

# Living Community Challenge Vision Plan -- DRAFT --

San Francisco State University Romberg Tiburon Campus  
August 19, 2019







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## Preface

This document contains the Vision Plan for the San Francisco State University (SF State) Romberg Tiburon Campus Masterplan. The intent of this Vision Plan is to set a clear vision and specific project goals to inform the design and development of the SF State Romberg Tiburon Campus site and project buildings into a ‘living community’— a regenerative masterplan designed with sensitivity to resource consumption, ecological and historical identity, and a range of diverse stakeholder uses.

The Vision Plan serves as the first step in the Living Community Challenge certification process to outline goals and provide preliminary approaches to achieving the rigorous criteria established by the standard. The SF State Romberg Tiburon Campus will then proceed to completion of a Masterplan document that provides a more detailed framework and schedule to meet the targets established in this Vision Plan. Once the Masterplan document is reviewed by ILFI, the project will be deemed an “Emerging Living Community” and tracked through future project development and implementation phases.

Each section of this document will detail the criteria required to meet the Living Community Challenge (LCC) Master Plan certification, providing descriptions of the end goal for the SF State Romberg Tiburon Campus Masterplan and outline our approach to implementation. This document includes:

- Geographic boundaries of community.
- Key community elements, buildings, and infrastructure.
- Outline of key stakeholders and implementation authorities.
- Roadmap for community engagement that will explain how the aforementioned strategies will create opportunities for public education and interaction with building and site elements.

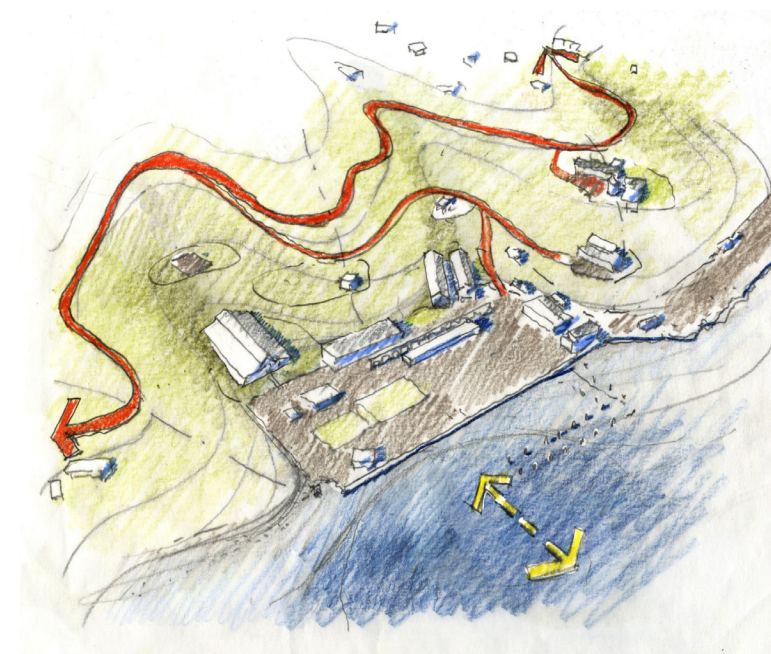
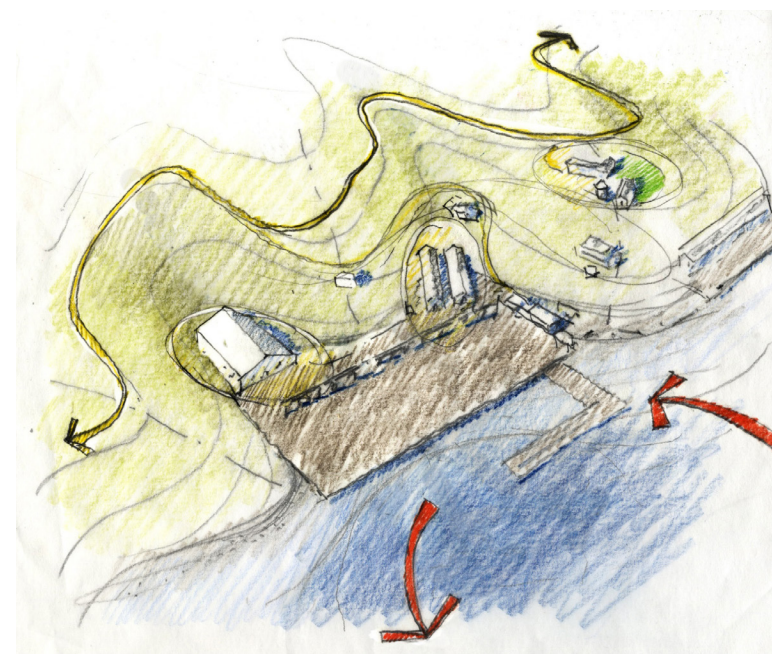
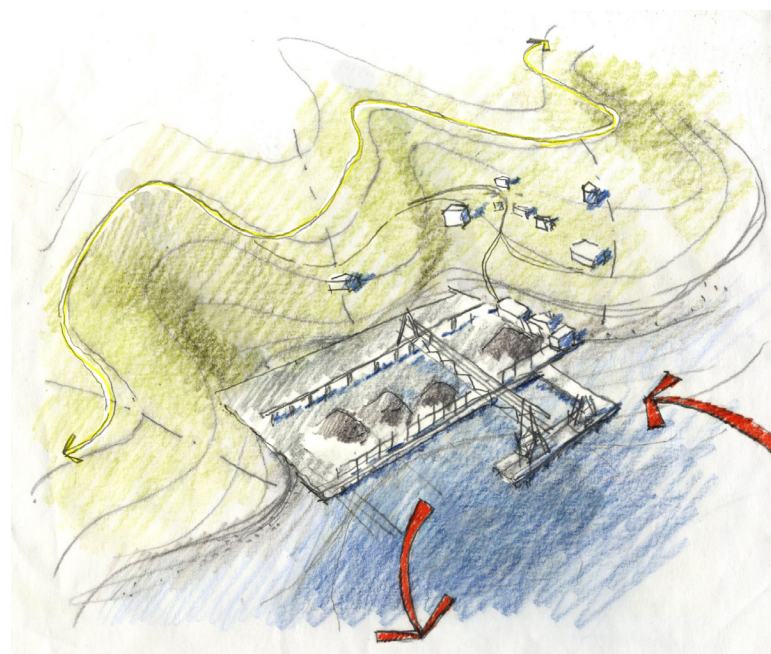
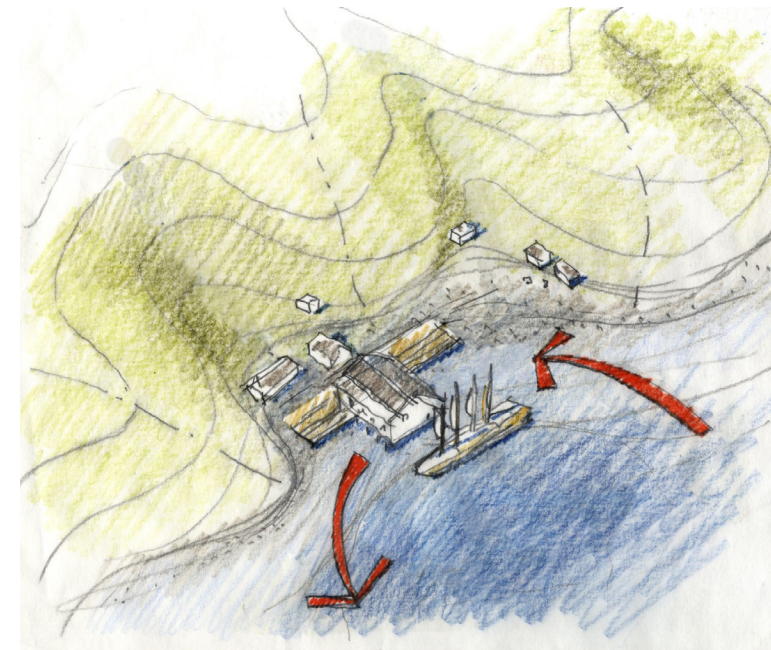
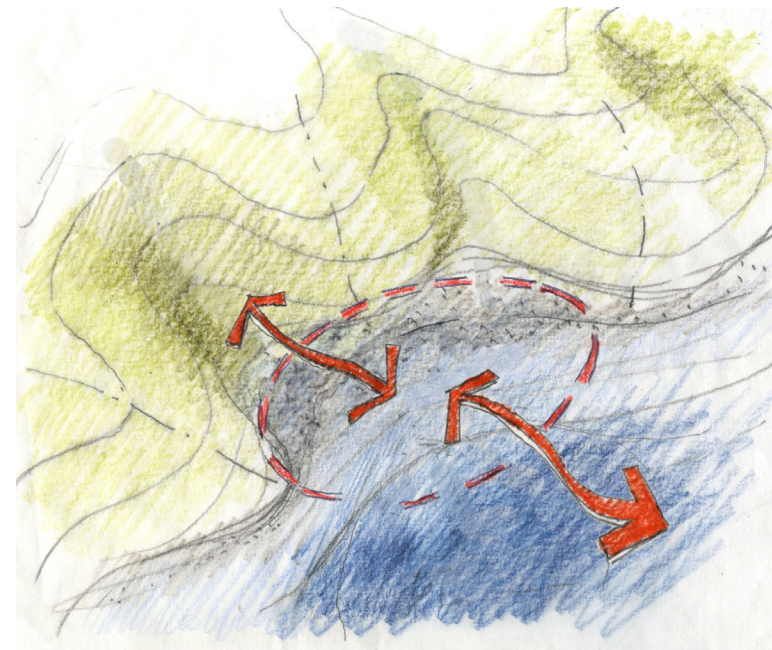
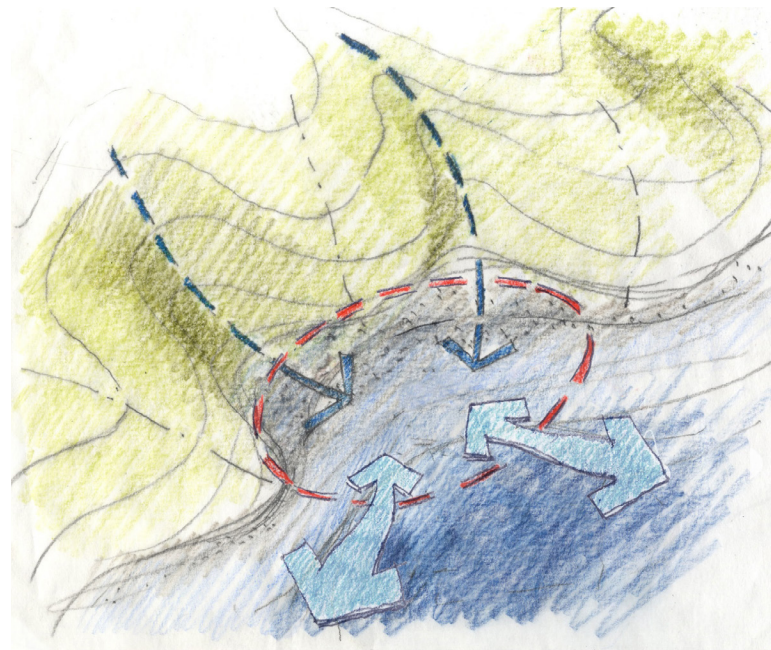
The end of the Vision Plan outlines the process and timeline for the completion of these imperatives and the Living Community Master Plan to obtain status as Emerging Living Community.





## Introduction

### HISTORICAL NARRATIVE SKETCHES



The SF State Romberg Tiburon Campus is located along the Tiburon Peninsula on the shore of San Francisco Bay. Its physical history has been defined by the intersection of freshwater flows, sea level rise, and upland terrestrial ecologies. The site existed in its natural form as a riverside bank with seasonal streams that drained the peninsula's hillsides before being abruptly transformed by sea level rise 10,000 years ago to a shallow tidal cove on the edge of a deep-water channel of a large estuary. Indigenous people, specifically the Coast Miwok, were drawn to the area for its rich ecosystem that provided a bounty of flora and fauna.

Over time, the site has witnessed incremental change and use. After the colonial period, the site was developed as a cod fishery and subsequently as a coal harbor. Remnants of this industrial and commercial period of resource harvesting are visible on the site today. However, much of the site's built environment in its current condition, including the concrete slab over the former tidal cove, reflects its intensive development and use by the U.S. Navy from 1903 as a coal depot through World War II. During the war, the naval waterfront was a net depot that protected ports and harbors, including San Francisco Bay, by building, deploying, and operating submarine nets. Today, SF State's Estuary & Ocean Science (EOS) Center uses the unique site as a hub of coastal and marine science research and education.

Understanding the history of the site is crucial to developing a vision for its future use. Preserving key aspects of the site's historic industrial and naval identity will be balanced with the intent to restore a resilient environment and recognize erased elements of the past, including cultures, peoples, and ecologies.



## Location and Boundary

The SF State Romberg Tiburon Campus is nestled at the base of the heavily wooded Tiburon Uplands Preserve along the bay opposite Richmond. The existing campus consists of underused or derelict structures from the naval period as well as facilities that currently support SF State's EOS Center, the Interdisciplinary Marine and Estuarine Science MS program and undergraduate courses and programs in coastal and marine sciences. Apart from the highly developed waterfront area, the 45-acre property is primarily comprised of vegetated open space and steep ravines that host a range of ecologically sensitive plant and animal communities.

Given the unique natural characteristics of the site, the masterplan team has established a clear methodology for defining the project's 'developable area', i.e. the site boundary and usable land for the purposes of the masterplan. The adjacent diagrams illustrate these conditions. The following areas have been excluded from the site development boundary for the **purposed of** Living Community Challenge:

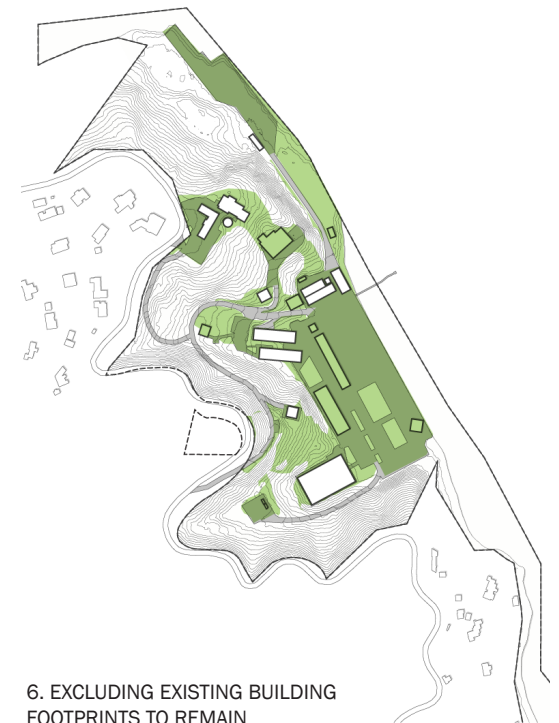
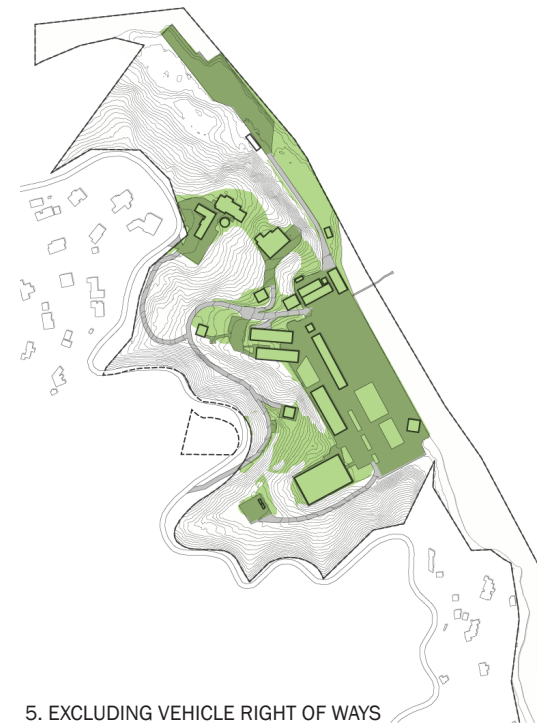
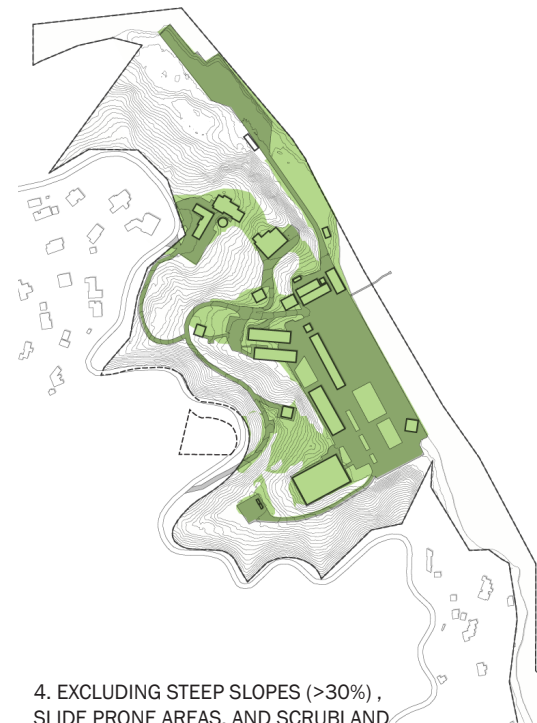
- Site area located in San Francisco Bay.
- Site area located among sensitive biological communities per ecological survey. These include Coast Oak and California Bay forest that will be preserved and enhanced.
- Site area on steep slopes exceeding 30% grade that is infeasible to develop or build on.
- Vehicle right of ways.
- Existing building footprints that are to remain as retrofitted for future program or to maintain the site's historic character.
- Low-lying areas of the site that will be subject to inundation or flooding from projected sea level rise and storm surge. A 6.6 foot sea level rise scenario with a 100-year storm surge was used to define the vulnerable areas.<sup>1</sup>

<sup>1</sup> Area takeoffs sourced from the future shoreline study (Site Conditions graphic, page 10)

### NEXT STEPS

ILFI to provide interpretation regarding the proposed approach to developable area and project boundary definition.

*\*Note - Full property continues over the water along private property frontage to the southeast, which adds acreage but is considered undevelopable.*



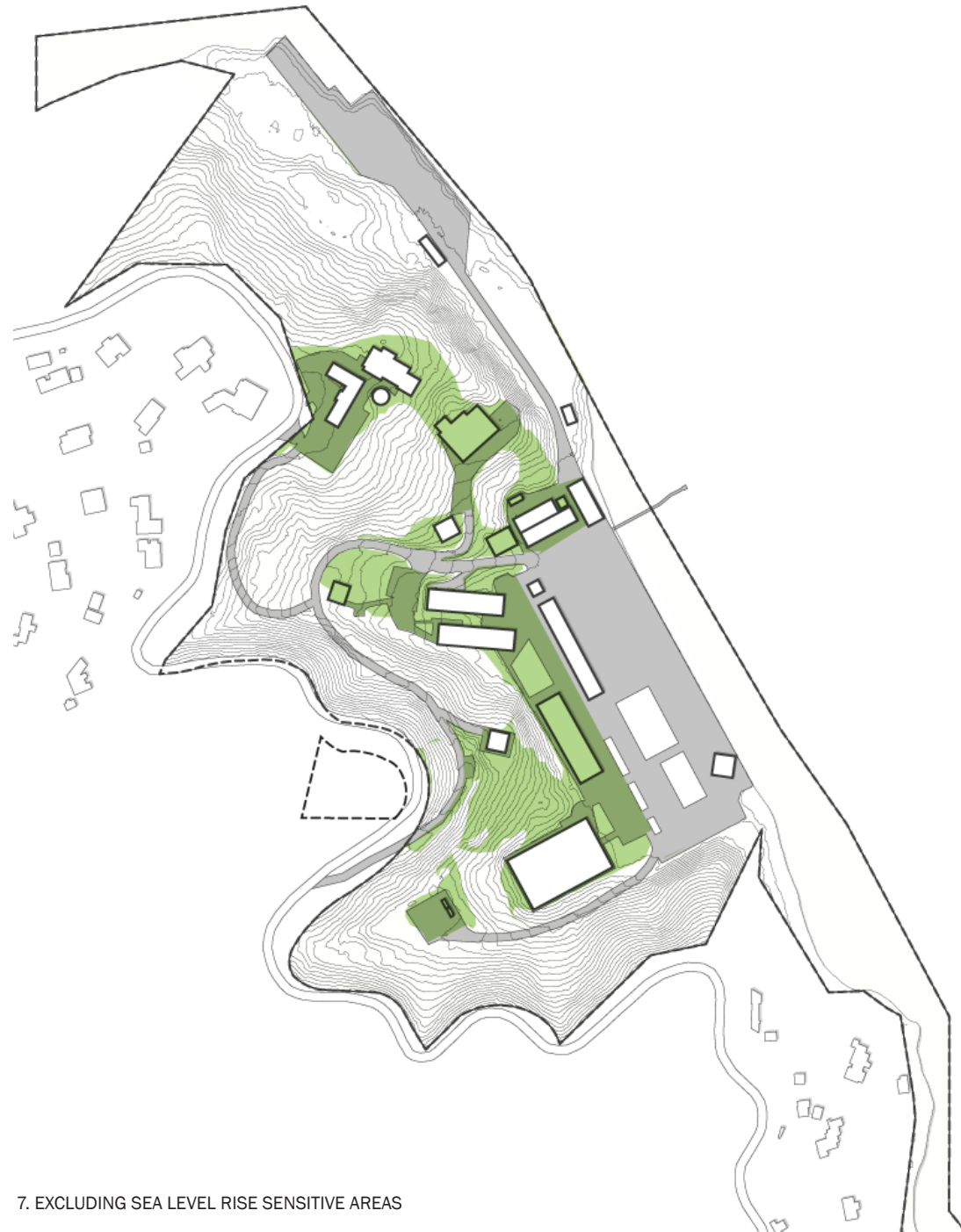


## Proposed Site Development

The proposed campus masterplan revitalizes the site with expanded facilities, further program diversity, and greater public outdoor environments to develop the campus identity and improve spatial connections within the site and within the Bay Area. In addition to the refurbishment of the original naval structures for housing and community amenities, new research laboratories, classrooms, and dining facilities will be provided to encourage greater use of the site by SF State students and faculty. Retrofitting of existing buildings will be prioritized. Sites for new structures will be chosen strategically to touch lightly on the land and minimize disturbance or excavation.

Pedestrian access across the site will be enhanced through the development of a network of pathways and trails that follow the natural seams of the hillside to create inviting connections throughout the campus. The proposed development closer to the water frames the existing concrete slab, reviving historic resources with centralized pedestrian walkways while avoiding development in sea level rise sensitive areas. Permanent inhabitable structures will not be placed on the low-lying slab due to the accelerated rate of climate change caused by the unmitigated use of fossil fuels. However, some modular research greenhouses, staging areas, vegetation restoration, outdoor gathering areas, and PV canopies may be located in these zones.

**PROJECT DEVELOPABLE AREA = 407,876 SF (9.4 ACRES)**



7. EXCLUDING SEA LEVEL RISE SENSITIVE AREAS

<b>1</b>	<b>Full Site Area</b>	<b>45.4 ACRES</b>
<b>2</b>	<b>Excludes Bay</b>	<b>37.3 ACRES</b>
<b>3</b>	<b>Excludes Sensitive Biological Communities</b>	<b>21.9 ACRES</b>
<b>4</b>	<b>Excludes Steep Slopes (&gt;30%), Slide Prone, Scrubland</b>	<b>17.9 ACRES</b>
<b>5</b>	<b>Excludes Vehicle Right of Ways</b>	<b>16.7 ACRES</b>
<b>6</b>	<b>Excludes Existing Building Retrofit Footprints</b>	<b>15.1 ACRES</b>
<b>7</b>	<b>Excludes Sea Level Rise Sensitive Areas (Developable Area)</b>	<b>9.4 ACRES</b>



## LCC Vision Plan Key Elements

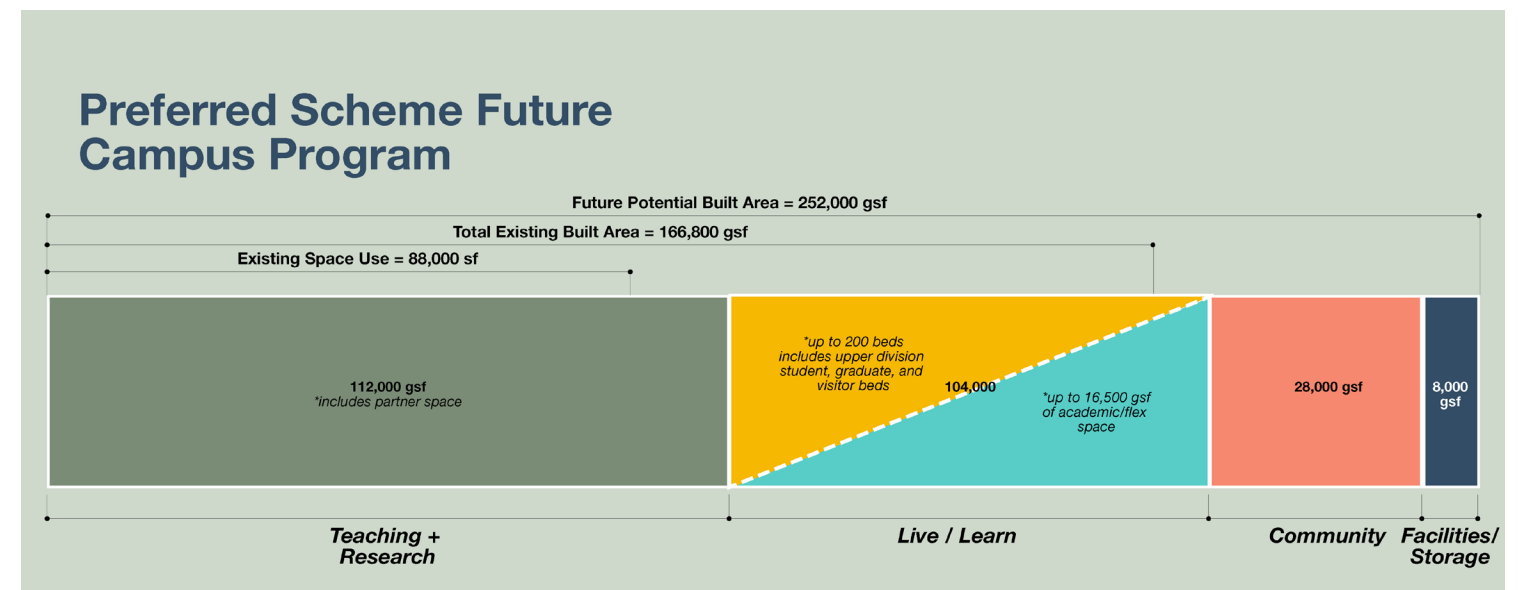
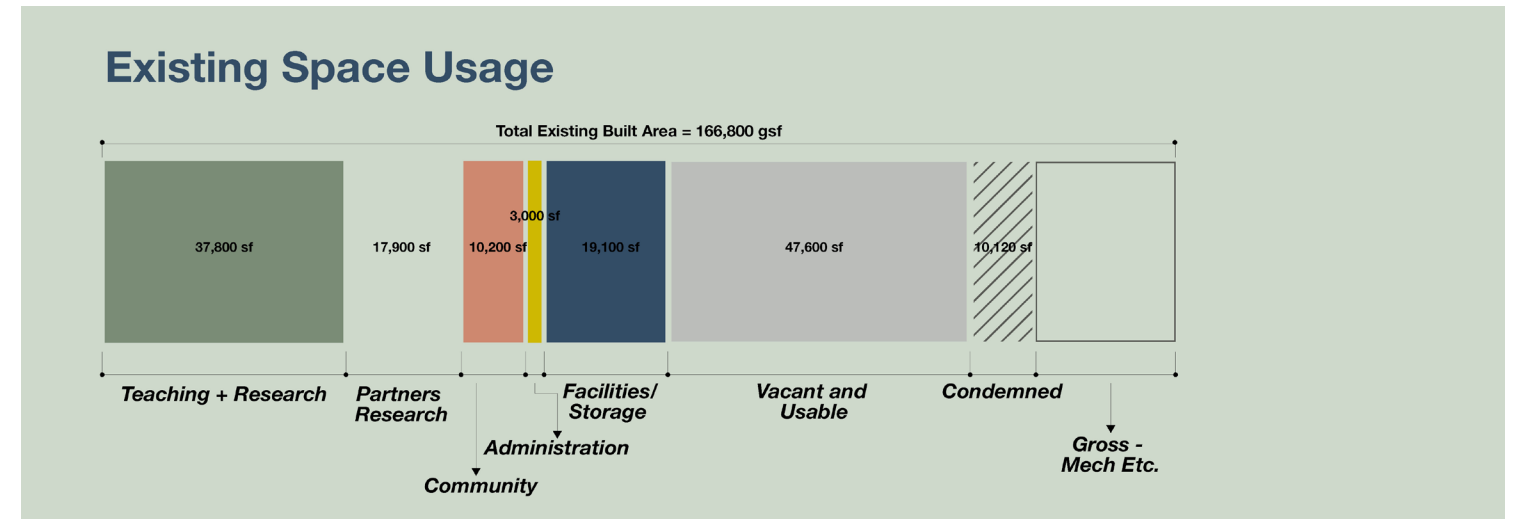
The Vision Plan for the SF State Romberg Tiburon Campus provides a framework for realizing an integrated, interdisciplinary community of university students, researchers, educators, and the general public interested in coastal, marine, and environmental science themes set in a unique ecological and historic setting. Through the lens of LCC Certification, the campus will integrate a hub of educational, research, and residential facilities into the existing topography and wildlife of site, placing an emphasis on learning from nature. The Vision Plan identifies a path to sustainability through:

- Synergistic energy and water strategies.
- Opportunities for developing connections to both the broader university community and the public.
- Key allocation of sensitive biological communities and restored landscapes for conservation.
- An approach to development that weaves together the environmental, industrial, military, and indigenous history of the site and opens it to the public for education and interpretation.

The proposed SF State Romberg Tiburon Campus Living Community at build out will consist of the following:

Living Community Challenge Criteria	
Total Community Area within LCC Project Boundary	45.5 acres
Developable Area	9.4 acres (407,876 sf)
Total Anticipated Building Area	252,444 GSF
Area of New Buildings	137,910 GSF (15 buildings)
Area of Retrofit Buildings	114,534 GSF (12 buildings)
Number of Existing Buildings to be Demolished	11 buildings
Community Type	Mix of new and existing retrofit development includes: University-college campus academic and residential, conferencing, marine research facility, and habitat preserve
Building Types	<ul style="list-style-type: none"> <li>• Educational</li> <li>• Residential: Dormitory, Apartment</li> <li>• Conference and Classroom</li> <li>• Office</li> <li>• Laboratory</li> </ul>
Land Ownership	SF State owns all the property within the community boundary
Current Community Phase	Master Planning
Existing Site Condition	Greyfield and greenfield. Greenfield has been excluded from site developable area
Number of New Buildings to be LBC Certified at the Living Certified level to match the campus	7 new buildings and 1 retrofit building (127,424 GSF) to meet 50% LBC requirement
How the Campus will Satisfy LBC Certification	Some new development and retrofits are assumed to pursue LBC Certification to meet the target required by the Living Community Challenge. The LCC Master Plan will highlight which buildings are included in this assumption and the anticipated LBC Certified GSF.

## CAMPUS PROGRAM – CURRENT AND FUTURE





## Petal and Imperatives

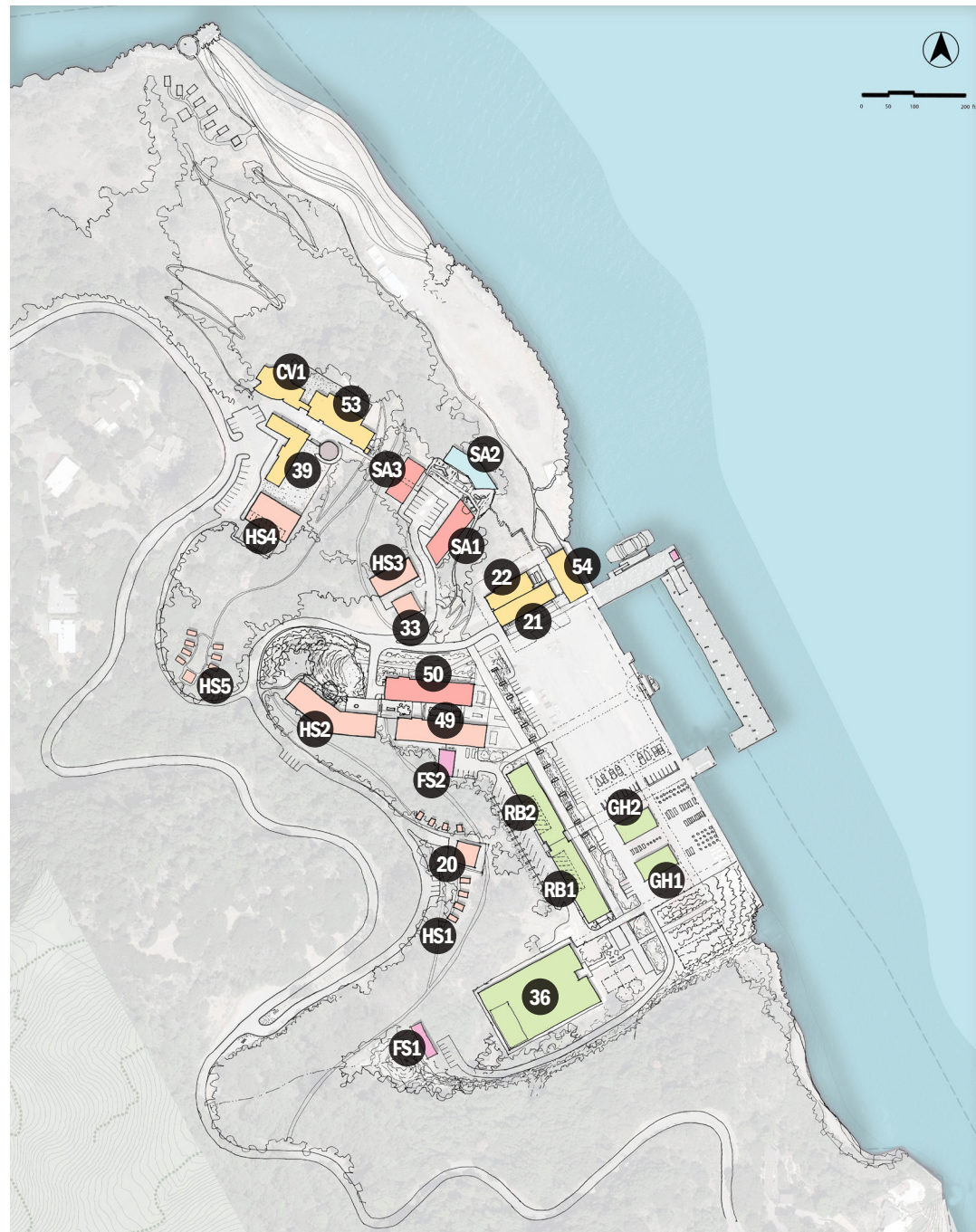
The following sections highlight the design strategies and vision for the community that are based on LCC imperative requirements and offer preliminary strategies to meet each petal and imperative for LCC certification. Where applicable, LCC exceptions are referenced in certain imperative approaches to tailor LCC requirements to fit the unique qualities of the project. Each of these alternative compliance paths have been discussed with ILFI prior to the submission of the LCC Vision Plan.

### IMPERATIVE SUMMARY MATRIX

PLACE	01. Limits to Growth
	02. Urban Agriculture
	03. Habitat Exchange
	04. Human-Powered Living
WATER	05. Net Positive Water
ENERGY	06. Net Positive Energy
HEALTH & HAPPINESS	07. Civilized Environment
	08. Healthy Neighborhood Design
	09. Biophilic Environment
MATERIALS	10. Resilient Community Connections
	11. Living Material Plan
	12. Embodied Carbon Footprint
EQUITY	13. Net Positive Waste
	14. Human Scale + Humane Places
	15. Universal Access to Nature & Place
	16. Universal Access to Community Services
	17. Equitable Investment
	18. Just Organizations
BEAUTY	19. Beauty + Spirit
	20. Inspiration + Education

### Building Area Summary (with LBC Certification Targets Highlighted)

RETROFITS			
#	NAME	AREA (sf)	ANTICIPATED PROGRAM TYPE
20	Ohrenschall Guest House	3,763	Housing
21	Former Navy Machine Shop	3,750	Community
22	Former Navy Blacksmith Shop	5,200	Storage/Facilities
33	Former Navy Coaling Station Office	3,200	Housing
36	Delta Hall	34,000	Research and Teaching Labs
39	Estuary Hall	9,861	Housing
49	South Barracks	17,964	Academic
50	North Barracks	17,246	Housing
53	Bay Conference Center	11,296	Community
54	Former Navy Theater	7,988	Community
	Storage Containers (2)	266	Storage/Facilities
NEW BUILDINGS			
#	NAME	AREA (sf)	ANTICIPATED PROGRAM TYPE
RB1	Research	26,500	Research and Teaching Labs
RB2	Research	26,500	Research and Teaching Labs
GH1	Greenhouse	3,000	Shed
GH2	Greenhouse	3,000	Shed
FS1	Facilities	1,000	Storage/Facilities
FS2	Facilities	1,350	Storage/Facilities
HS1	Housing Pods	1,600	Shed
HS2	Student Living	16,560	Housing
HS3	Student Living	5,100	Housing
HS4	Conference Living	10,800	Housing
HS5	Conference Housing Pods	2,700	Housing
SA1	Science/Academic	12,600	Academic
SA2	Science Partners	12,600	Academic
SA3	Science/Academic	9,600	Academic
CV1	Conference	5,000	Community
SITE FEATURES			
	Sensitive Ecological Habitat Preservation	15.4 acres	
	Restored Habitat for Preservation	9.4 acres	
	Site Circulation, Open Space, & Slab	~8 acres	
	Urban Agriculture	0.7 acres	
	Bay	8.1 acres	





## Place

### Limits to Growth

Restorative landscape design is a key component of establishing a community with a strong ecological sense of place. The SF State Romberg Tiburon Campus is situated at the intersection of a terrestrial woodland, uplands landscape, and the armored shore and open waters of a major coastal estuary, San Francisco Bay. There is a natural separation between the developed areas and wooded areas on-site as industrial and military development was generally consolidated along the waterfront and does not intrude upon the surrounding natural areas. Moving forward, the project has proposed a series of design objectives to ensure the future campus development will maintain the same strong connection to the site with reasonable limits on intensive development.

### ECOLOGICAL RESTORATION

The first objective is to use the landscape and seascape to restore functionality of indigenous ecosystems in density, plant succession, water use, nutrient needs and coastal resilience. To ensure that this goal is met, no petrochemical fertilizers or pesticides will be used for the operation and maintenance of the landscape. As landscaping design progresses, the design team and landscape architect will take into consideration the local ecosystem and native or adaptive species to incorporate into the site design. The community developable area defined in the site boundary diagrams is previously developed land, does not constrain any sensitive ecological habitats, and is not within the 100-year floodplain. In addition, nature-based restoration and climate adaptation principles will be incorporated into plans for the seascape - the tidal shore, seawall and dock - in collaboration with SF State marine ecologists from the Estuary and Ocean Science Center.

### SEA-LEVEL RISE AND TIDAL SHORES

The impacts of the sea level rise—present and

future due to climate change—will require a plan that responds to a dynamic, retreating shoreline and incorporates elements of nature-based coastal resilience, managed retreat, and enhanced armoring. Due to the unique hydrology of the site, stormwater flows from surrounding hills are drained through the site, creating seasonal watersheds. Development near these flood-prone ravines will be limited to prevent future risks. The Romberg Tiburon Campus will aim to incorporate site-hydrology sensitive designs in the masterplan.

### STRATEGIC LAND USE

The SF State Romberg Tiburon Campus will maximize operation and retrofitting of existing buildings, using previously disturbed land for new building footprints.

### NEXT STEPS

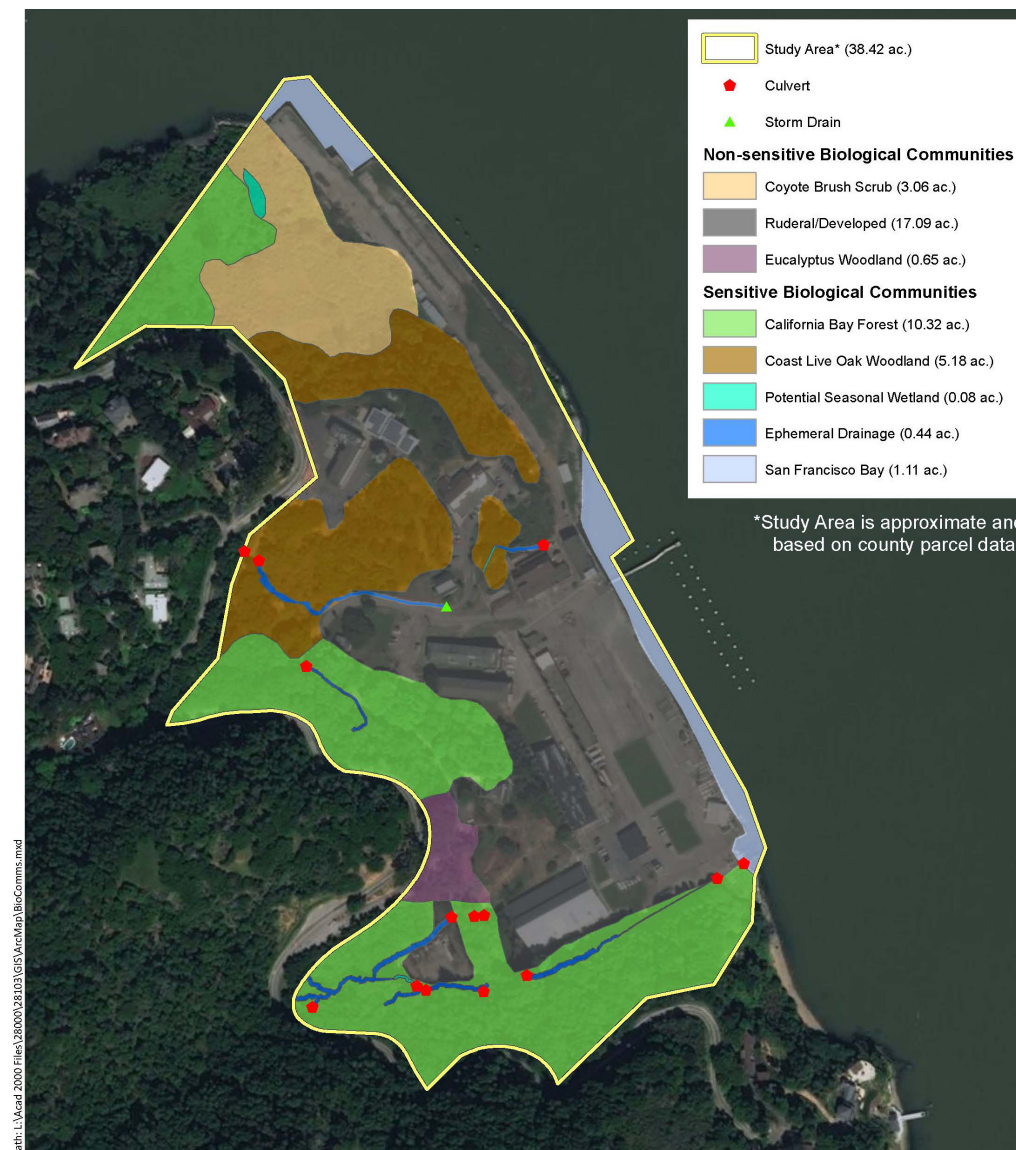
The design team will develop and document the specific strategies that address the effects of sea-level rise and flooding in the masterplan.

### Urban Agriculture

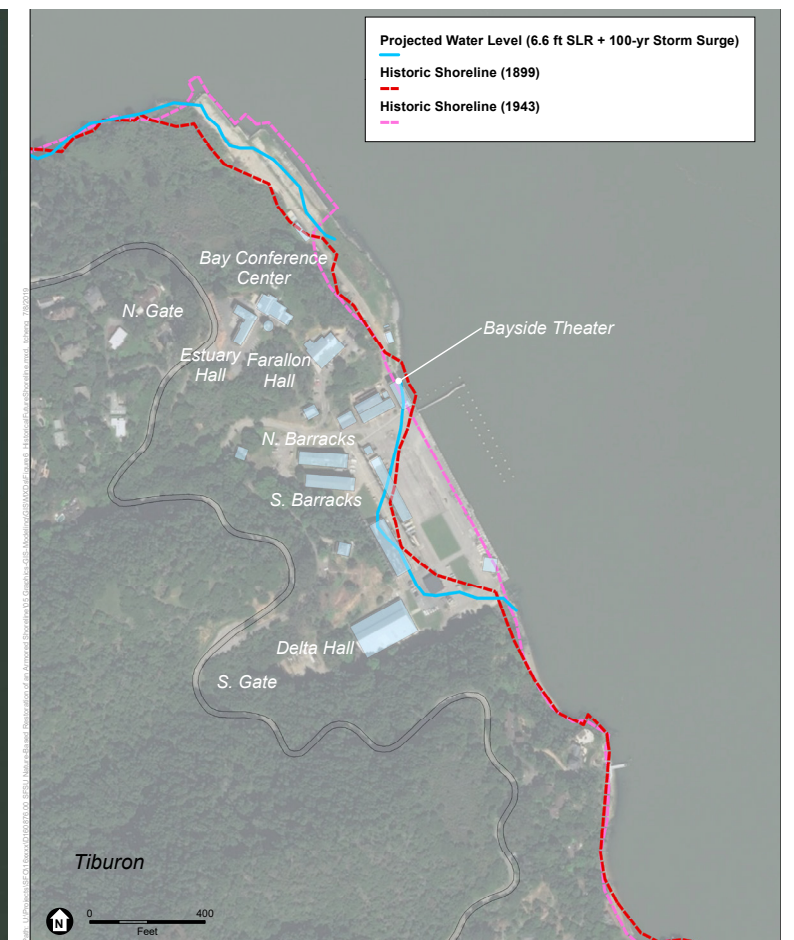
The vision for the new Romberg Tiburon Campus includes designated areas for food production that satisfy the intent of the imperative without compromising existing, sensitive ecological habitats through agriculture land conversion. In order to meet these requirements given the unique attributes of the site, the project team has developed the previous 'developable areas' diagram to more sensitively investigate feasibility for agricultural development. As recommended by ILFI, the team is proposing a calculation that excludes habitats, steeply sloped areas, the San Francisco Bay, vehicle pathways, retrofit building footprints, and sea level rise sensitive areas such as the concrete slab.

Also under consideration is an approach that borrows from the Urban Agriculture imperative

## SITE CONDITIONS - ECOLOGY AND SEA LEVEL RISE



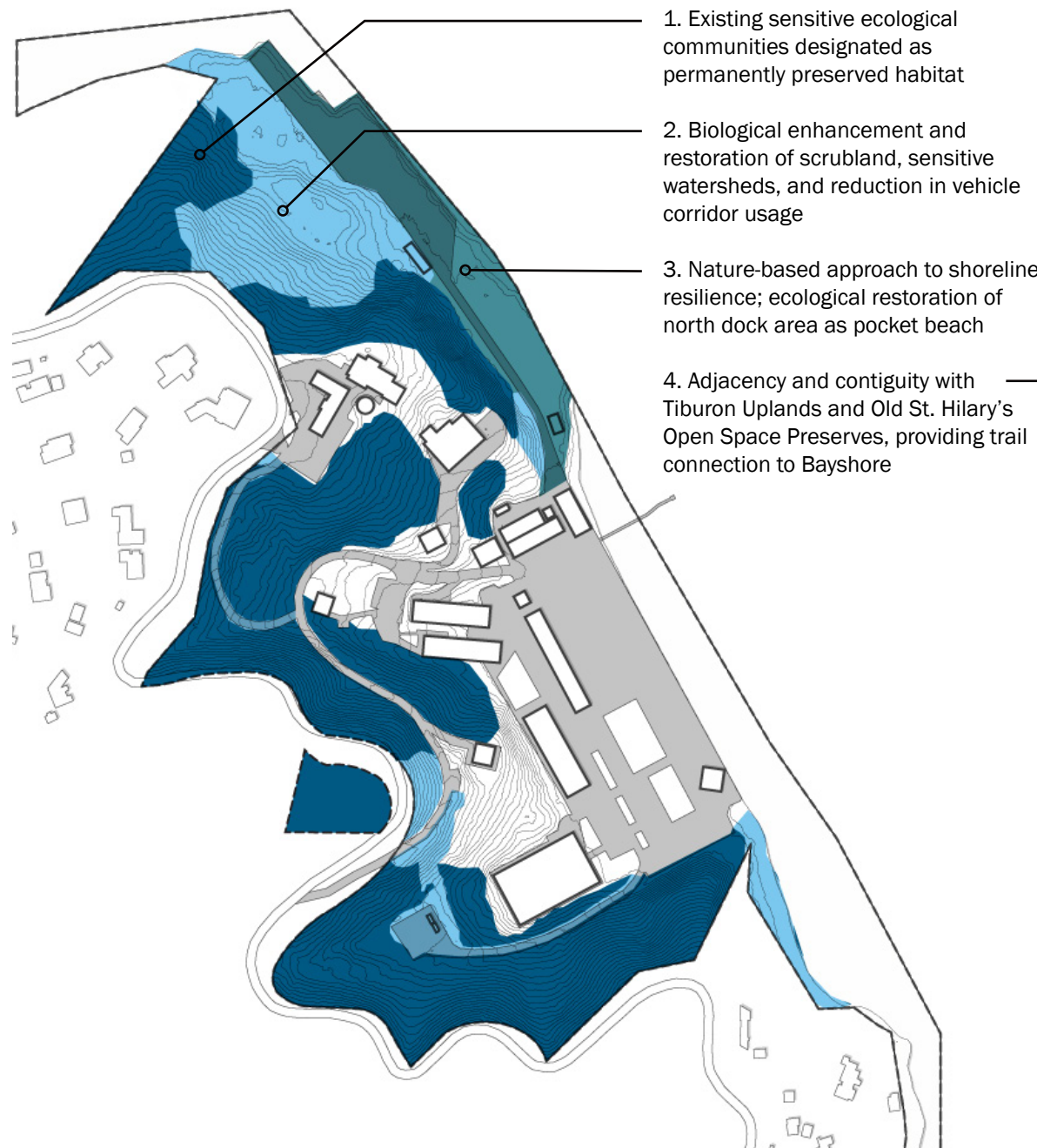
Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: smortensen, 1/10/2019



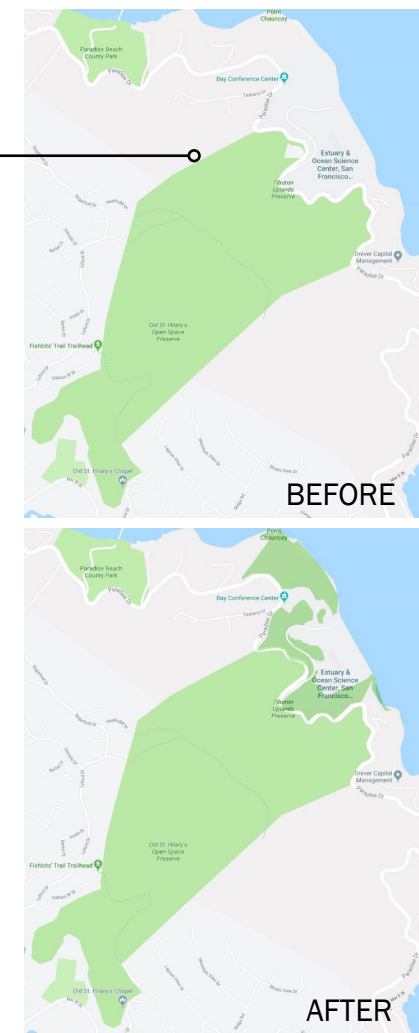
ESRI Aerial (2019), NOAA (Historic T-Sheets), Our Coast Our Future (2019) SFSU Nature-Based Restoration of Armored Shoreline - D160876.00



**HABITAT EXCHANGE APPROACH (15.5 ACRES PRESERVED, 9.5 ACRES RESTORED)**



requirements under the recently-released Living Building Challenge 4.0, in which communities can reserve 7% of the project area for food production with weekly access to healthy foods through farmers markets, CSA food programs, or other local food merchants. Such programs align with the campus goals to improve food service amenities on-site while supporting the exceptional local agriculture products available in Marin County and the SF Bay Area.



The majority of proposed urban agriculture is situated on the hillside beneath existing housing. This area was previously used as officer's quarters during the naval period and contained a terraced garden used by the resident families. Rehabilitating these gardens to serve an agricultural function fits the intent to reinforce a sense of place. The garden will consist of indigenous edible botanicals to introduce native species into the landscape. Additional agriculture will also be provided among other residential buildings for greater accessibility to on-site food production. Aquaculture is being considered as a strategy given the site's waterfront location and access to local marine species. Adequate food storage will be provided.

**NEXT STEPS**  
ILFI to advise on proposed approach to developable area calculation and LBC v4.0 criteria for urban agriculture requirement in masterplan.

**Habitat Exchange**

As a living community whose mission is to preserve and protect natural habits, the SF State Romberg Tiburon Campus has a goal of offsetting the total area of development with an equal amount of land set aside in perpetuity for habitat exchange. To achieve this aim, the project team has identified 252,444 sf (2.3 hectares) of sensitive ecological area on the Romberg Tiburon Campus itself that may be designated for permanent preservation. This number is based on anticipated building area; additional land can be set aside for preservation depending on the final development area, all of which will be detailed in the LCC Master Plan. This land is contiguous with adjacent open space areas including Tiburon Uplands and Old St. Hilary's.

**NEXT STEPS**  
ILFI to advise on land allocation documentation requirements given that SF State is a not-for-profit public institution.

**Human Powered Living**

The Romberg Tiburon Campus will be designed to address topographic constraints of the property to ensure ease of mobility within the site. A network of enhanced trails and walkways emphasize pedestrian access to various campus facilities and the surrounding natural landscape. Bicycle storage for 15% of campus occupants and an electric bicycle-share program will be offered to encourage non-vehicular transit among buildings on-site.

In addition to bicycle circulation, a small scale EV-sharing program with one-way drop-off capability (such as Zipcar™ or Get-Around™) will facilitate a reduction in personal vehicle storage on-site and provide shared transportation resources for connectivity to nearby community services. A small ferry or water taxi stop at the dock is also being considered to increase public access to the site.

Per the transect requirements for L3, a shuttle to a local ferry or Golden Gate Transit (GGT) bus station in the neighboring Strawberry Village Shopping Center will be scheduled. This will reduce vehicular commuting by connecting campus users to existing public transit systems. SF State students can travel between the city campus in San Francisco and the Romberg Tiburon Campus via ferry or GGT buses, increasing equitable opportunities to access the campus. Appropriate weather protection will also be placed on street frontages where applicable. The programmatic design does not have an occupancy type greater than 70% providing optimal development diversity and mix of various amenities.

**NEXT STEPS**  
Mobility Plan and Master Plan will be informed by an assessment of human-powered living opportunities to prioritize and advocate for bicycle and pedestrian circulation in the site design.



## Water

### Net Positive Water

Ecological systems rely on rainfall to flourish. Sustainable water strategies maintain or amplify ecological water flows to support the site's ecology while also meeting the needs of the community. SF State is committed to water stewardship and integrated water management at the Romberg Tiburon Campus and aims to achieve the Living Community Challenge Imperative 05 Net Positive Water. This imperative requires the Campus to meet the following requirements:

- Water use and release must work in harmony with the natural water flows of the campus and its surroundings.
- 100% of the campus water needs must be supplied by captured precipitation or other natural closed-loop water systems, and/or by recycling used community water, and must be purified as needed without the use of chemicals.

All stormwater and water discharge, including greywater and blackwater, must be treated and managed at the community scale either through reuse, a closed loop system, or infiltration.

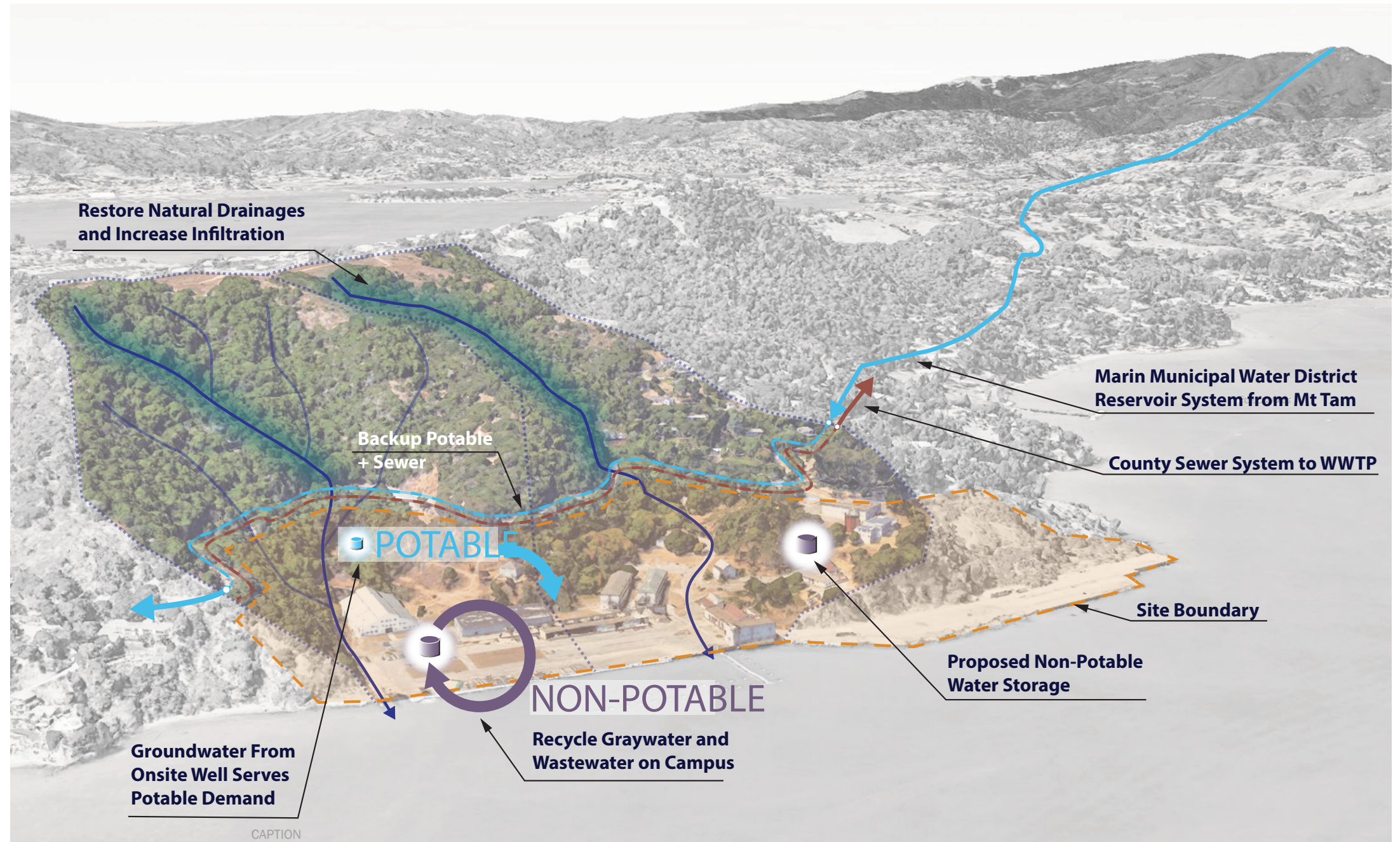
#### APPROACH

The campus envisions implementing a toolkit of integrated water strategies to meet the LCC water imperative as well as broader SF State and CSU sustainability goals. The approach is summarized below and in the adjacent integrated water diagrams.

#### POTABLE WATER SUPPLY

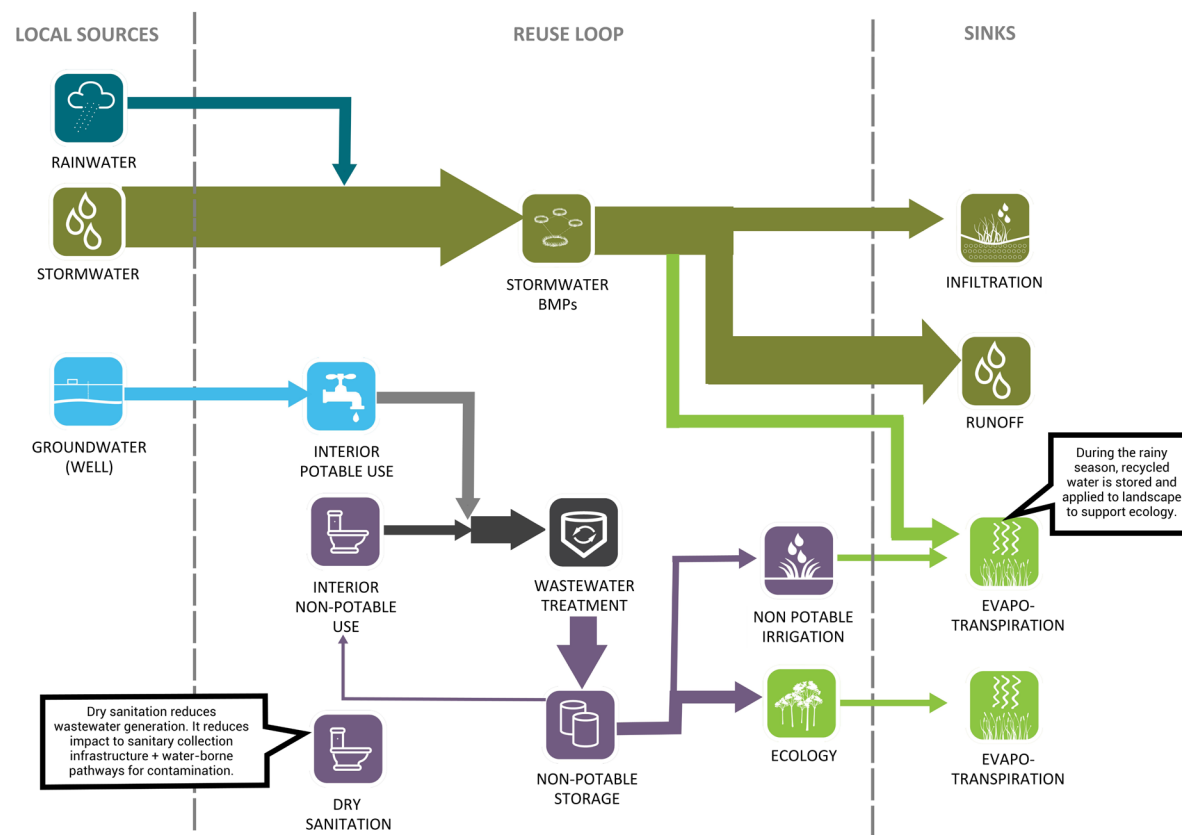
The project site was a historic gathering place for Coast Miwok communities, likely driven by the shallow bayside cover providing access for gathering shellfish and the presence of natural springs resulting from perched groundwater flowing through fractures underlying bedrock. Department

### SITE WATER SYSTEMS DIAGRAM





## INTEGRATED WATER DIAGRAM



of Water Resources well records in the area also indicate the presence of deeper groundwater reservoirs with yields reported on the order of 3 to 10 gpm in the vicinity of the campus. The year-round presence of groundwater presents an opportunity to develop on-site wells to serve potable water demands. The vision for on-site potable water supply includes the following strategies:

- Develop on-site groundwater wells to serve 100% of the campus's potable water demand. The wells will connect into the existing water distribution infrastructure. On-site water storage will be incorporated into the system design, with supply for a minimum of 3 days of demand. A back-up connection to the MMWD system will be maintained in case of emergencies.
- The existing separated fire water system will remain connected to MMWD.
- Rainwater harvesting will be considered as an alternative potable water supply, but is anticipated to be more challenging and costly to develop in large part because of the seasonal rainfall patterns in California. Rainwater and stormwater will be managed with the goal of restoring ecological water flows as described in the next section.

### NEXT STEPS

Further hydrogeologic investigations, including installation of monitoring wells, will be required to confirm the sustainable yield, seasonal supply, and water quality of on-site groundwater to assess viability as a sustainable potable water source for the campus.

### ON-SITE WASTEWATER MANAGEMENT

Wastewater generated from the campus is currently conveyed by a gravity pipe network to a lift station and pumped via force main to a connection

to the municipal sewer system. The campus will explore several approaches to reconfigure the infrastructure in order to manage and reuse 100% of the campus's greywater (showers, bathroom sinks, laundry machines) and blackwater (toilets, kitchens) in on-site closed-loop systems. The vision for on-site wastewater management includes the following strategies:

- Dry Sanitation (Composting Toilets): Dry sanitation will be considered for all new buildings and potentially for retrofits to existing facilities during renovation. Because the site does not have a large recycled water demand, the intent is to incorporate dry sanitation in order to minimize increase in wastewater generation over time as the campus expands.
- Wastewater Treatment and Reuse (Alternative): Recycled water will be reused to meet all irrigation demands and toilet flushing in new buildings. In months when recycled water supply exceeds non-potable demands, excess recycled water will be stored and applied to the landscape and evapotranspired. A connection to the municipal sewer line will remain for cases of emergency or treatment system maintenance only.

### STORMWATER & ECOLOGY

Rainwater and stormwater runoff generated from the larger watershed and on-site activities are conveyed to several piped outfalls to the Bay, generally following the path of the two heavily altered drainages present on the site. The vision is to restore natural patterns of flow within these natural drainages and support the site's ecological restoration goals to the maximum extent feasible. The proposed approach to stormwater management will employ the following principles:

- Increase retention: The site design will minimize imperviousness and incorporate

low impact design principles across the campus to reduce stormwater runoff rates and volumes. Restoration of native vegetation and soil profiles will help promote stormwater retention by slowing and absorbing stormwater runoff and increasing infiltration and evapotranspiration.

- Naturalize conveyance: The current campus uses a network of concrete channels and pipes to convey water to several outfalls into the bay. The proposed approach will minimize piped conveyance and soften and naturalize at-surface conveyance features to improve water quality and reduce flood risk.
- Treat all stormwater: All site runoff will be treated in landscape-based treatment facilities prior to discharge to the Bay.
- Restore wetlands: The design team will explore the potential to restore wetlands at the interface between the main drainages and SF Bay.
- Incorporate principles of biophilic design: The design will promote users to interact with and experience natural systems and stormwater management features.
- Incorporate research and education: Watershed and wetland restoration represent opportunities for research and education for both SF State and the broader community.

### NEXT STEPS

Explore and develop approach to wastewater management, including opportunities for dry sanitation or non-potable water reuse. Develop naturalization and restoration approach for stormwater conveyance.



## Energy

### Net Positive Energy

The Romberg Tiburon Campus is committed to an ambitious operational energy and greenhouse gas emissions reduction strategy. A key goal established through the LCC framework is Net Positive Energy, meaning that the campus will meet the following requirements:

- 105% of the community's energy needs will be supplied by renewable energy generated on-site or purchased directly by the community through a PPA with additionality, including all energy for water and waste conveyance. Additionality refers to a new renewable energy installation rather than credit for existing generation.
- All building systems will be combustion-free, eliminating on-site emissions and enabling the campus to be carbon neutral.
- Some local energy storage will be provided to manage on-site renewable energy generation assets and maintain critical services during emergency events; these include preservation of research materials and samples as well as life support systems for living organisms used in education and research.

### APPROACH

A range of strategies will be implemented to minimize energy consumption on-site—including a robust approach to passive design and strategic building systems selection. Careful integration of renewable energy systems and potential for off-site power purchase agreements with additionality may also be used to directly meet or offset energy use.

### ENERGY CONSUMPTION

A unique paradox of the site is that the current campus configuration and resulting energy use is extremely low intensity. A significant portion of the existing buildings is unused due to substandard conditions or seismic concerns that deem them

uninhabitable. Through the light touch approach of the masterplan as seen in the adjacent chart, use of existing square footage will be maximized through retrofitting of existing buildings, with some new construction projects. This allows the project to meet its short-term and long-term goals with limited demolition and new building construction, reducing material resource use and embodied greenhouse gas emissions.

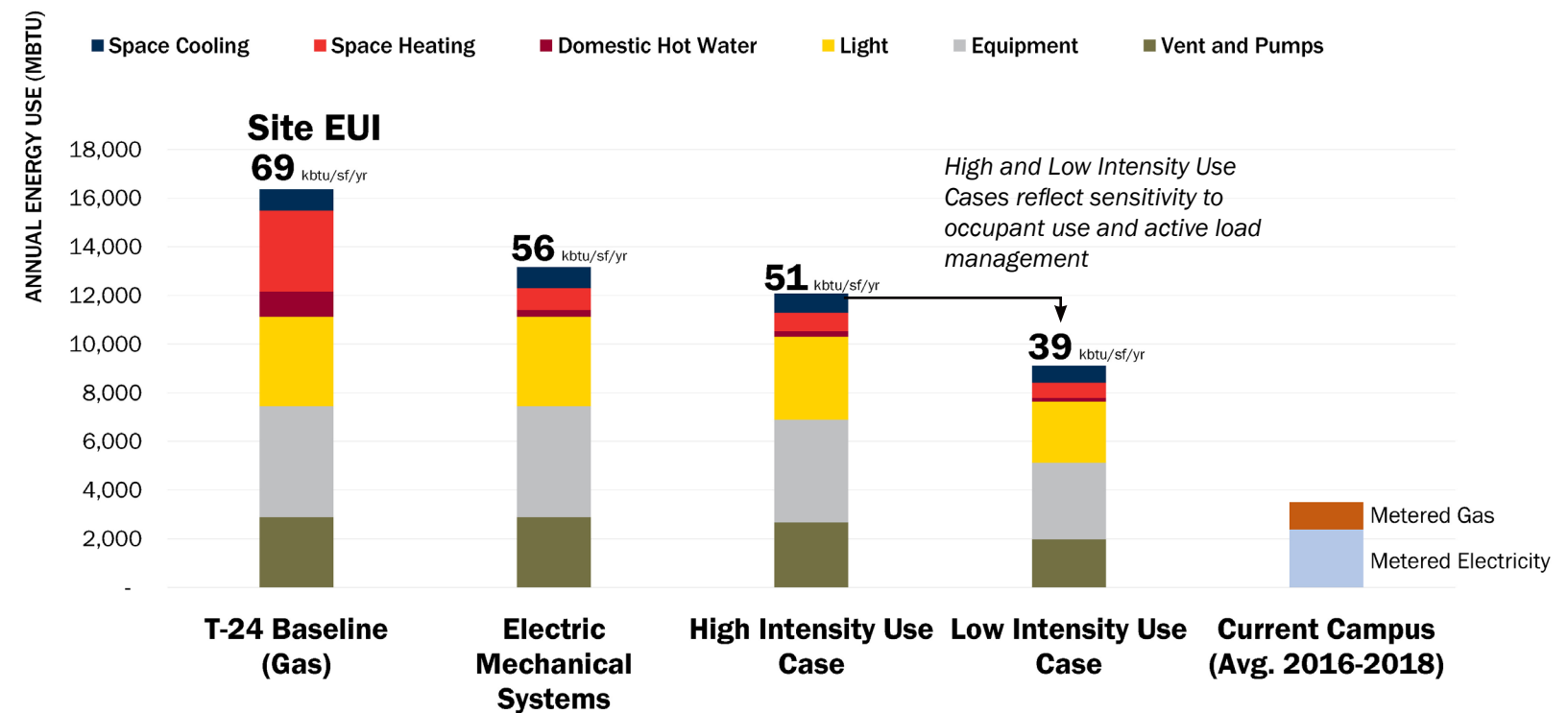
All retrofit and new building projects will be optimized to ensure maximum energy efficiency. A unique aspect of the site is that many of the historic buildings were designed for passive functionality—taking advantage of the temperate climate for natural ventilation cooling and daylighting. The masterplan builds upon these principles, with building massing and orientation optimized for passive energy strategies.

As indicated in the adjacent chart, preliminary energy modeling shows that site energy consumption will approximately triple compared to its current campus with highly efficient retrofits and new buildings. This is due to significant increases in the research program, which is relatively energy intensive, as well as growth in student and residential populations. A key goal of the masterplan will be to significantly improve programmatic functionality of the built environment at the Romberg Tiburon Campus while limiting steep increases in energy consumption.

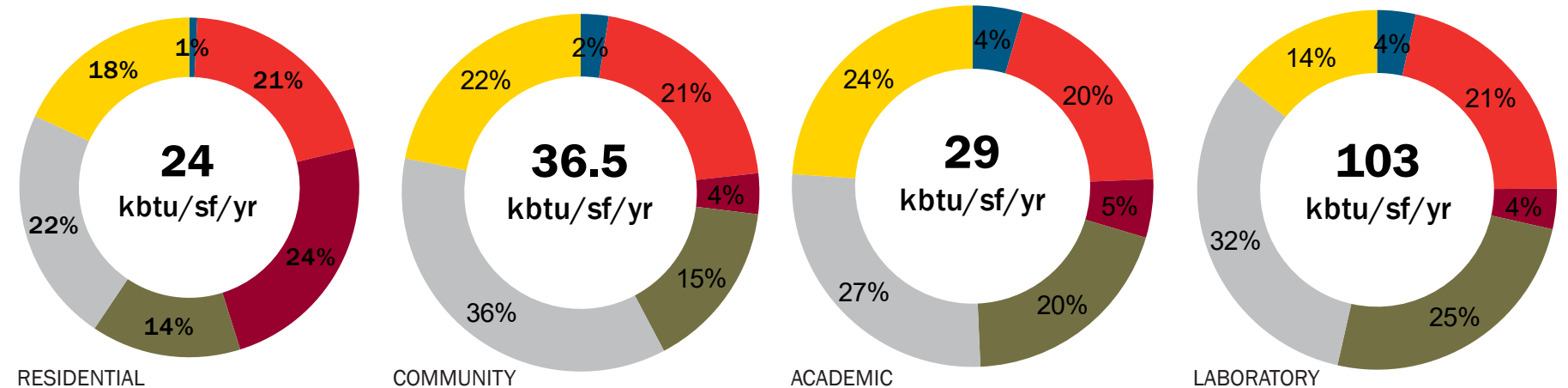
### ON-SITE COMBUSTION

Deep retrofits of existing buildings will be completed as part of the masterplan implementation, including replacement of dated building conditioning and domestic hot water systems. The design team will take a strategic approach to phasing out natural gas heating equipment, which is already limited on-site, to minimize and ultimately eliminate combustion.

### FUTURE ENERGY CONSUMPTION PROJECTION

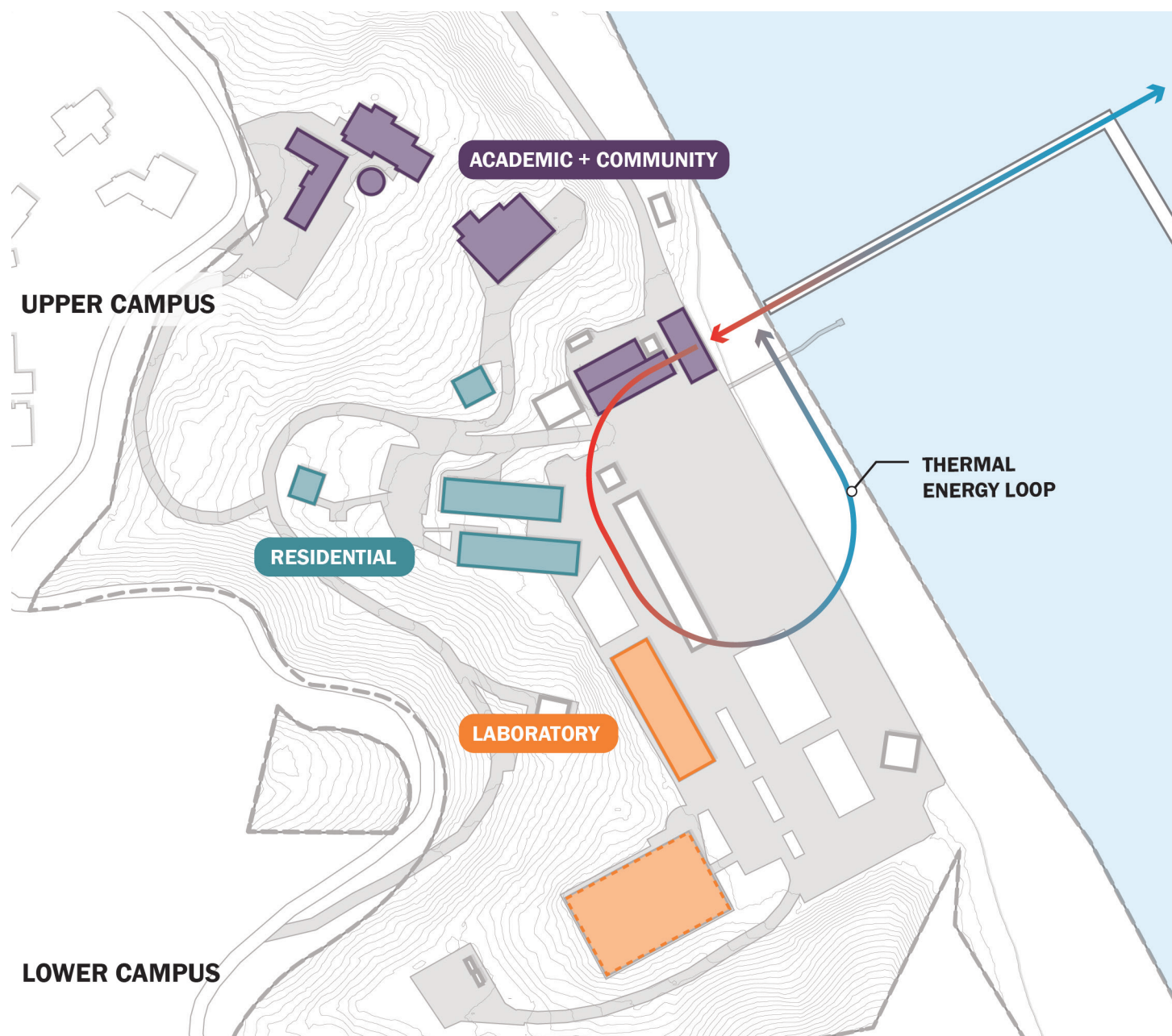


### ENERGY USE INTENSITY ESTIMATE - INDIVIDUAL PROGRAM TYPES (HIGH INTENSITY USE CASE)





### FUTURE CENTRAL THERMAL LOOP OPPORTUNITY



#### CAMPUS CENTRAL UTILITY PLANT

The campus also has the opportunity to leverage its mix of diverse program types and energy end uses through the implementation of a campus central utility plant that efficiently uses heat pumps to balance simultaneous heating and cooling loads across the campus and provide hot and chilled water. The viability and energy benefit of such an approach depends on achieving a 'critical mass' of program on the site.

Additionally, there are opportunities to use the project's site on the bayshore to its advantage through the installation of a bay-source heat pump that rejects and sources heat from the relatively neutral temperature of baywater. The design team is currently exploring synergies between the marine science research baywater loop, which is needed to maintain aquatic lab experiments, and a potential baywater heat pump.

It should be noted that building systems installed during the early phases of the masterplan can be designed to function independently until the future potential connection to a campus system that provides hot and chilled water.

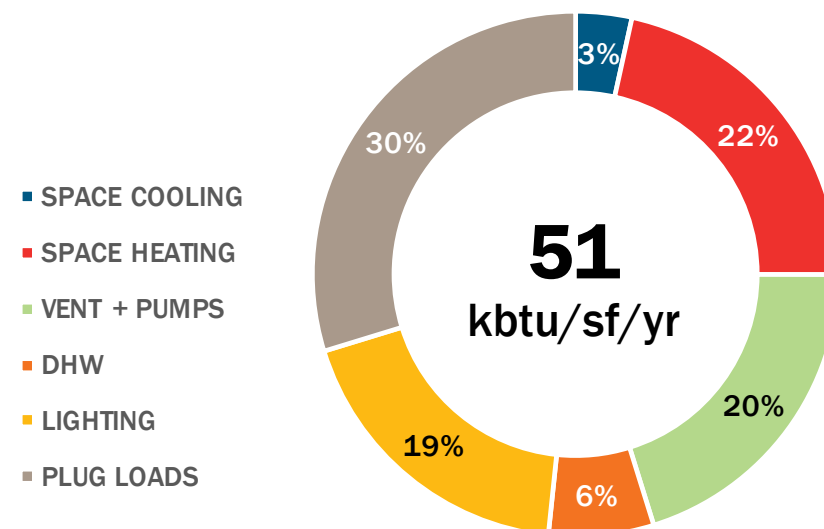
#### ENERGY GENERATION

The project is committed to purchasing renewable energy systems that generate more than 100% of the campus' energy consumption. The design team is currently evaluating the viability of locating all of the PV on-site, with the majority placed on building rooftops and some located on the slab area as canopies for storage, parking, or shaded gathering areas. The table below shows that under preliminary estimate, a combination of these strategies will achieve the array size target necessary to meet net positive energy for the high intensity use case.

Renewable Energy Summary	
ARRAY SIZE FOR NET POSITIVE ENERGY	2.3 MW
70% of Building Roof Area	1.7 MW
PV Canopy over Storage/Parking	0.6 MW

#### OVERALL CAMPUS MASTERPLAN ENERGY USE INTENSITY

\*REFLECT THE HIGH INTENSITY USE CASE AS A CONSERVATIVE ESTIMATE



A key question for the design team is whether this intensity of renewable energy generation infrastructure is appropriate for the project site, both from a utility servicing and physical perspective. Due to the remote nature of the site, PG&E electricity delivery infrastructure may not be able to manage peak generation and net metering events for an array of this size. In the case that on-site PV generation cannot be used to achieve net positive, scale-jumping may be used to directly purchase renewable electricity through a power-purchase agreement that guarantees additionality.

#### NEXT STEPS

Explore feasibility of centralized heat pump strategy. Develop phasing plan for eliminating combustion equipment. Establish maximum feasible on-site renewable energy installation.



## Health and Happiness

### Civilized Environment

A key goal of the SF State Romberg Tiburon Campus masterplan is to cultivate and convey the rich historical narrative of the site through the built environment. The masterplan will maintain the site's strong historic identity as an industrial and naval maritime hub through the preservation of iconic artifacts such as a large water storage tower; retrofitting of existing buildings of historical significance; and incorporation of a large concrete trestle dating to the coal harbor period into the design of new pedestrian walkways and outdoor spaces along the concrete slab. References to the region's indigenous inhabitants will also be reintroduced in specific locations of the site. The Romberg Tiburon Campus will develop and maintain a preservation plan and local heritage inventory to protect structures and landscapes of historical significance.

Appropriate staffing will be used to implement the following community initiatives as proposed:

1. Local food program – in addition to on-site food production and dining services, a CSA program is being considered in the proposed compliance path to the Urban Agriculture imperative.
2. Car and bike sharing program – an EV sharing system and electric bicycle share are to be included in the Mobility Plan.
3. Community tool sharing and library – the Romberg Tiburon Campus has access to shared resources with the city campus as well as on-site research resources and equipment for active lab work and sample harvesting on the Bay.
4. A living museum providing interpretative exhibits on the site's history is being considered at the public entrance located in rehabilitated historic structures. This campus zone will also serve as a space for gathering as an introduction to the campus for the public.

These measures develop greater public interaction with the campus through synergistic strategies that also address circulation, provision of food on-site, and biophilia.

#### NEXT STEPS

The team will work to develop the set of community initiatives and historic resource narrative.

### Healthy Neighborhood Design

The SF State Romberg Tiburon Campus aims to achieve equity of health across the community in all of its facets, ultimately enhancing professional, academic, and personal success for all members.

SF State's city campus has a Health and Wellness Education Plan that is accessible via the campus website. The plan addresses key topics such as alcohol, tobacco, and other drug use prevention campaigns that interface with the community through workshops and outreach tables. It also includes resources detailing sexual and mental health support programs (including therapy animals), self-care stations (aromatherapy, gratitude), and community listening programs with trained listeners.

The SF State Romberg Tiburon Campus will draw from these health and wellness practices to create accessible resources for the physical, mental, and emotional wellbeing of the community as a whole.

#### ACTIVE RECREATION

A number of active recreation options will be provided for the Romberg Tiburon Campus community members, including: kayak docks, recreation courts, and a dockless electric bike-share system to more easily traverse the site and access adjacent community resources.

It should be noted that certain active recreation





## BIOPHILIC DESIGN CHARRETTE ACTIVITIES



elements will be for the express use of the SF State Romberg Tiburon Campus members and will not be open to the larger public due to campus security measures in place to protect critical amenities from theft and address liability concerns. However, passive recreation elements will be made available to all.

### PASSIVE RECREATION

Incorporated into the SF State Romberg Tiburon Campus plan are comprehensive passive recreation design elements in the form of dedicated walking trails, bike trails, and pedestrian paths directly accessible from every building. Bicycle trails will enhance access to the shoreline for community members taking the Paradise Loop bike route adjacent to the project site. An interpretive trail system will identify specific points of interest that convey the historical narrative of the site and offer pedestrian access to the waterfront. The provision of these spaces align with the larger campus health and wellness goals.

Ensuring accessibility to these passive recreational elements is an important component of SF State's commitment to the principle of universal access to nature, so bike paths and parks will be designed such that they are no farther than one half mile from any point in the community.

### NEXT STEPS

Incorporate interpretative trail system, bike network, and active recreation elements into masterplan documentation.

### Biophilic Environment

A biophilic design charrette was conducted to brainstorm aspects of the site that present opportunities for biophilic design depending on program types—including academic research, guest/conferencing, social and living, and

interior/exterior circulation. Detailed biophilic design principles were developed from these exercises and discussions; these will be detailed in the masterplan. The list below provides a brief snapshot of some key ideas emerging from the stakeholder discussions.

### BIOPHILIC DESIGN PRINCIPLES SNAPSHOT

1. Passive 'third' spaces for gathering
2. Manual controllability of environment
3. Comfortable outdoor spaces
4. Interpretative trails and signage
5. Equitable waterfront access
6. Immersive short-term nature stay
7. Daylight of water flows
8. Inherent prospect and refuge of site
9. Quiet places for long-term residents
10. Restorative 'warming hut' for dining

A follow up charrette was held to incorporate these principles as masterplan strategies at the site and building scale. Key elements of biophilic design in the Master Plan include sheltered places of respite for campus residents, a series of pathways with educational signage connecting to historical and ecological site locations, creation of a public trail system, access to the waterfront, outdoor work spaces, reuse of the existing trestle framing, and building orientation to maximize access to views.

### NEXT STEPS

Design criteria and building-specific strategies will be incorporated into the Biophilic Plan.

### Resilient Community Connections

University campuses and communities must be resilient in the face of natural disasters –providing shelters, response protocol, and community resources to facilitate the safe movement and

housing of people on-site at all times. The unique situation of the SF State Romberg Tiburon Campus makes it especially susceptible to influence of the elements. The site's proximity to the Bay and elevation changes necessitate careful planning for flooding events. Sea level rise, in particular, is a key issue for the project. Studies of its effects will play a significant role in the design of the Master Plan, ensuring that all sensitive infrastructure (including sewage treatment centers, classrooms, community centers, etc.) are located out of the floodplain.

Careful management and study of floodplains and tidal patterns of the adjacent SF Bay have already begun to ensure that proper infrastructure planning and community resources have been enacted to address weather disruptions or disasters of any type on-site.

### DISASTER MANAGEMENT PLAN

To further ensure community resilience in the event of a natural disaster, the SF State Romberg Tiburon Campus will develop a disaster response plan including the following steps:

- Assign and train two block captains for every 500 residents that are highly versed in disaster response, safety procedures and first aid.
- Maintain an emergency contact program.
- Have an active neighborhood watch with a mandate to keep track of resident well-being and safety.
- Ensure that sensitive infrastructures are located out of the floodplain.

The design team will begin to strategize means to leverage the site's location on the water to aid campus law enforcement and emergency services.

### NEXT STEPS

Compile documentation for disaster response planning from CSU/SF State resources and develop site specific resilience approach.



## Materials

### Living Materials Plan

Materials and supplies used for construction of the built environment frequently cause an array of environmental issues ranging from human illnesses to disruption of ecological systems through pollution and resource depletion. By focusing on careful procurement of building materials, the SF State Romberg Tiburon Campus will set a leading example for future communities of a non-toxic, transparent, and socially equitable materials economy.

To help achieve this vision, the project team will develop an Implementation Plan that draws from the criteria established by the ILFI Red List, Living Economy Sourcing, and Responsible Industry to select non-toxic, healthy materials and low-carbon materials, as well as natural and locally-sourced products. The Implementation Plan will address all community facilities, infrastructure systems, and landscapes contained within the development scope.

#### RED LIST

The ILFI's Red List—a list of toxic chemicals to be avoided in site materials within a living community—will inform the design team's process for selecting compliant materials to be used for common infrastructure areas (including sidewalks, plazas, lanes, and open space) and landscapes that the community controls and is in charge of developing.

#### LIVING ECONOMY SOURCING

- 20% or more of the materials construction budget are sourced from within 500 km (311 mi) of construction site.
- 30% of the total materials construction budget are source from within 1000 km (621 mi) of the construction site.
- An additional 25% of the materials construction budget are sourced from within 5000 km (3107 mi) of the construction site.

- The remaining 25% of materials may be sourced from any location.

#### RESPONSIBLE SOURCING

To support the sustainable extraction of materials and transparent labeling of products, SF State will ensure that 100% of timber materials are FSC certified, as well as incorporate at minimum one of the selected products certified under the Living Product Challenge for every 500 sq.m (5382 sq.ft) of gross building or project area as specified by the LCC.

#### NEXT STEPS

The team will develop an Implementation Plan that captures the imperative requirements and ensures the finalized material palette for the project meets these criteria.

### Embodied Carbon Footprint

The goal for the SF State Romberg Tiburon Campus is to revitalize the campus with buildings that have a low overall climate impact. The project will prioritize the retrofit and reuse of existing structures and the construction of new buildings that have a low carbon footprint. To achieve this aim, the project will account for the total embodied carbon impact from the construction of all community infrastructure, both built and projected, and community-owned facilities through a one-time carbon offset.

#### NEXT STEPS

A plan will be drafted to provide a framework for identifying embodied carbon reduction opportunities in material selection, interiors reuse, and construction activities.







### Net Positive Waste

SF State’s vision for addressing project development and expansion waste is to divert 80% of construction waste material from the landfill and provide dedicated infrastructure for collection of recyclables and compostable food scraps.

Operational waste management and diversion on the Romberg Tiburon Campus will compliment the ambitious targets of the larger University. SF State has a goal of becoming a Zero Waste campus and the project’s fulfillment of the imperative will assist this. SF State, including the Romberg Tiburon Campus, currently uses a three-bin system for waste disposal—one bin dedicated to recycling, compost, and garbage respectively.

The waste diversion approach at the masterplan level revolves primarily around building reuse. As the San Francisco Bay Area has a high average rate of recycling for construction and demolition waste, meeting requirements for processing debris in facilities specifically designed to recycle individual waste streams will be highly feasible.

Imperative end goals for the community include reducing (diverting) construction waste for the following categories as follows:

1. 99% of all metals, paper, and cardboard
2. 100% of soil and biomass
3. 95% of rigid foam, carpet, and insulation

All other categories should achieve a weighted average of 90% material diversion, with an 80% minimum diversion rate for total demolition waste. The project will also “strive to reduce or eliminate the production of waste during design, construction, operation, and end of life in order to conserve natural resources and to find ways to integrate waste back into either an industrial loop or natural nutrient loop.”

On-site composting and nutrient reuse for agricultural components will be explored to maximize nutrient reuse within the community.

#### NEXT STEPS

The team will coordinate on a plan that outlines the approach to waste diversion and reduction following SF State’s internal expectations and requirements.



## Equity

### Human Scale + Humane Places

The vision for the Romberg Tiburon Campus places an emphasis on human-scale mobility through the provision of trails, pedestrian promenades, and pathways that offer interaction with the natural landscape and historic structures. A challenge facing this site is its remote setting away from urban context; this will mean that the masterplan design will reflect interpretations of the 'multi-modal' street and transportation programs typically seen in Living Communities.

A key goal of the site is to provide discrete areas for parking that do not take away from the pedestrian experience. As such, all proposed parking in the Master Plan will adhere to the lot dimension and total area requirements established by the Living Community Challenge.

The campus Mobility Plan will focus on supplying alternatives to personal vehicular use, including an electric vehicle share program, an electric bike share program, and shuttle connecting the site to the ferry and Golden Gate Transit buses in the nearby Strawberry Village Shopping Center. These options ease current disincentives to commute via public transportation given the remote location and present alternatives to automobiles for on-site circulation.

Further, the site will be designed to meet the Human Scale and Human Places prescriptive requirements in the Master Plan. An exception to L3 transect requirements that do not match the characteristics and program of the campus will be submitted for approval as recommended by ILFI. Multimodal circulation that takes advantage of the site's trail system and human-scale mobility is proposed in lieu of community cueing and main streets as required by the imperative.

### NEXT STEPS

ILFI to advise on the L3 transect criteria for community cueing and main streets. The team will refine the site plan and demonstrate prescriptive requirements will be satisfied where appropriate.

### Universal Access to Nature + Place

A key goal of the Romberg Tiburon Campus Masterplan is to enhance site ecology, revitalize the waterfront, and introduce interpretative trails that convey the site's historic narrative and broaden public access.

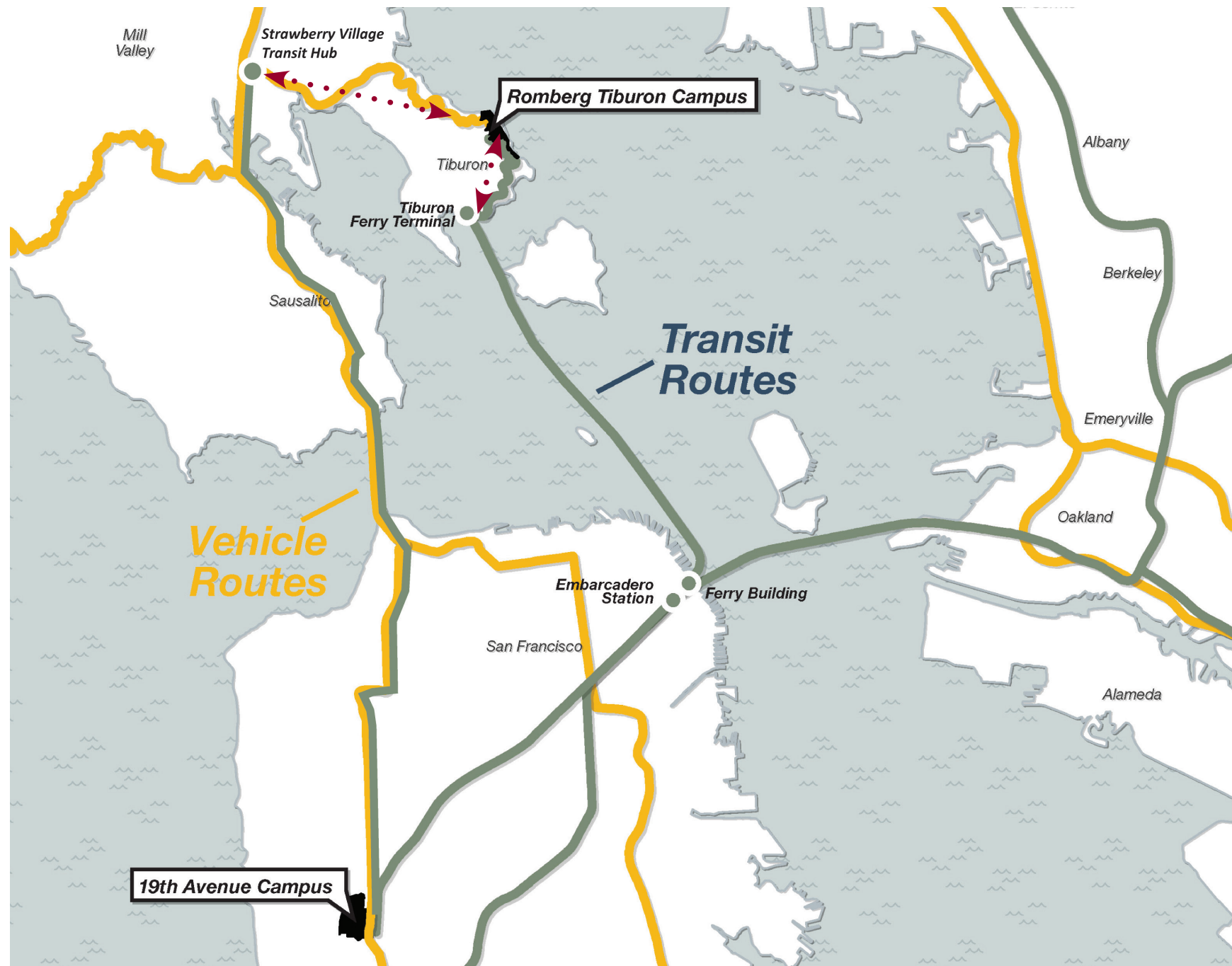
Existing initiatives such as Discovery Day, an annual public open house event that showcases marine science research occurring at the EOS Center, will be continued to provide educational programming tied to the core site use as a research hub.

In addition, the design team is exploring the idea of incorporating a living museum, centered in some of the site's most historically significant structures, as a hub for visitors. This is one of a myriad of ways that the campus desires to engage the public realm. An interpretive trail system with demonstrations, wayfinding, signage, artifacts, and public art will educate on the rich historic narrative from indigenous to industrial use. Demonstrations of Coast Miwok ethnobotanical harvesting, the medicinal use of plants, and traditional crafting practices and techniques will provide a 'regenerative' bridge to link the site back to its pre-development state.

Reusing the large trestle structure dating from the coal harbor period is another strategy the design team poses as an opportunity to incorporate public art and other accessories through which to engage the public realm. The design team envisions building walkways and connections to the rest of







the site to provide a transportation corridor for pedestrians along this infrastructural artifact.

Ensuring accessibility to these site elements is an important component of the SF State's commitment to the principle of universal access to nature, so bike paths and walking trails will be designed such that they are no farther than one half mile from any point in the community.

**NEXT STEPS**

The team will continue to integrate strategies for accessibility into the site design. Shading requirements will be factored into building design as site-scale features are finalized.

**Universal Access to Community Services**

The programmatic design for the Romberg Tiburon Campus includes various amenities for student and EOS Center residents such as campus and research facility resources for learning and working on-site. Grocery stores, libraries, banks, restaurants, community centers, and other services are available in downtown Tiburon two miles away, which are accessible from the site via the proposed shuttle to the Tiburon ferry. The Romberg Tiburon Campus Transportation Plan will further elaborate on the end destination and frequency of the shuttle. This network is primarily intended for students of the SF State city campus that require a public transportation connection to the Romberg Tiburon Campus and, consequently, the operational hours may vary. The team will work with ILFI to ensure the shuttle schedule meets the intent of the imperative.

**NEXT STEPS**

ILFI to comment on the project's approach to the L3 public transportation requirement given the intended campus users and nature of the site. Dialogue with ILFI if necessary to ensure that improve shuttle access and other alternative

transit options satisfy the intent of the imperative.

**Equitable Investment**

The SF State Romberg Tiburon Campus intends to use the LCC v1.2 imperative language, which exempts public agencies and charitable organizations from the requirement.

**NEXT STEPS**

The exception will be provided as the project's strategy for meeting the imperative in the Living Community Master Plan.

**JUST Organizations**

The SF State Romberg Tiburon Campus aims to help create a more just, equitable society through the transparent disclosure of the business practices of the major organizations involved in its site development. Atelier Ten, the sustainability consultants on the project, currently hold a JUST certification, leaving one additional team member to obtain a JUST label for the fulfillment of the imperative at the community level. A clarification request by the project team is whether two JUST firms are to be involved in EACH individual building renovation and new building project in the masterplan.

**NEXT STEPS**

The project team will coordinate to determine an additional entity to obtain the JUST Label for their organization. A key point of clarification for ILFI is determining at what point in the process two JUST firms are required and whether two firms are needed on each individual project team.



## Beauty

### Beauty + Spirit

The LCC Beauty and Spirit imperative is intrinsic to the Romberg Tiburon Campus given its layered historic uses and remaining artifacts of military and industrial uses that can be found within the site. Meaningful art will be provided throughout the landscape, including the following interventions that celebrate culture, spirit and place:

1. Revitalization of historic trestle, which informs building layout and pedestrian movement along the lower campus.
2. Signage and markers along new trails identifying site heritage and ecology.
3. Preservation of the existing water tower near the conference buildings.
4. Points of reflection located at key waterfront locations and promontories across the site.

Additional installations will be included in the Master Plan as details of the site design are finalized. At minimum, minor and major public art will be provided at significant gathering locations for every 100 and 500 residents, respectively.

#### NEXT STEPS

The design team will decide on the location and type of public art to be displayed throughout the site. Once the resident count is finalized, the team will confirm a sufficient amount of art has been provided to satisfy if not exceed the requirement.

### Inspiration + Education

Although increased access and further involvement with the city campus and local community are goals for the new Romberg Tiburon Campus, SF State currently provides several events and resources that encourage non-campus users to visit the site. The EOS Center hosts an ocean film series and screens documentaries on-site. Additionally, the EOS Center is open to the general

public for an annual Discovery Day Open House to celebrate science and local marine biology. Other events include an evening public forum series focused on marine biology and environmental science topics; a weekly afternoon science seminar series open to the public; a book-group called Marine LiteraSea for external and internal community members; and numerous trainings for K-12 teachers, volunteer Bay Shore Studies docents (a field trip program for 3rd to 5th grade classes), and coastal zone environmental planning and management professionals. All of these events are advertised on the SF State website, social media, and local print news.

Further, the Master Plan will include an interpretative trail system as a Biophilic Environment and Beauty & Spirit design strategy. Educational signage will commemorate ecosystems, indigenous history, commercial history, naval military history, unique site features, and other aspects of the campus.

The following resources will be provided as the Master Plan is realized for the site:

1. Information about the design and operation of the campus on the SF State EOS Center website.
2. A simple brochure describing the design and environmental features of the campus.
3. Operations and maintenance manuals for all community infrastructure.
4. A Living Community Case Study on the SF State EOS Center website.

#### NEXT STEPS

As the site design is finalized, the team will coordinate the LCC case study, brochure, website, and other resources to accompany the LCC Certification of the Romberg Tiburon Campus.











## LCC Imperative Commitment and Tracking

The following appendix contains a itemized summary of specific LCC criteria and on-going tracking to meet these requirements in preparation for the masterplan submission. The project team will compile the requisite implementation plans and detailed imperative compliance summaries in a forthcoming Living Community Master Plan document.



PETAL: PLACE				
	REQUIREMENT	REFERENCE DOCUMENT	TRACKING	NOTES
Limits to Growth	The site must be previously developed, greyfields or brownfields that are not sensitive ecological habitats, prime farmland or within the 100-year flood plain	Master Plan	complete	New development is concentrated on developed land to limit impact on the existing sensitive ecological communities
	Provide separation from wetlands, dunes, old-growth forest, and virgin prairie	Master Plan	complete	Development does not intrude on any old-growth forest
	No petrochemical fertilizers or pesticides can be used for the operation and maintenance of the on-site landscape	O&M Manual	ongoing	Requirements will be included in the O&M Manual developed for Inspiration and Education
	On-site landscape matures to increasingly emulate functionality of indigenous ecosystems (density, biodiversity, plant succession, water use, nutrient needs)	Master Plan	ongoing	Native species will be considered in landscaping. A selection of ethnobotanicals is being considered for a portion of urban agriculture in lieu of introducing new species to the site. The following alternatives are under consideration and will be coordinated with ILFI: carbon sequestration soil & planting programs, Honeybee wildflower cultivation, Rockweed for herring spawning habitat in SF
Urban Agriculture	The project must include agricultural allowances based on floor area ratio FAR <0.09 - 50% FAR 0.1-0.24 - 30% FAR 0.25 - 0.49 - 25%	Master Plan	ongoing	Seeking to selectively upgrade to new criteria in LBC v4 update: L3 requires either 15% total project area reserved for urban agriculture OR 7% agriculture with weekly access to healthy food through farmers markets, CSA programs or other local food producers. All non-residential projects must provide access to food for 75% of FTEs for a minimum of 3 days during an emergency. Residential projects must demonstrate storage capacity for 2
Habitat Exchange	The total area of development must be offset with an equal amount of land set aside in perpetuity for habitat exchange	Master Plan	ongoing	Pursuing LCC exception I03-E1 05/2016: Communities with nonprofit owners whose mission is to preserve and protect natural habitats may comply through Purchase, Allocation, or Protection of land in perpetuity that is currently not in an existing conservation easement. These additional protected areas must be contiguous or part of 100 acres of intact, high value preserved land  ILFI to clarify technical compliance path for SFSU to allocate land on-site.
Human Powered Living	Provide public bike storage for 15% of community occupants	Mobility Plan	ongoing	Bicycle storage will be provided in the finalized design
	Provide a bicycle network that is separated from vehicles	Mobility Plan	ongoing	Bicycle lanes will be indicated in the finalized design
	Provide a walkway network comprised of enhanced pedestrian routes	Mobility Plan	ongoing	Walkways and trails are included in the Vision Plan and will be solidified in the Master Plan
	Provide EV charging stations	Mobility Plan	ongoing	EV charging will be shown in the finalized design
	Advocacy in community to facilitate the uptake of human-powered transportation	Master Plan	ongoing	The site design and alternative transportation amenities support human-powered mobility on-site
	L3 – Transect Dependent: Projects must also provide at least one public transit route within the community and weather protection on street frontages along pedestrian routes	Mobility Plan Master Plan	ongoing	A shuttle is being provided that will transport campus users within the community to trans-bay public transportation options nearby
	L3 – Transect Dependent: Maximum percentage of any single occupancy type is 70%	Master Plan	complete	The project contains enough program diversity that no single building type is more than 70% of the total GSF





PETAL: WATER				
	REQUIREMENT	REFERENCE DOCUMENT	TRACKING	NOTES
Net Positive Water	One hundred percent of the project's water needs must be supplied by precipitation or natural closed loop systems. Water must be purified without the use of chemicals. All stormwater and water discharge including grey and blackwater must be treated onsite and managed through a closed loop system or infiltration	Master Plan	ongoing	Integrated strategy under development
	1. Harvested rainwater, on-site groundwater, condensate from air, surface water sources such as ponds, recycled process water, grey and black water collected on the site	Master Plan	ongoing	
	2. All stormwater must be treated by systems designed to emulate the natural flows. Unused stormwater to be infiltrated. Use 10 year storm event to calculate size of infiltration systems. Runoff to be treated and released on and off site as before	Master Plan	ongoing	
	3. All grey and black water to be treated on site. Septic system is an acceptable strategy	Master Plan	ongoing	On-site water systems including septic technology meet Marin regulatory requirements
	4. Periodic disposal of bio solids and liquids acceptable - within 100 miles of the project site	Master Plan	ongoing	
	5. Chlorine, calcium hypochlorite and sodium hypochlorite not allowed for water purification	Master Plan	ongoing	
	6. PVC not allowed except when required by code	Master Plan	ongoing	
	7. Temporary irrigation using municipal water acceptable for 1 year	Master Plan	ongoing	

PETAL: ENERGY				
	REQUIREMENT	REFERENCE DOCUMENT	TRACKING	NOTES
Net Positive Energy	One hundred and five percent of the projects energy needs must be supplied by on-site renewable energy on a net annual basis	Master Plan	ongoing	Integrated strategy under development
	On-site energy storage for resiliency is required. Backup battery power for emergency lighting and refrigeration use up to one week	Master Plan	ongoing	
	No combustion-based energy supplies	Master Plan	ongoing	



PETAL: HEALTHY & HAPPINESS				
	REQUIREMENT	REFERENCE DOCUMENT	TRACKING	NOTES
Civilized Environment	Active protection of buildings considered to have historical significance. Community must inventory heritage sites and facilities and maintain current preservation plan	Preservation Plan Master Plan	ongoing	Requirements are met through the renovation and maintenance of multiple original military base structures. A historic resource assessment has been conducted
	Have adequate staff positions to oversee the inclusion of the following programs: 1. Local food program 2. Car and bike sharing program 3. Transit information center 4. Community tool sharing 5. Community book library 6. Children, teen, adult, and senior art and recreation programs 7. Community 'hub' for information and community meetings	Master Plan	ongoing	Programs to be noted in master plan documents – CSA Local Food Drop-off, EV and Bike Sharing, Transit Information Bulletin Board, List of Shared Resources & Equipment, Public Engagement Events, and 'Living' Museum Community Hub & Conferencing Center
Healthy Neighborhood Design	Passive recreation - plazas, parks, squares, bike trails - within 1/2 mile of any point in community	Master Plan	ongoing	The finalized design will include trails, walkways and outdoor gathering spaces marked by educational signage
	Active recreation - pools, tennis, fitness center, etc. – within 1/2 mile of any point in community	Master Plan	ongoing	Active recreation will be provided in the form of boat/kayak launch, bicycle trail circulation, and recreation court for community members
	A health & wellness education plan on Community website	Master Plan	ongoing	A health promotion and wellness online resource is available for the main SFSU campus and updates will be incorporated specific to RTC community resources
	L3 – Transect Dependent: Access for residents to walking trails, sidewalks, pedestrian paths from every building	Master Plan	ongoing	Pedestrian-oriented circulation is a priority for the Master Plan
Biophilic Environment	Each project team must engage in a minimum of one all-day exploration of the biophilic design potential for the project	Master Plan	complete	Two charrettes have been conducted to establish an approach to biophilia and identify specific design strategies for the project
	The project must be designed to include elements that nurture the innate human/nature connection	Master Plan	ongoing	Integrating biophilia design strategies into the Master Plan is ongoing
	How can community be transformed by deliberately incorporating nature?			
	How can community be transformed through natural patterns, process, and human-nature relationships?			
Resilient Community Connections	How the community will be uniquely connected to place, climate, and culture?			
	Ensure that all sensitive infrastructures, such as lift stations, sub-stations, sewage treatment, community centers, schools, etc., are out of the flood plain	Master Plan	complete	Sea level rise is a key issue and has been studied for the site in order to inform the campus design. Sensitive infrastructures are not placed within the flood plain
	Disaster Response Plan with emergency contacts, shelter locations, and specific guidance Two 'block captains' trained for every 500 resident to provide disaster response direction Emergency contact program Active neighborhood watch and community program	Master Plan	ongoing	Response programs will be implemented in response to additional site development and greater residential density. Emergency Response is provided by county services for the Romberg Tiburon Campus. CSU requires some on-site storage of emergency food and supplies





**PETAL: MATERIALS**

	REQUIREMENT	REFERENCE DOCUMENT	TRACKING	NOTES
Living Materials Plan	Meet the following imperatives for all community facilities, infrastructure, and landscapes: Red List Free (HPDs and other ingredient disclosures) Responsible Industry Sourcing (EPDs and other environmental impact disclosures) Living Economy Sourcing	Implementation Plan	ongoing	The Implementation Plan will address all the imperative requirements and will be followed in subsequent material selection and construction
	The project must offset its construction carbon footprint through a one-time carbon offset	Master Plan	ongoing	The revitalization of existing military buildings presents an opportunity to reduce embodied carbon through reuse. New development will consider the carbon footprint in design and material selection. A carbon offset will be purchased for the construction carbon footprint
	The project team must strive to reduce or eliminate the production of waste during design, construction, operation, and end of life in order to conserve natural resources and to find ways to integrate waste back into either an industrial loop or natural nutrient loop	Waste Diversion Plan	ongoing	Waste and material use reduction is an embodied carbon footprint strategy, which will be partially met by the reuse of existing buildings and infrastructure
Net Positive Waste	Construction waste diversion must achieve the following targets: 1. Metal - 99% 2. Paper & Cardboard - 99% 3. Soil & Biomass - 100% 4. Rigid foam, Carpet, insulation - 95% 5. All others - weighted average - 90%	Waste Diversion Plan	ongoing	Waste diversion targets will be met. SFSU has ambitious goals for zero waste
	Food composting compulsory with nutrient reuse within community	Waste Diversion Plan	ongoing	Composting will be provided on-site
	Utilized ten salvaged materials or at least one existing structure	Waste Diversion Plan	ongoing	Multiple existing structures will be retrofitted



PETAL: EQUITY				
	REQUIREMENT	REFERENCE DOCUMENT	TRACKING	NOTES
Human Scale and Humane Places	Maximum dimension of any surface parking lot – 20 m X 30 m	Master Plan	ongoing	Parking dimension requirement will be met in the finalized design
	Surface parking as percentage of project area may not exceed 20%, and no larger than 2000 sq. meters	Master Plan	ongoing	Parking area requirement will be met in the finalized design
	Maximum footprint of any building with a single use (excluding warehouses or factories) - 3750 sq. meters	Master Plan	complete	No building shown in the Vision Plan exceeds a footprint of 3,750 m2
	Maximum distance between trees - 9m	Master Plan	ongoing	Landscape requirement for trees will be met in the finalized
	Maximum distance between walking routes - 100m	Master Plan	ongoing	Required distances between walkways will be met in the finalized design
	Maximum distance between human-powered vehicle routes - 300m	Master Plan	ongoing	Required distances between vehicular circulation will be met in the finalized design
	L3 – Transect Dependent: Community cueing street (max curb-to-curb) - 7.5m, 6' sidewalk, 5' planter, on-street parking Community main street (max curb-to-curb) - 10.5 m, 7' sidewalk, 6' street tree planters, on-street parking	Master Plan	ongoing	Seeking an exception to L3 transect requirements given the lack of main streets in the site design and remote nature of the project as a small campus within a sensitive ecological community. Additional coordination with the ILFI anticipated to solidify an approach to addressing these requirements
Universal Access to Nature and Place	All primary transportation, roads and non-building infrastructure that are considered externally focused must be equally accessible to all members of the public regardless of background, age and socioeconomic class—including the homeless—with reasonable steps taken to ensure that all people can benefit from the project's creation	Mobility Plan Master Plan	ongoing	Accessibility is being considered in site design and will be demonstrated in the Mobility and Master Plans
	Maximum shade height on adjacent facade, measured on Winter Solstice between 10am - 2pm – 6m	Master Plan	ongoing	Daylight access requirements will be met in the finalized building design
	Provide access to and access pathways along natural waterways	Master Plan	complete	Trails and the concrete slab provide access to the bay
Universal Access to Community Services	Residents must have access to the following within 1/2 mile directly or 1/4 mile to a public transportation line providing access within 2 miles: Places to Shop Places to Congregate Places to Work Places to Learn	Master Plan	ongoing	In addition to facilities on site, a shuttle will be provided that transports campus-users to nearby ferry hub and downtown area in Tiburon (2 miles away), as well as Golden Gate Transit buses in Strawberry Village Mall (4 miles). While downtown Tiburon will satisfy the imperative requirements, Strawberry Village hub is located beyond ILFI prescribed 2 mile maximum, but it provides a much more convenient transit connection to the city campus in
	L3 – Transect Dependent: Provide one public transportation mode or line per 1/2 mile of site area that runs between 7am and 7pm	Mobility Plan	ongoing	A shuttle will be provided as a connection to nearby local transit to San Francisco and other cities in the Bay Area for students. The team will work with the ILFI to ensure this public transportation meets the intent of the imperative





Equitable Investment	For every dollar of total project cost, the development must set aside and donate half a cent or more to a charity of its choosing or contribute to ILFI's Equitable Offset Program, which directly funds renewable infrastructure for charitable enterprises	Master Plan	ongoing	SF State will use the imperative exemption for public agencies and charitable organizations per the LCC v1.2 Handbook
JUST Organizations	The project must help create a more JUST, equitable society through the transparent disclosure of the business practices of the major organizations involved. At least one of the following project team members must have a JUST Label for their organization: Architect, MEP, Structural, Landscape architect, Interior Architect, or Owner/Developer	Master Plan	ongoing	At least one additional project team member as defined in the requirements will have a JUST Label for their company
<b>PETAL: BEAUTY</b>				
<b>REQUIREMENT REFERENCE DOCUMENT TRACKING NOTES</b>				
Beauty and Spirit	Meaningful integration of public art and design features on every block, street, and plaza	Master Plan	ongoing	Public art will be provided at gathering areas and major crossroads. Examples include signage and markers along trails, reuse and maintenance of existing historical infrastructure and re-introduction of indigenous history into the landscape
	A minor installation for every 100 residents	Master Plan	ongoing	Minor installation requirement will be met in the finalized design
	A major installation for every 500 residents	Master Plan	ongoing	Major installation requirement will be met in the finalized design
Inspiration and Education	Educational materials about the design and operation of the community must be provided:	Master Plan	complete	Discovery Day is an annual open house currently hosted by the Estuary and Ocean Science (EOS) Center on the campus
	1. Annual open day for the public	Master Plan	complete	SFSU has a website dedicated to the EOS Center
	2. Educational website	Master Plan	ongoing	A brochure will be provided towards the end of development
	3. A simple brochure	Master Plan	ongoing	A case study will be provided towards the end of development
	4. Living Community Case Study	Master Plan	ongoing	An O&M manual will be distributed within the community
	5. Operations and maintenance manuals for community	Master Plan	ongoing	Signage will be developed as a biophilia design strategy and a form of public art to educate on the natural landscape, highlight the site ancestry and incentivize trail use as a form of passive
	6. Interpretive signage to teach visitors and occupants about environmental features	Master Plan	ongoing	







## Stakeholders

Some key stakeholders and authoritative bodies are listed below.

### STAKEHOLDERS

1. Design Team Members
2. Planner: Page
3. Architect: LMS, Dangermond Keane Architecture
4. Landscape Architect: Gustafson Guthrie Michael
5. Engineer: Sherwood Design Engineers
6. Sustainability Consultant: Atelier Ten
7. Shoreline Engineer: ESA
8. Transportation Consultant: Nelson Nygaard
9. Property owners: San Francisco State University
10. Business owners: TBD
11. Non-Profits: The University Corporation, SF State
12. Community groups: Community Advisory Group
13. Residents: SF State campus students, faculty, and staff including researchers at the Estuary & Ocean Science Center
14. Residents: SF State employees and students
15. Students: SF State campus
16. Elders: N/A
17. Native groups: Coast Miwok
18. Utility: PG&E
19. Authoritative bodies / agencies: Marin County
20. Developer(s) (horizontal / vertical): TBD

### DRAFT MASTERPLAN DRAWINGS

