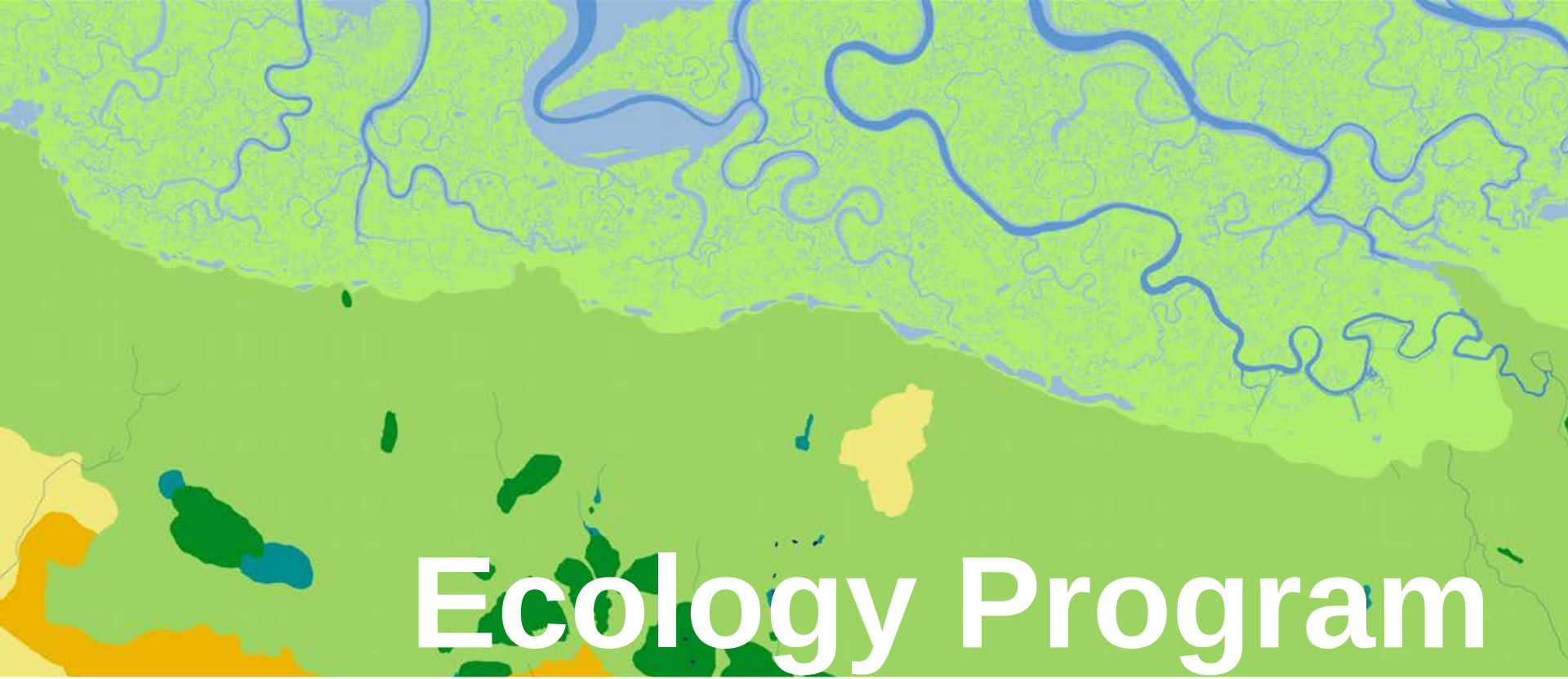
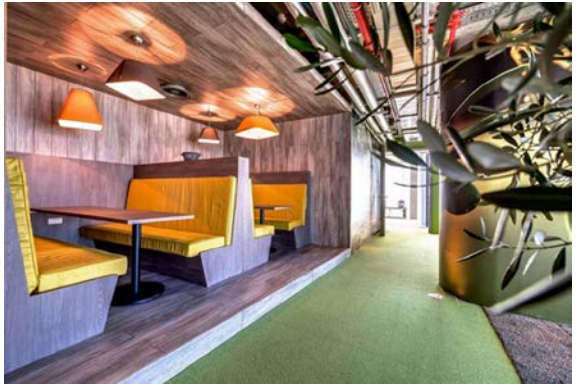


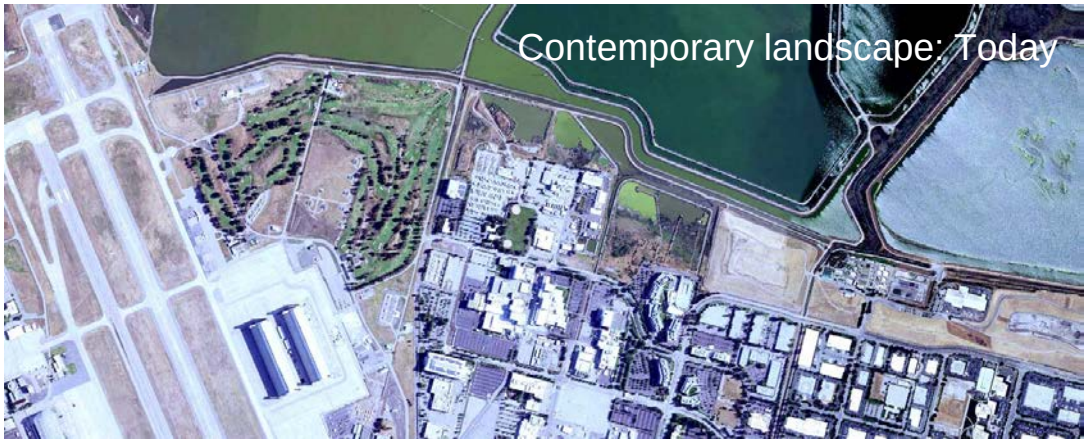
Ecology Program

REWS [e]Team

Google's Ecology Program: **How can we extend our values beyond the building footprint to the communities we call home?**



Google’s Ecology Program: **What is possible in the future?**

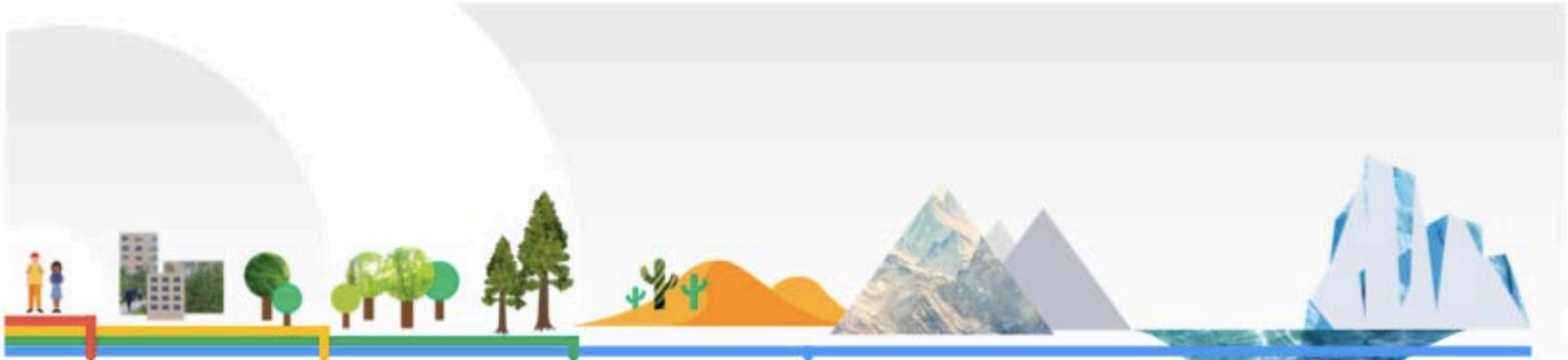


Imagining North Bayshore:

- Connection to the bay and Pacific Flyway
- Critical habitat for Egrets and Burrowing Owls
- Wet meadow landscape with remnant oak and willow patches
- Connectivity between bay and hills
- Adapting to rising sea levels

We needed a roadmap to take practical action.

Google’s Ecology Program: **Designing Vibrant Living Systems**



	Individual	Campus	Region	Global
Emphasis	Experience	Design	Science	Philosophy & Framework
Key Audiences/ Partners	+ Google employees + Community members + Local environmental groups	+ Google campus design & development teams + Local environmental groups + Mountain View city & community + Other city planners, designers, architects	+ Google campus design & development teams + Regional Science Advisory Group + Local environmental groups + Regulatory agencies + Land owners, city officials	+ Google campus design & development teams + National Science Advisory Group + Land use planners & ecological restoration experts
Product Outputs	+ Biophilic campus & office design + Citizen science touch-points on campus	+ Google campus Master Plan + Habitat guidelines and process for implementation + Roadmap for local development strategies	+ Regional vision + Stakeholder maps for regional collaboration	+ Resilience framework + Regional data/GIS layers + Google design guide for ecology

Google's Ecology Program: **Resilient Silicon Valley Project**

Landscape Resilience Framework

This framework provides a list of considerations that will help integrate resilience thinking into landscape-scale urban design and natural resource management.

01 Setting

Determines the constraints and opportunities within a landscape. Local species — like oaks, Cooper's hawks, and redwoods — thrive in the unique conditions and climates.

02 Processes

Create and sustain landscapes in a dynamic way. Creeks carry water and sediment through the watershed, from the hills to the baylands.

03 Connectivity

Enables movement of materials and organisms. Riparian corridors provide wildlife passageways from the hills to the Bay.

04 Complexity & Diversity

Provide a range of options for wildlife. Plants of different types, heights, and ages provide complex habitat for an array of wildlife.

05 Redundancy

Provides insurance against loss. Multiple willow groves ensure greater likelihood of habitat persistence (e.g., for native birds) as conditions change.

06 Scale

Determines which processes and functions can operate meaningfully. Anticipate and accommodate sea level rise by providing space for bayland habitats to migrate inland over time.

07 People

Shape landscapes and provide opportunities. Plant native oaks in the urban and suburban landscape to mimic the form and function of former oak woodlands.

Google’s Ecology Program: **Campus Planning**

- ~32 acres of new open space
- ~31 acres of new habitat
- ~35 acres of surface parking removed

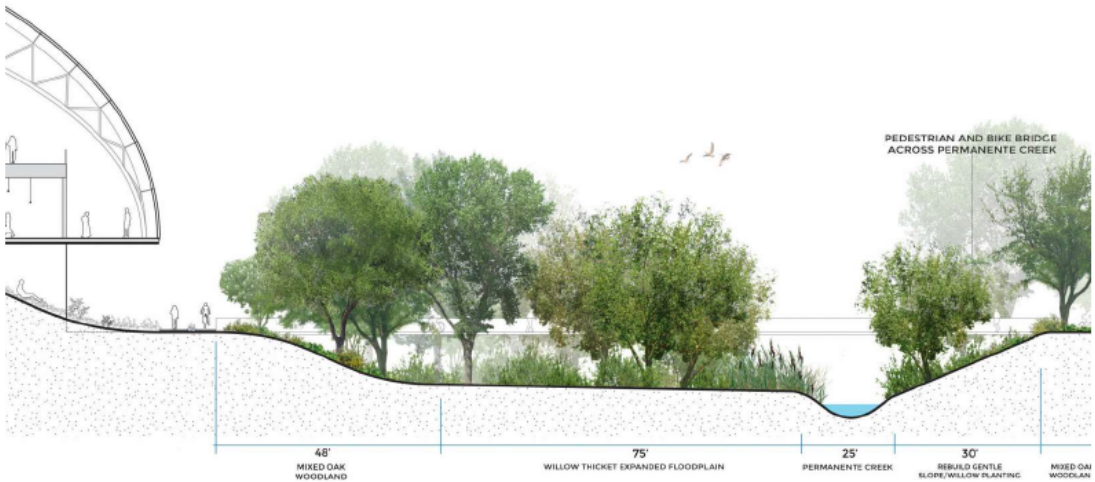
Google’s Ecology Program: **Campus Planning**

Permanente Creek Enhancement
Open Space / Ecology

Proposed Habitat

Permanente Creek, from Highway 101 to Charleston Rd, offers an opportunity to convert a channelized urban stream of relatively low value to a high-quality riparian corridor that is both aesthetically beneficial and ecologically valuable for wildlife, water quality, and plant diversity. This public facility will be built and maintained by Google from just downstream of Highway 101 to Charleston Road, where we propose moving the western creek levee back by approximately 150 feet to create a broader, low floodplain (approximately 2–4 feet above the low-flow channel) with a more gently sloped (3:1 or flatter) western bank. The eastern bank is filled to create a more gentle 3:1 slope while the low-flow channel is moved westward and graded to create gentle sinuosity. This floodplain restoration creates approximately 4.8 acres of riparian habitat along 1375 feet of the creek. If accompanied by widening of the bridge at Charleston Road, this proposed channel widening also improves flood protection in the vicinity by lowering the 100 year flood elevation by approximately 1 foot.

Widening the creek allows high-performing riparian habitat to successfully establish after being planted. The habitat consists of a willow thicket and a streamside strip of emergent marsh on the floodplain and mixed oak woodland on the creek banks. The flood plain is expected to be regularly inundated by flood flows, water that helps to support the willows and provide a dynamic habitat for wildlife.



NOTES:

1. FLOODPLAIN ELEVATION SET TO BE INUNDATED MULTIPLE TIMES IN AVERAGE RAINFALL YEAR.

2. 20-FT BIRDSAFE GAP BETWEEN VEGETATION AND BUILDING.

Google's Ecology Program: **Campus Planning**

1200-1210 Charleston
Transfer of Development Rights [TDR]
Open Space / Ecology

Overview

Google is proposing to transfer the development rights from 1200-1210 Charleston Road, adjacent to the retention basin. Meeting the intent of the Precise Plan, in this initial phase we will transfer the increment of future allowable development rights from this Edge Character area to the Charleston South project in the Core Character area. A phased approach to transforming this section of campus ultimately razes these and surrounding buildings. See Phase 2 below.

Phase 2 of TDR Enhancement

As part of the Shoreline development project TDR, we will create a significant habitat project covering approximately 11.4 acres beginning with removal of all buildings and hardscape at 1200-1230 Charleston Road, making way for a large habitat/ trail/open space area. Given the property's proximity to the existing Charleston Retention Basin which supports extensive riparian habitat, we propose to complement that existing feature with a park that will be purposefully designed for passive and more natural in setting. Soft scape trails and native landscape will support a serene experience for the user.

Consistency with Precise Plan and Regulatory

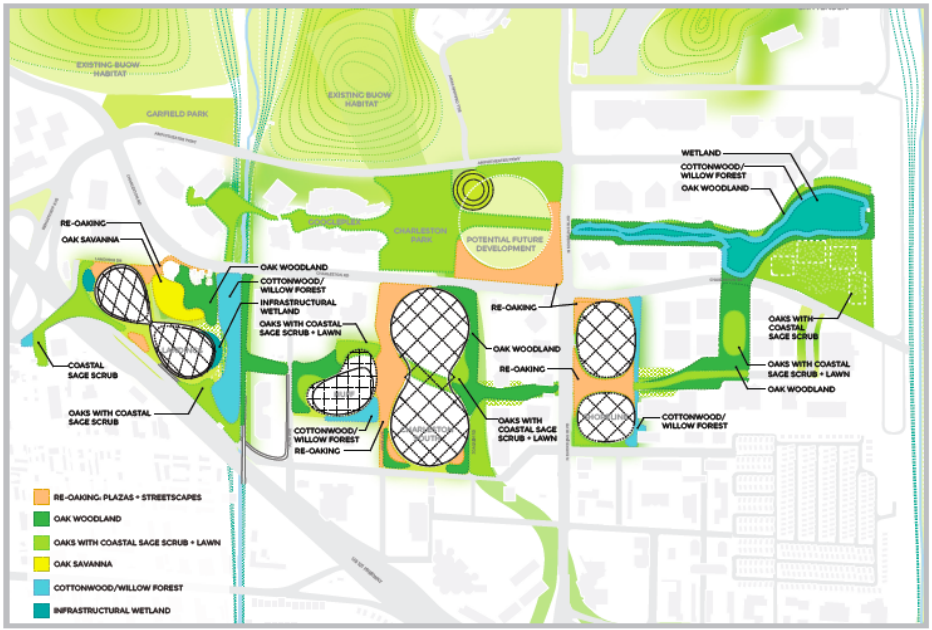
Agency Standards

The proposed habitat restoration area adjacent to the Charleston Retention Basin would overlap with the 200-foot-wide area designated by the Precise Plan as a protected HOZ. It would greatly improve habitat conditions within the HOZ; such habitat expansion is specifically recommended by the Precise Plan. The new habitat will more effectively protect the existing basin habitats from nearby active use areas (trails and building edges) than does the current unimproved buffer.

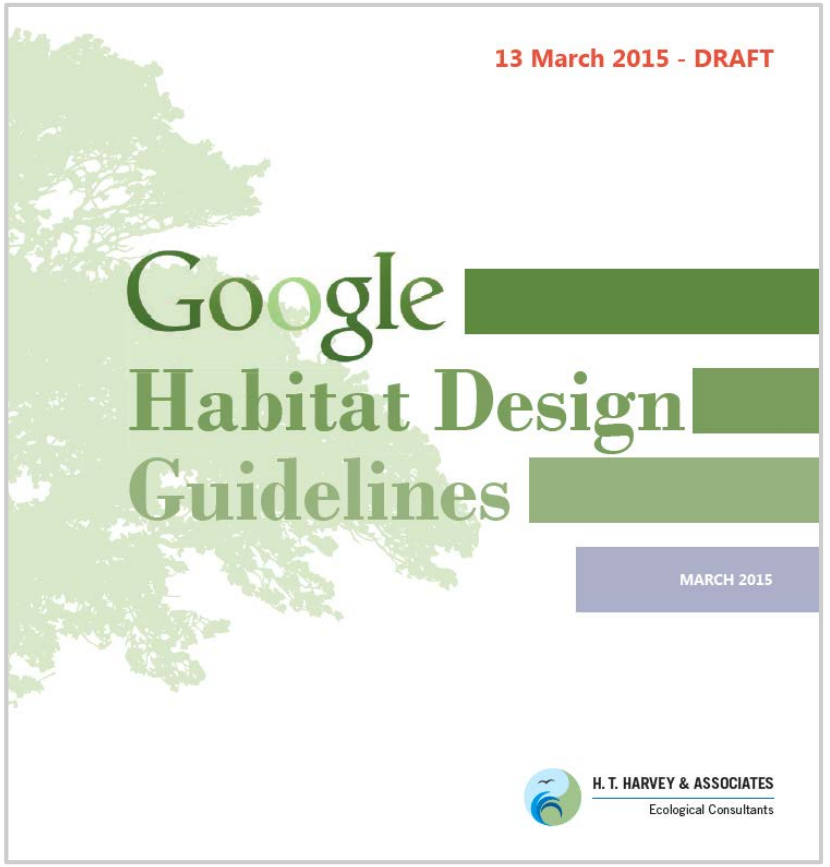
Habitat Synergies

This site will have ecological synergy with the existing Charleston Retention Basin, and ideally a joint effort could be made between Google and PG&E to also revegetate the lands between this site and Stevens Creek for additional ecological value. This large restoration would increase regional ecological resiliency for this important habitat type.

Google's Ecology Program: **Campus Planning**



Native Plant Typologies Across the Master Development Plan Area



Google’s Ecology Program: **Habitat Guidelines Rollout**

Open Space
Landscape Sample Palettes

(Continued)

Re-Oaking

Oak Woodland

Coastal Sage Scrub / Lawn Understory

Coast Live Oak
Quercus agrifolia
Photo: © User:Vierla / Flickr / CC-BY-2.0

California Buckeye
Aesculus californica
Photo: © User:Baron / Wikimedia Commons / CC-BY-SA-2.0.

Western Redbud
Cercis occidentalis
Photo: © User:Sheba / Wikimedia Commons / GFDL.

Coyote Bush
Baccharis pilularis
Photo: © User:Stickpen / Wikimedia Commons / Public Domain

Douglas Iris
Iris douglasiana
Photo: © User:Lee / Wikimedia Commons / Public Domain

California Sagescrub
Artemisia californica
Photo: © User:FastilyClone / Wikimedia Commons / CC BY-SA 3.0.

California Lilac
Ceanothus thyrsiflorus
Photo: © User:Calflo / Wikimedia Commons / GFDL

Purple Sage
Salvia leucophylla
Photo: © User:kennethwenda / Pixabay / CC0 Public Domain

Valley Oak
Quercus lobata
Photo: © User:Flair / Wikimedia Commons / CC-BY-2.0.

Elderberry
Sambucus nigra
Photo: © User:Willow / Wikimedia Commons / CC BY-SA 3.0.

California Lilac
Ceanothus thyrsiflorus
Photo: © User:Calflo / Wikimedia Commons / GFDL

Showy Milkweed
Asclepias speciosa
Photo: © User:Lavln / Wikimedia Commons / CCC BY-SA 3.0

Coralbells
Heuchera micrantha
Photo: © User:TheMermot / EverydayBookPhoto / CC BY 2.5

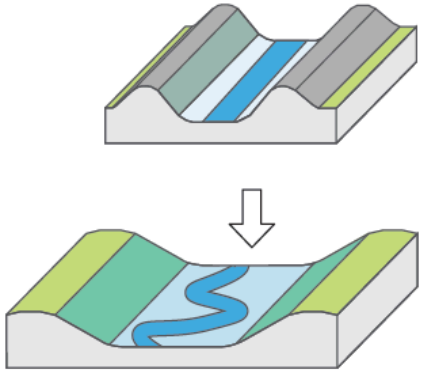
Franciscan Manzanita
Arctostaphylos hookeri franciscana
Photo: © User:Estelle / Flickr / CC BY 2.0

California Coffeeberry
Frangula californica
Photo: © User:Evanherk / Wikimedia Commons / CC BY-SA 3.0

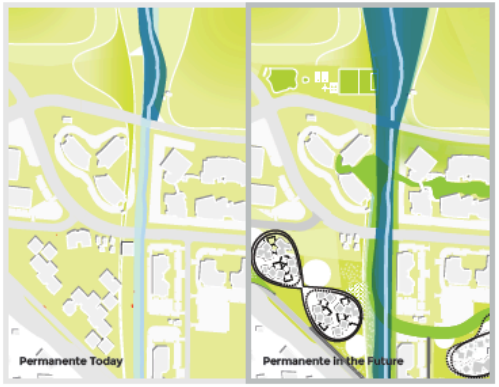
California Buckwheat
Erigonum fasciculatum
Photo: © User:Sheba / Wikimedia Commons / GFDL

Google’s Ecology Program: **User Experience**

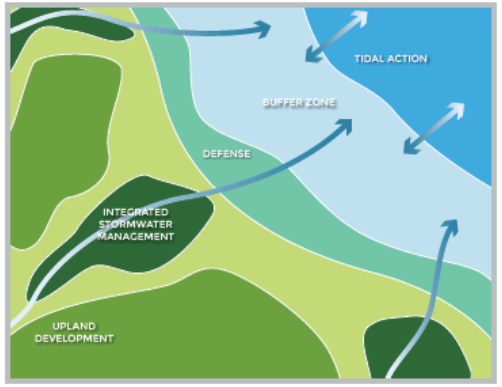
Google’s Ecology Program: **Sea Level Rise**



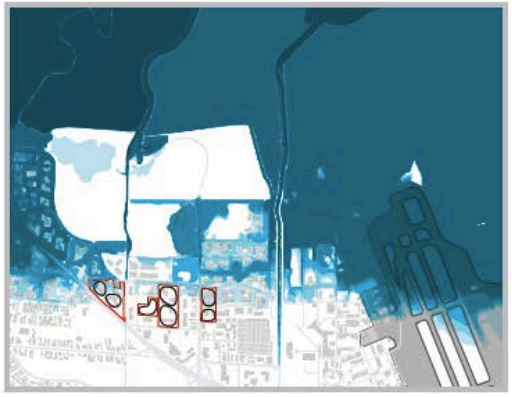
Enhancing Riparian Systems



Widening the Adaptation Zone

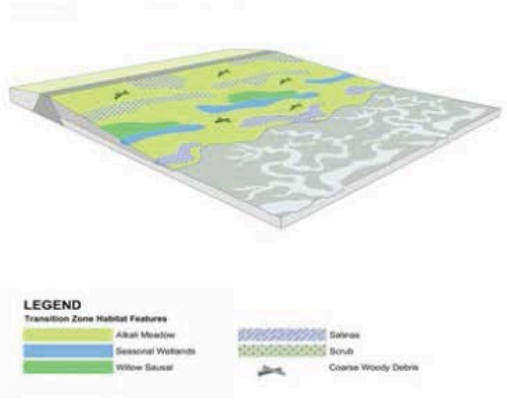


Integrated Overland Flood Management



Upland Development

Salt Pond Restoration



Levees Re-imagined


ecology@google.com