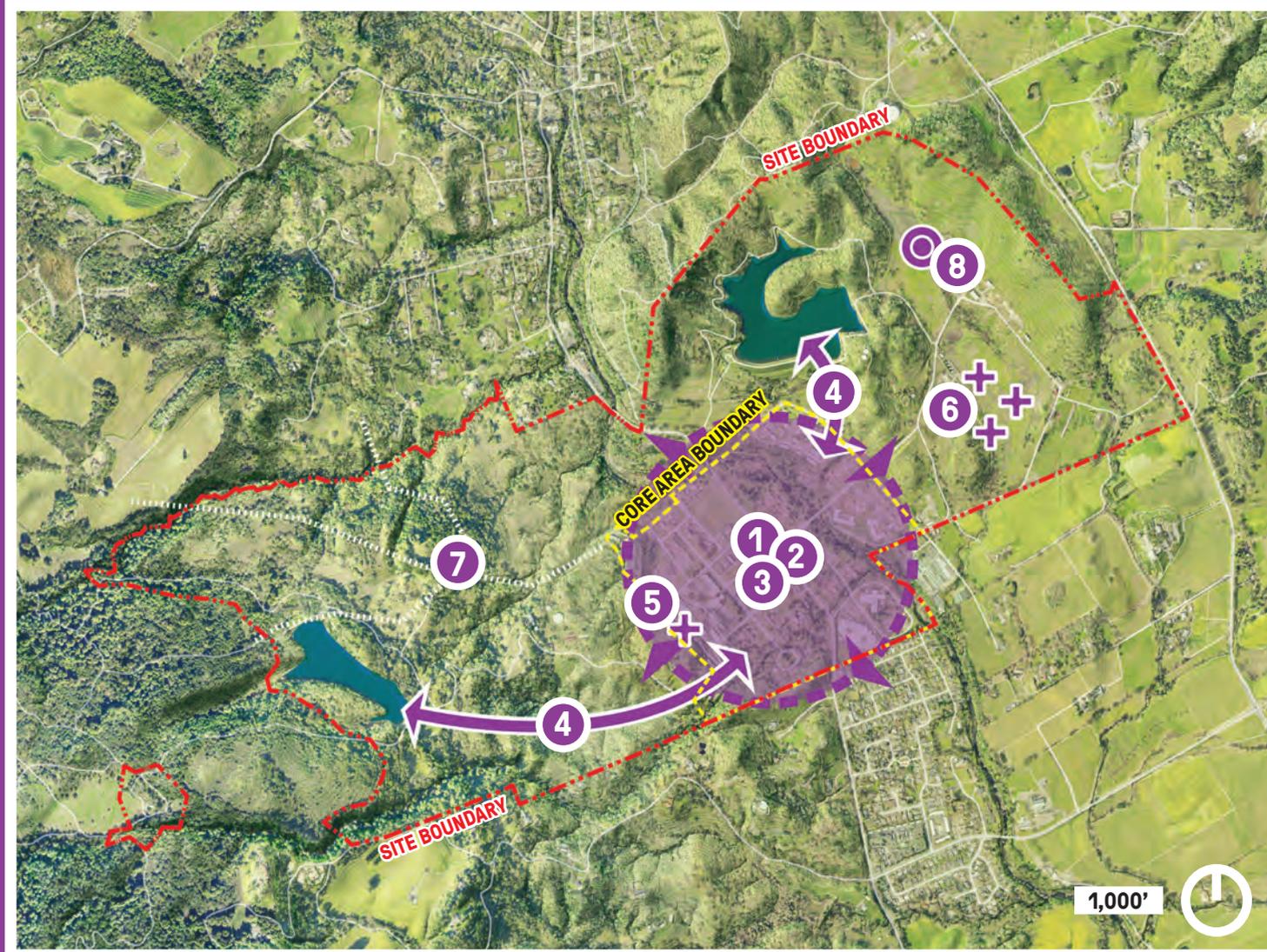
- **Large portion** of the Sonoma County energy supply is from **fossil fuels**
- SDC and nearby communities are vulnerable to **power shutoffs and blackouts**
- A significant majority of site electrical, gas and thermal systems will **need to be replaced during development**
- The Climate Center could support **research, development, and demonstration of clean energy innovations**

Key Energy Questions

What energy innovations should be **researched, developed, and demonstrated** at the SDC? How are these best integrated into the **public-facing programming**?

What are **critical community community services** which the Climate Center should provide during **a power shutoff or blackout**?

Energy Opportunities



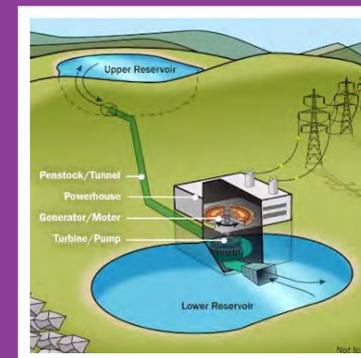
1
All Electric Development
 SPECIFIC PLAN CONNECTION



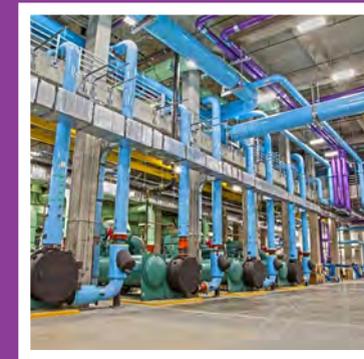
2
All Renewable Energy
 SPECIFIC PLAN CONNECTION



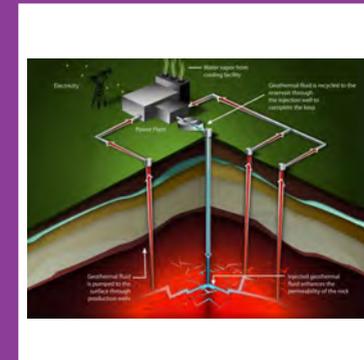
3
Island Microgrid Community
 SPECIFIC PLAN CONNECTION



4
Reservoir Hydro Battery Back-up



5
Central Thermal Facility



6
Geothermal Heat
 SPECIFIC PLAN CONNECTION

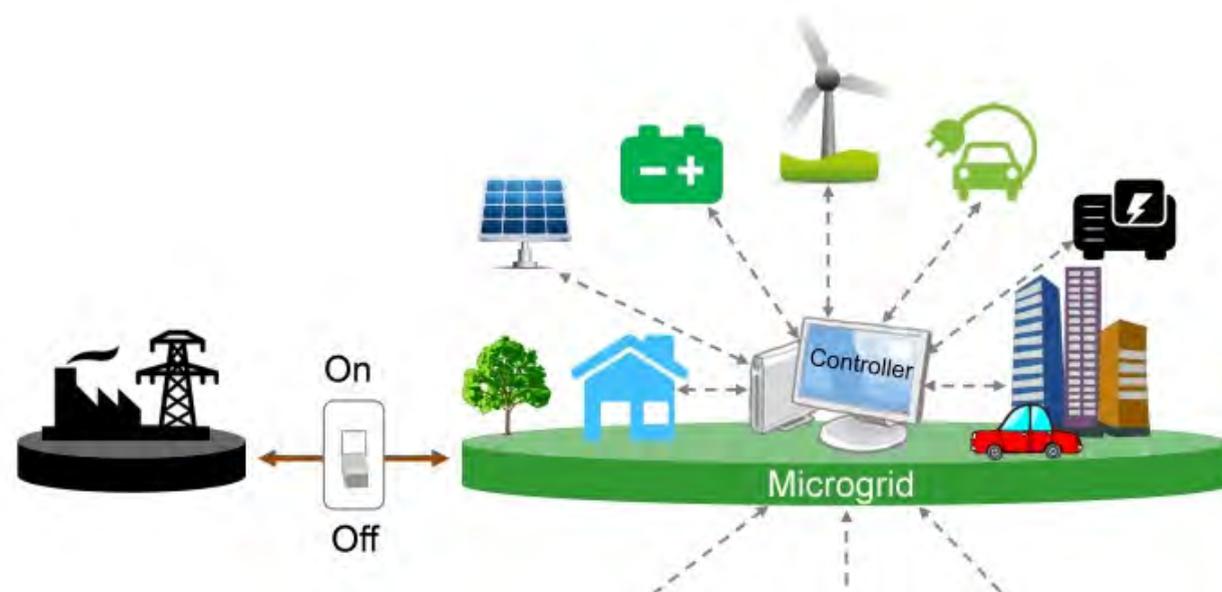


7
Fire Safe Low Voltage Rural Grid



8
Innovative Energy Production
 SPECIFIC PLAN CONNECTION

Island Microgrid Community



Clean & Smart Community Microgrid

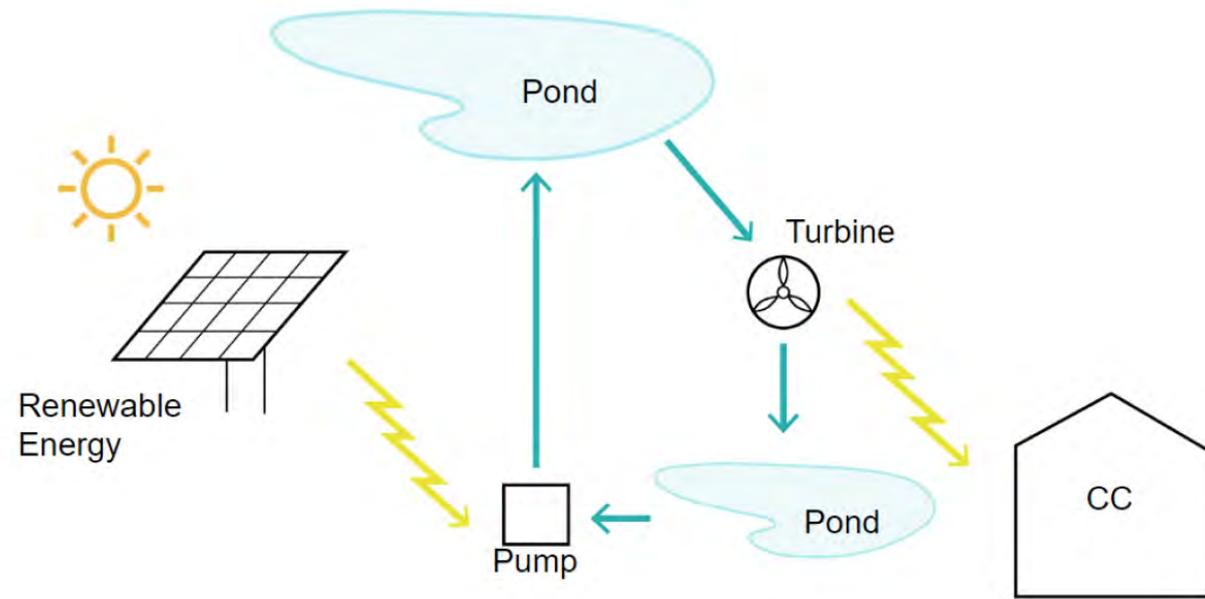


Safe, reliable, clean, resilient, decentralized

- Capable of **continuing critical operations** during a Public Safety Power Shutoff or blackout
- **Energy lifeboat for the region** with no carbon emissions
- This could support the **residents, surrounding community, and emergency/disaster responders**, demonstrating community resilience

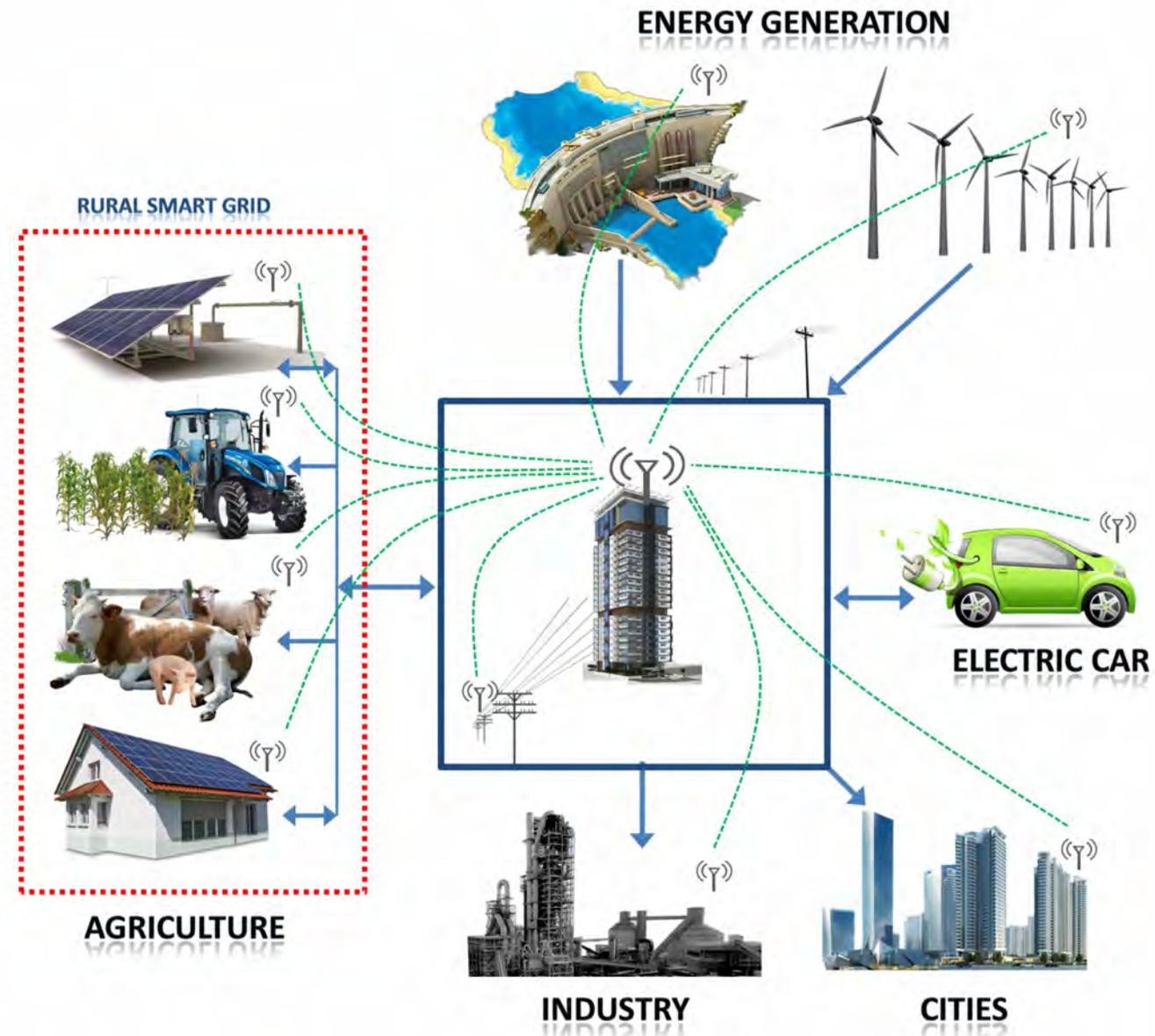
SPECIFIC PLAN CONNECTION

Reservoir Hydro Battery Backup



- Electricity can be generated when **water moves between the two reservoirs** at different elevations
- This can also **augment energy storage batteries during a Public Safety Power Shutoff or blackout** to support residents and the surrounding community
- Such a system can also benefit water quality for both **habitat and infrastructure** by providing aeration and recirculation processes

Innovative Energy Production



Rubio-Aliaga A, Molina-Garcia A, Garcia-Cascales MS, Sanchez-Lozano JM. Net-Metering and Self-Consumption Analysis for Direct PV Groundwater Pumping in Agriculture: A Spanish Case Study. Applied Sciences. 2019; 9(8):1646. <https://doi.org/10.3390/app9081646>

- Innovative renewable solutions are being **developed** and need to be **demonstrated**
- **Augment a Climate Center carbon neutral energy portfolio**, modeling the next generation of renewable energy systems **SPECIFIC PLAN CONNECTION**
- Accommodate future emerging technologies as **'bolt-on' additions**
- Possible solutions include:
 - Biodigesters
 - Pyrolysis
 - Biomass Cogen
 - Green Hydrogen
 - Water and ground exchange thermal
 - Sewer Thermal Mining
 - Thermal Storage

**Gather your Questions & Comments
for the 15 Minute**

BREAK-OUT DISCUSSION

**You'll be automatically assigned to a
room and provided instructions.**

BREAK-OUT DISCUSSION

In the previous slides you learned about Climate Center opportunities for Water, Mobility, and Energy. Potential discussion questions:

- Which opportunities were the most important for you? Which are most important to the broader Sonoma County community?
- Which opportunities did you find the most exciting, novel, or new and would like to see happen?
- Which opportunities did you think should happen immediately?
- Are there other key opportunities that we missed and you would like to share?

Mute Yourself

Raise Your Hand
(Reactions > Raise Hand)

Keep Comments to 30 seconds

Answers/Session Recorded

Also Fill Out Survey





CLOSING COMMENTS





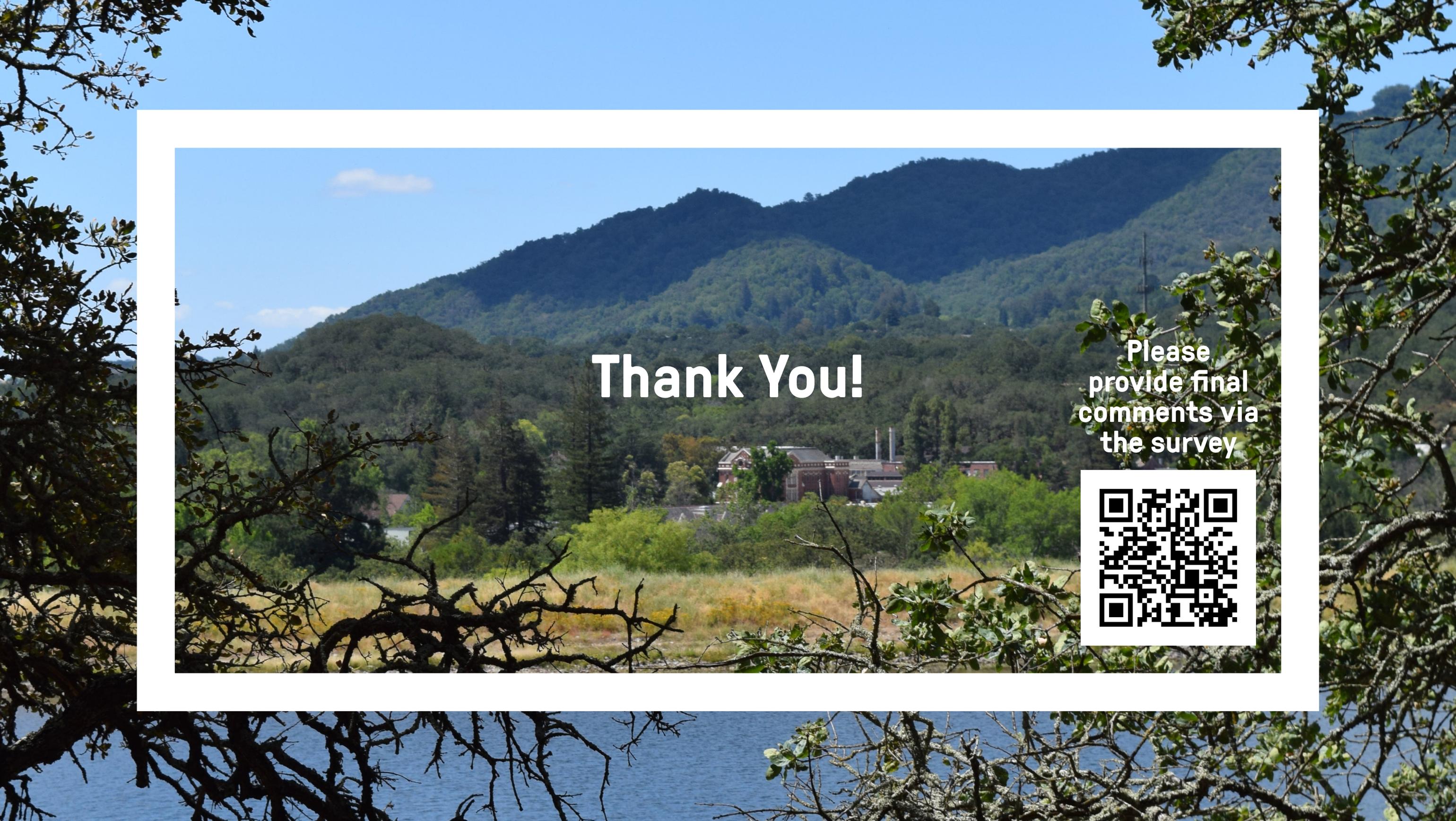
Keys to Success

- Embrace SDC's **unique setting**
- Align **Regional and State's Vision** for SDC
- Aim to create a **complete climate community**
- Promote **new development and infrastructure** that embodies the objectives of the Climate Center
- Recognize **economic opportunities** in wildfire prevention, resource management and agriculture
- Leverage **public funding and financing**
- Attract a **network of partners** large and small
- Recruit **business engine** aligned with the Climate Center vision



Next Steps

- **Incorporate feedback** received from stakeholder surveys/interviews and public
- Develop **integrated plan with specific proposals**
- Create draft and final **Climate Center Business Plan**
- Present final plan at **Board of Supervisor's hearing on November 28, 2023**



Thank You!

Please
provide final
comments via
the survey

