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Sustainable Communities Division
Webinar

Regenerative Urban Developments Are Changing Planning

September 25, 2019
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Today's Event

Regenerative Urban Developments Are Changing Planning

Scott T. Edmondson, AICP | Sr. Planner-Economist, City of San Francisco Planning Department

Geeti Silwal, AICP | Practice Leader, Principal, Perkins+Will

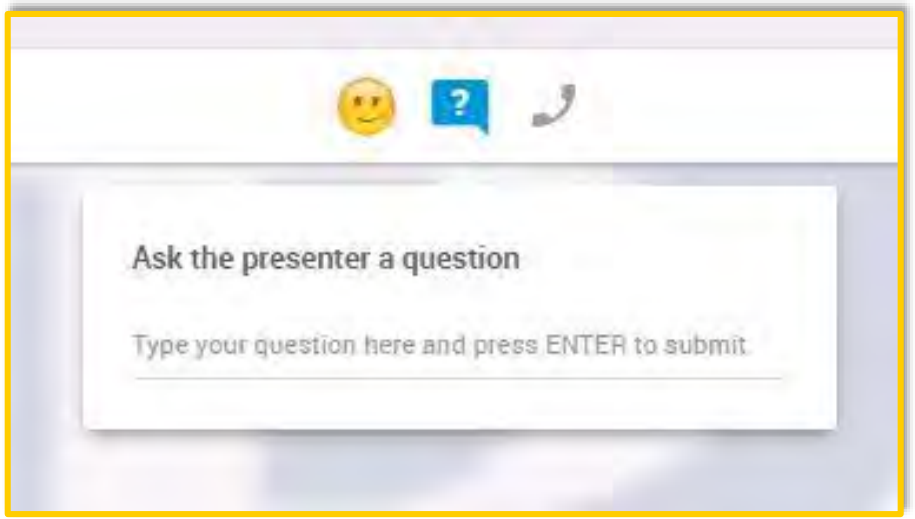
Kirstin Weeks | Building Ecology Specialist, Arup

Greg Taylor | Supervising Architect, City of Sacramento Department of Public Works

APA Sustain

Please submit your questions throughout the session!

- We'll have a Q&A at the end of the webinar, but please feel free to send your questions any time!
- You can use the chat box or the Q&A tool



Regenerative Urban Developments are Game-Changing Planning - NPC198096

Scott Edmondson (AICP), **City and County of San Francisco**
Kirstin Weeks (LEED AP, WELL AP, CEM, GRP), **Arup**
Greg Taylor (AIA), **City of Sacramento**
Geeti Silwal (LEED AP, AICP), **Perkins and Will**

The Thought Revolution

The Living Design Transformation

THE PRESENT

PRIMARY MENTAL MODELS

Reductive
+ Mechanistic

SOCIO-ECONOMIC SYSTEM

Purpose

Life, Liberty + Happiness
w/ members acting in Self-Interest

Guided By

Power, Superiority + Competition

THE FUTURE

PRIMARY MENTAL MODELS

Systemic
+ Living

SOCIO-ECONOMIC SYSTEM

Greater Purpose

All Life, Enlightened Liberty + Happiness
w/ members acting in Partnership

Guided By

Fairness, Collaboration + Aspiration

Session Section:
Regenerative Urbanism (RU)

Concepts, Tools, SF Cases

WEBINAR: APA Sustainable Communities Division

Regenerative Urban Developments Are Changing Planning

September 25, 2019, 12-1:30 pm (PT)

Scott T. Edmondson, AICP, ISSP-SA | SF Planning

Context: An Expanding Challenge

- UN Habitat III NUA & SDGs
  - Raised the bar
  - without new tools
- Accelerating unsustainability
- Emerging question
  - Will current practice (SAU)get the job done?
  - If not, what's a Planner to do?
  - What's the next big sustainability step?

Fortunately, the response is emerging

organically in innovation occurring across our professions

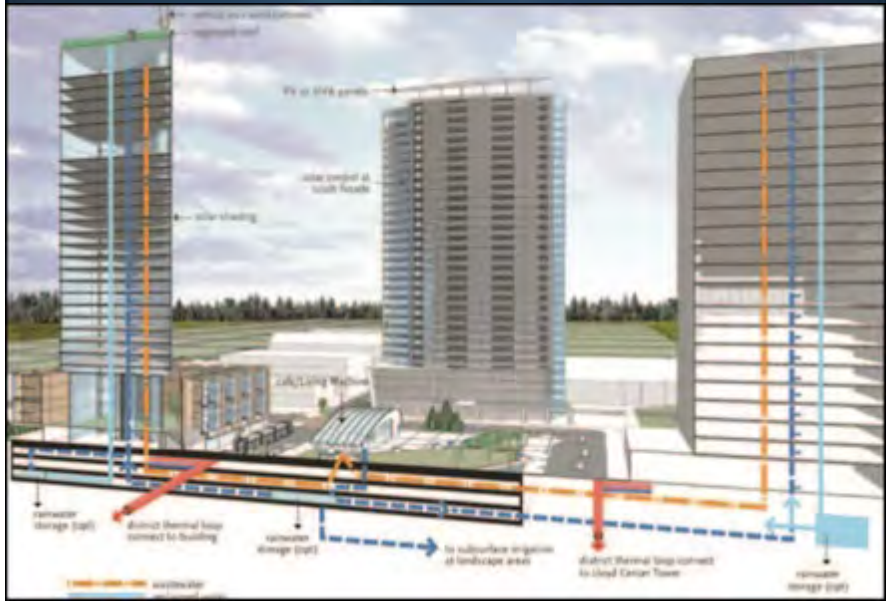
Planning | **High-performance places (**Eco-Districts, -Cities, -Regions); Biophilic Design & Planning, Health & Land Use

Urban Design | **Adding water & habitat** (biophilia) for next-generation place making & metabolic integration for high perf.

Architecture | **2030 Challenge, NZE+T** (buildings +transpo.), **Living** Buildings / Walls / Roofs, and **Passive House** building technology

Landscape Architecture | **From aesthetics to habitat** cultivation (Biodiversity) & human health (Biophilic design)

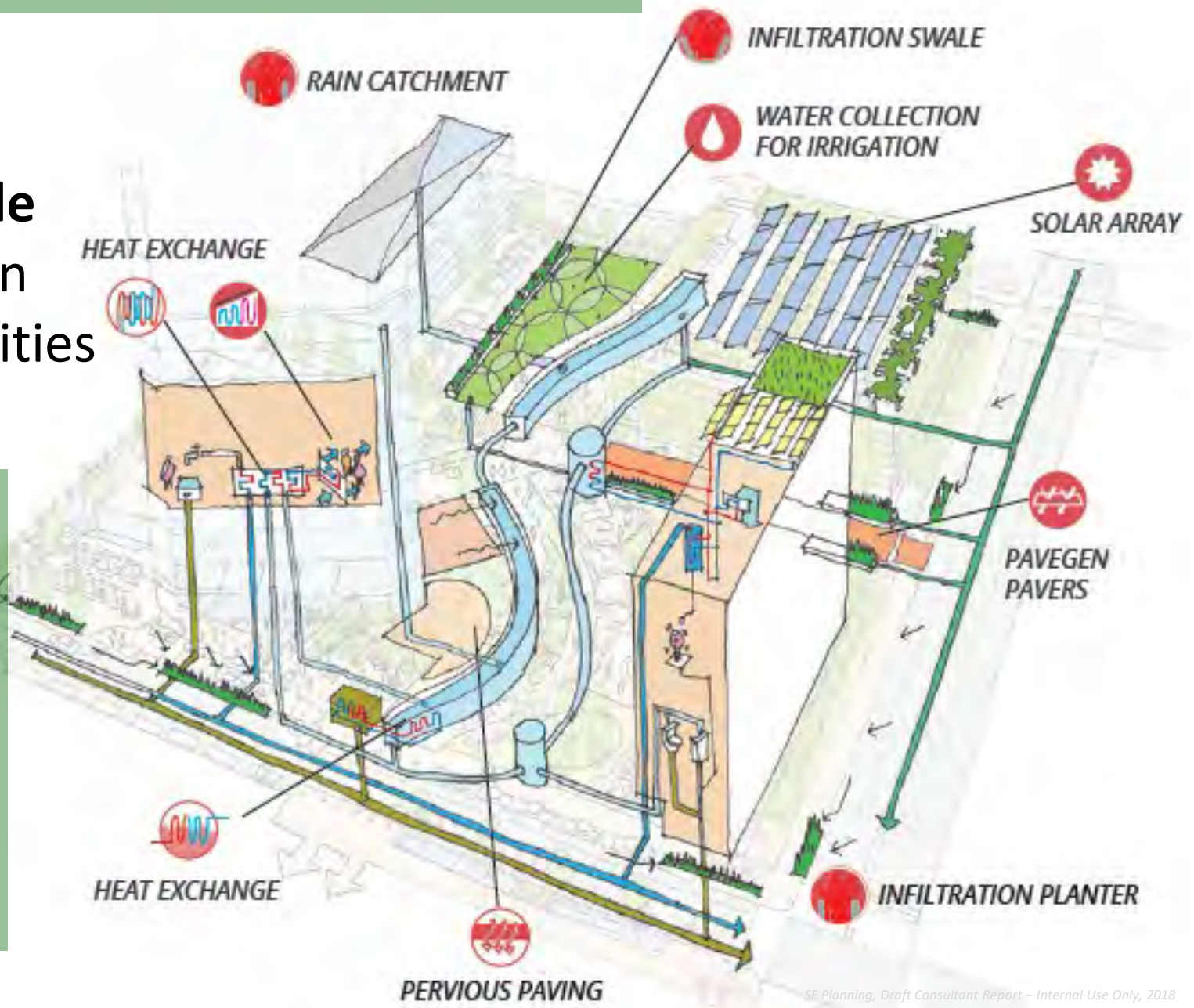
Utilities | **Shift from gray to green** is underway, even to "living" infrastructure, and a **new concept of urban metabolism**



Connect Across Scales

Block Scale
Integration
Opportunities

Building,
Block,
District,
City,
Region,
Planet



Regenerative Urbanism has moved from theory to practice

Cities are now advancing it with bold, innovative projects & plans

REGENERATION

BURNABY, BC. Adopting an Environmental Sustainability Strategy that anchors an integrated, regenerative, and net positive community vision

IT / SMART CITY

KASHIWA-NO-HA, JAPAN. Managing a comprehensive Smart City program that enhances environmental performance and social cohesion

ENERGY

VANCOUVER. Leading a comprehensive Renewable City Strategy committed to 100% renewable supply (including transport) using neighborhood energy utilities

MOBILITY

VIENNA. Providing a coordinated network of emissions-free transit options that eliminate the need for personal automobiles

WATER

BARANGAROO SOUTH DISTRICT, SYDNEY
Utilizing an integrated district water system that exports surplus recycled water to surrounding communities

LAND USE + ECOSYSTEM

SINGAPORE. Employing a 'livable density' approach that integrates the built environment within natural systems

MATERIALS + WASTE

AMSTERDAM. Designing a local circular economy to eliminate waste, create jobs, and anchor new district developments

HEALTH + WELLBEING

CHICAGO. Leading a comprehensive wellbeing assessment that embeds health equity into every government agency

FOOD

SUNQIAO DISTRICT, SHANGHAI
Integrating large-scale vertical farming systems within the public realm to expand regional foodshed capacities

MGMT + GOVERNANCE

COPENHAGEN. Using an innovative public-private model to finance large-scale community regeneration projects

SF Planning, Draft Consultant Report – Internal Use Only, 2018

RU is also emerging in a range of SF Work

1. High-Performance Urban District Design
2. Living Community Method & Patterns
3. Regenerative City Assessment

PRACTICE CASE 1

Planning & Designing High-Performance Districts (Places)

CHARLES KELLEY, ZGF ARCHITECTS

Insight/Strategy: Lead sustainability by

- **creating** the **great places** that **people want** (visible--DEMAND)
- **enabled** by and **paid** for with **regenerative design** (invisible--SUPPLY)

Principle—Make Sustainability "wanted:"

- a Highly Desirable Visible Benefit

Evolution of Planning Tools by Planning Step

Need to Reinvent Tools—*even Steps*—for RU

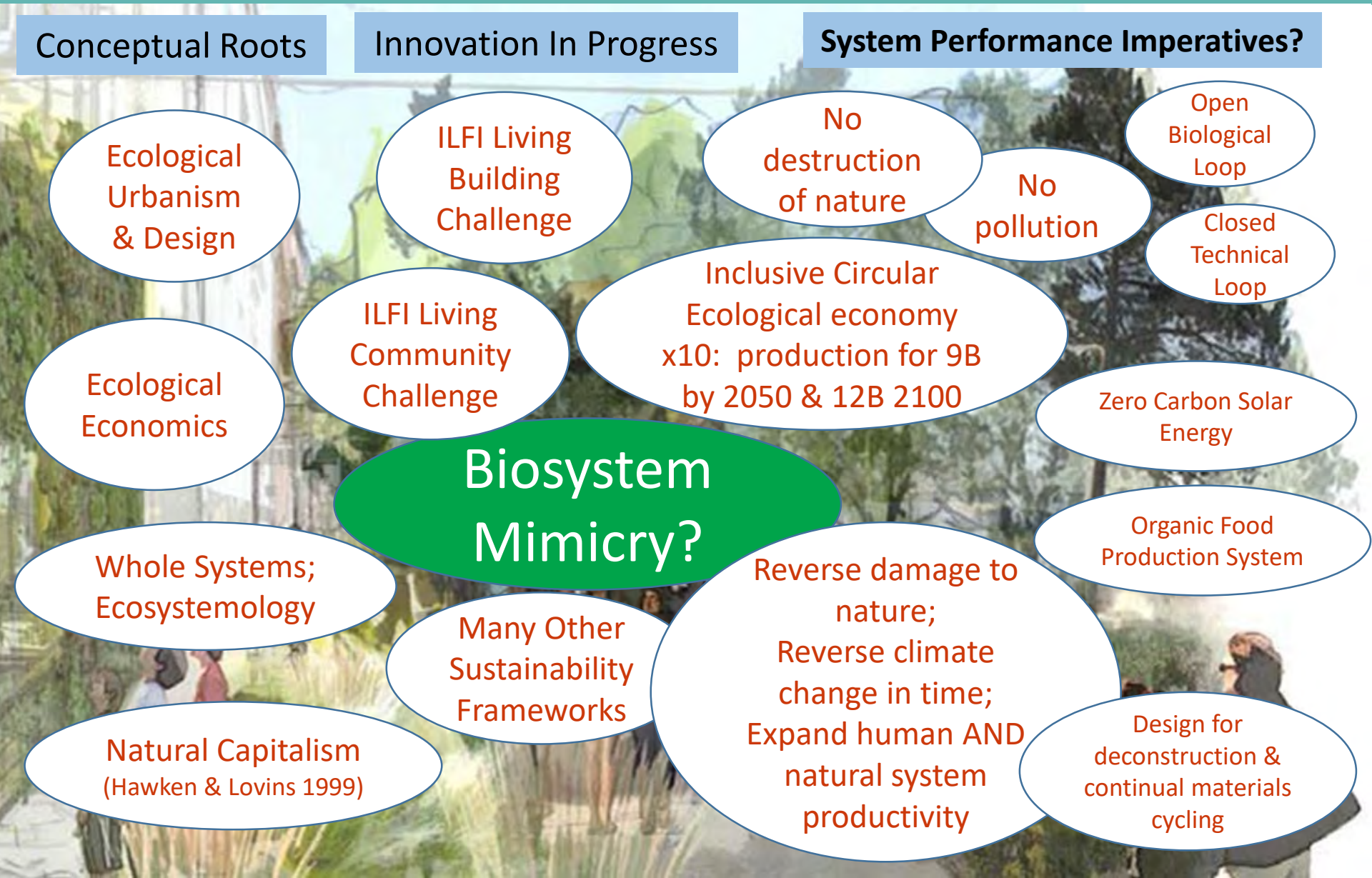
PLANNING STEPS

TOOL TYPES	END GAME GOALS (Define success)	GOVERNANCE (enable innovation & expand value prod.)	DESIGN CONFIGURATION (Produce Performance)
Foundational (old, 1980s/90s)	Realistic	Public /prvt. partnerships	Off-the-Shelf Market Performance
New (2000s)	"Big" Aspirational	Collaboration	"High" Performance
Regenerative (2010+)	Imperatives of Sustainability Systems Performance	Designing New Collaboration Agents	Ongoing Innovation to achieve sustainability systems performance

Frequency of Tool Use in Each Step: Infrequent Frequent

Sustainability Systems Performance Imperatives

Shift to Biosystems Mimicry – A work in progress



Create Meaningful Benefits

using both invisible & visible components

Goals | Governance | Configurations

Visible

LIFESTYLE / CULTURE

COMMUNITY SERVICES

Community Organizations
Tenants/Residents

Unique Cost Sharing Opportunities

Invisible

TECHNOLOGY

INFRASTRUCTURE

REAL ESTATE

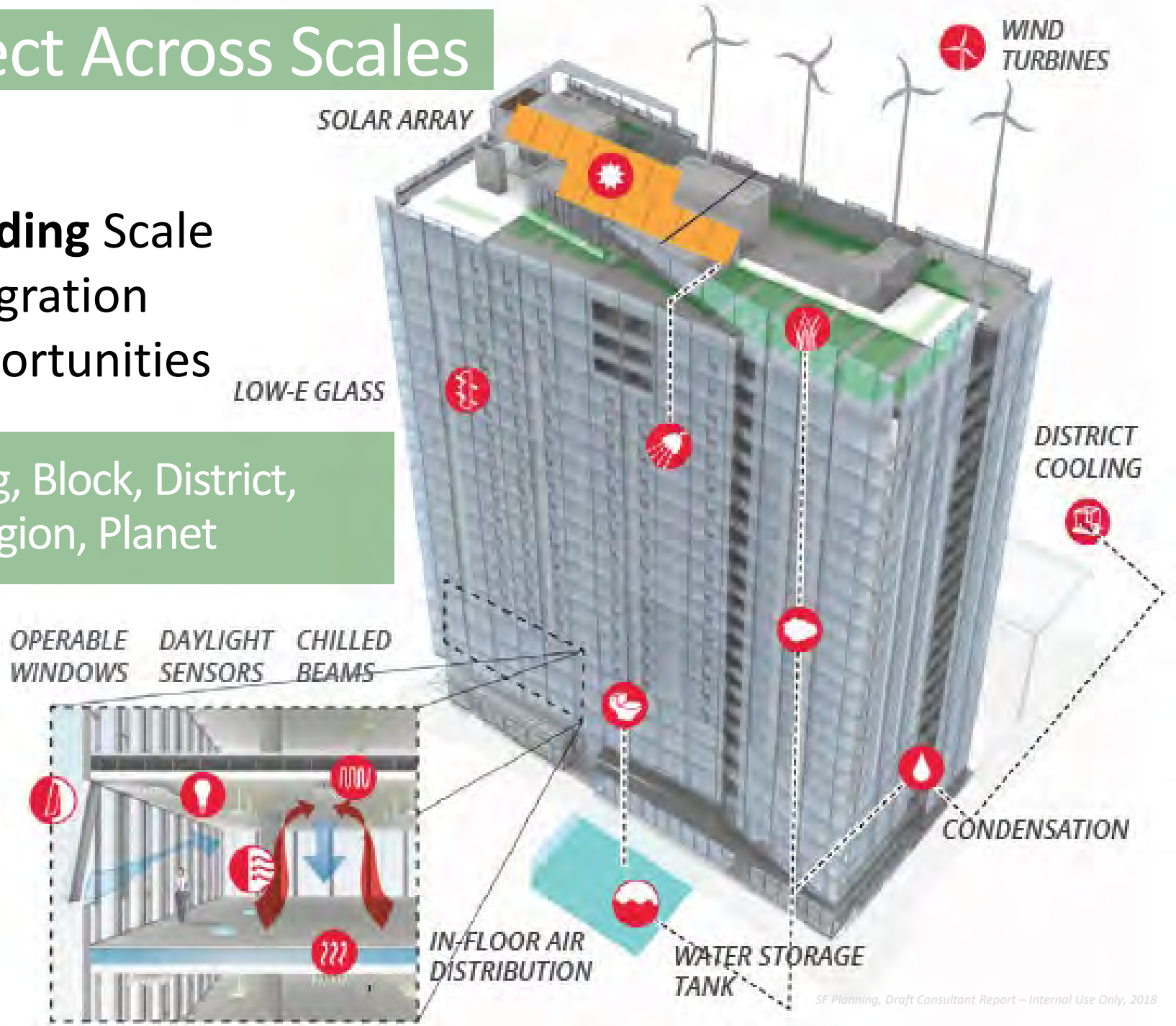
PUBLIC-PRIVATE PARTNERSHIPS

Business Districts | Utilities | Public Safety

Connect Across Scales

Building Scale
Integration
Opportunities

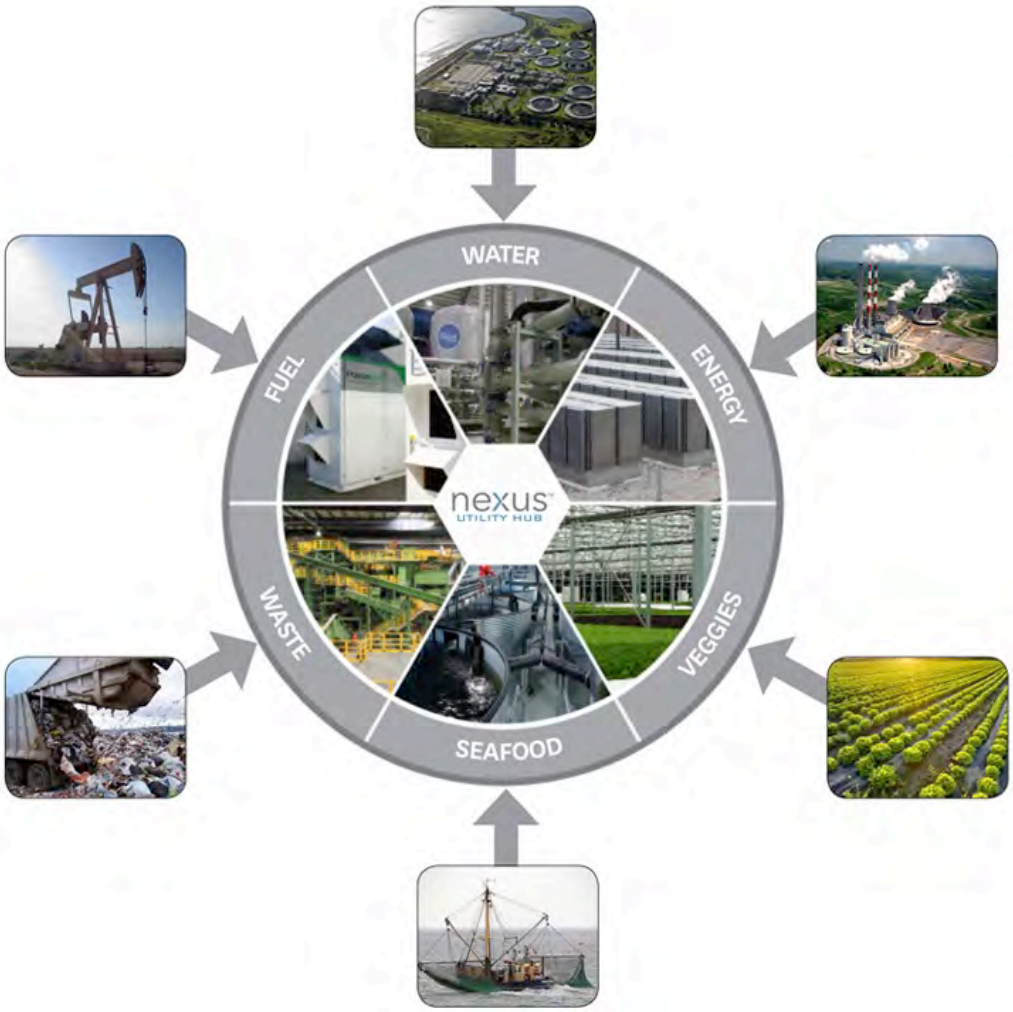
Building, Block, District,
City, Region, Planet



Connect Across Scales

Integrated Metabolism - Utility Hubs & Systems

Integrate dispersed functions into a single facility and process to produce higher value and multiple benefits



SINGLE FACILITY

- Recycling center and transfer stations
- Organic waste processing facility
- Wastewater treatment plant
- Water supply plant
- Power station
- Vegetable farm
- Ocean fishing vessel
- Food market/ offices/labs

Connect across time and sectors

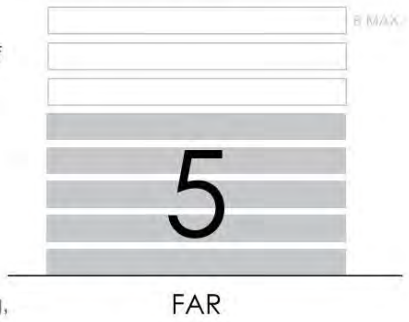
Designing Regenerative "Systems" Relationships

For Day / Night Building Energy Balance

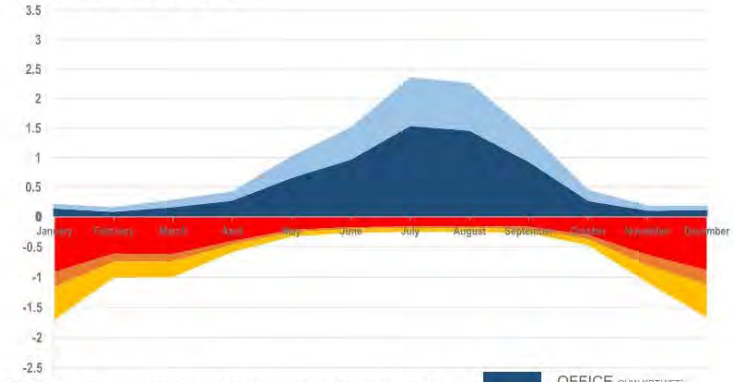
OPTION 3: GREENWAYS

INDICATORS

Like Option 2, Option 3 has a mix of office and residential uses having the capacity to manage parking demand on-site and reducing the impact on the surrounding traffic system. It also has the ability to catalyze and expand a low temperature energy and recycled water system. The mix of uses creates a balance in jobs to housing, supporting day and evening use of community-oriented services.



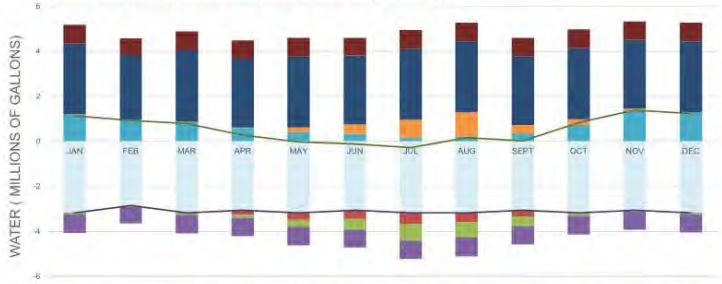
ENERGY BALANCE



Relatively even, seasonal use of heating and cooling that would afford seasonal storage and reuse.

OFFICE CHW KBTU/FT²
RETAIL CHW KBTU/FT²
RESIDENTIAL HW KBTU/FT²
RETAIL HW KBTU/FT²
OFFICE HW KBTU/FT²

WATER BALANCE: 52 M GAL/YEAR



Relatively higher demand for potable water. Non-potable water demand can be met by recycled waste-water.

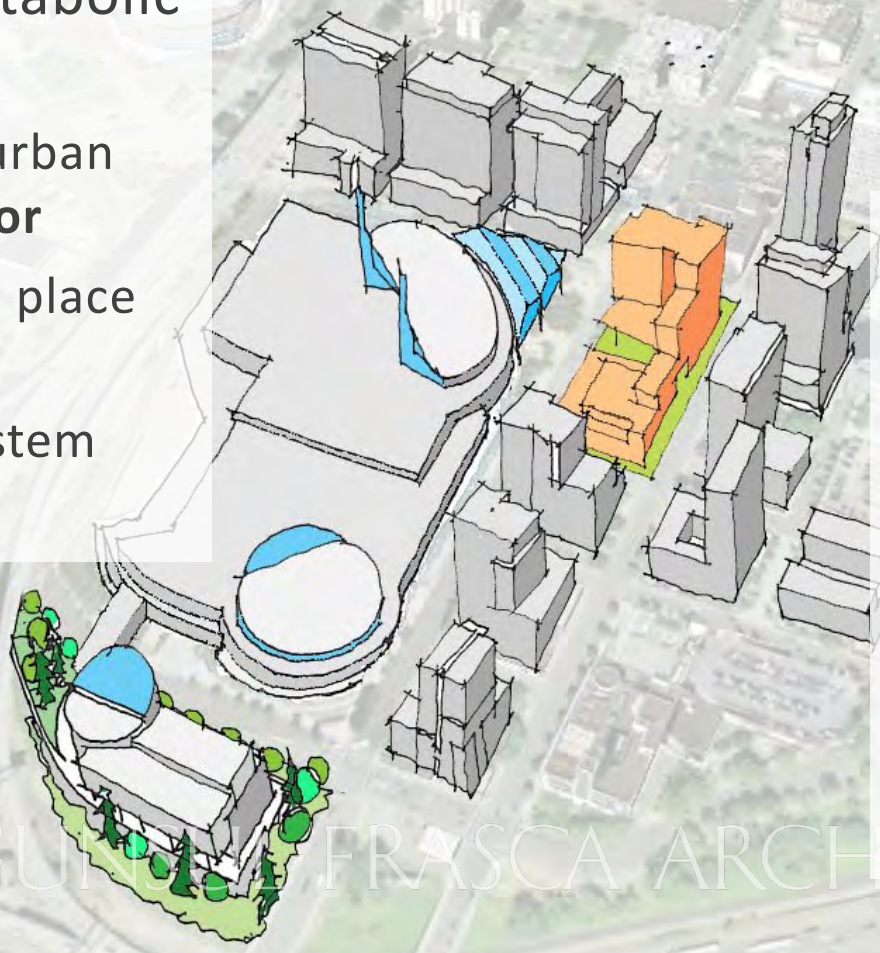
BLACKWATER SOURCE
GREYWATER SOURCE
CONDENSATE RECAPTURE SOURCE
RAINWATER SOURCE
NON-POTABLE DEMAND
HVAC WATER DEMAND
IRRIGATION DEMAND
POTABLE DEMAND
WATER BALANCE (ASSUMES BLACK/GREYWATER TO POTABLE ONLY)
WATER BALANCE (ASSUMES BLACK/GREYWATER TO NON-POTABLE ONLY)

New Regenerative Urban "System" Design "Palette"

To design the integrated layers of regenerative ***systems*** performance

Add water & habitat (biophilia) **+** metabolic integration to

- ❑ the traditional urban design palette **for**
- ❑ next-generation place making &
- ❑ regenerative system performance



A new synthesis:

- ❑ restoration ecology
- ❑ urban design, planning & policy
- ❑ Landscape Architecture
- ❑ Engineering

Scott Edmondson, SF Planning &
Charles Kelley, ZGF Architects, Inc.

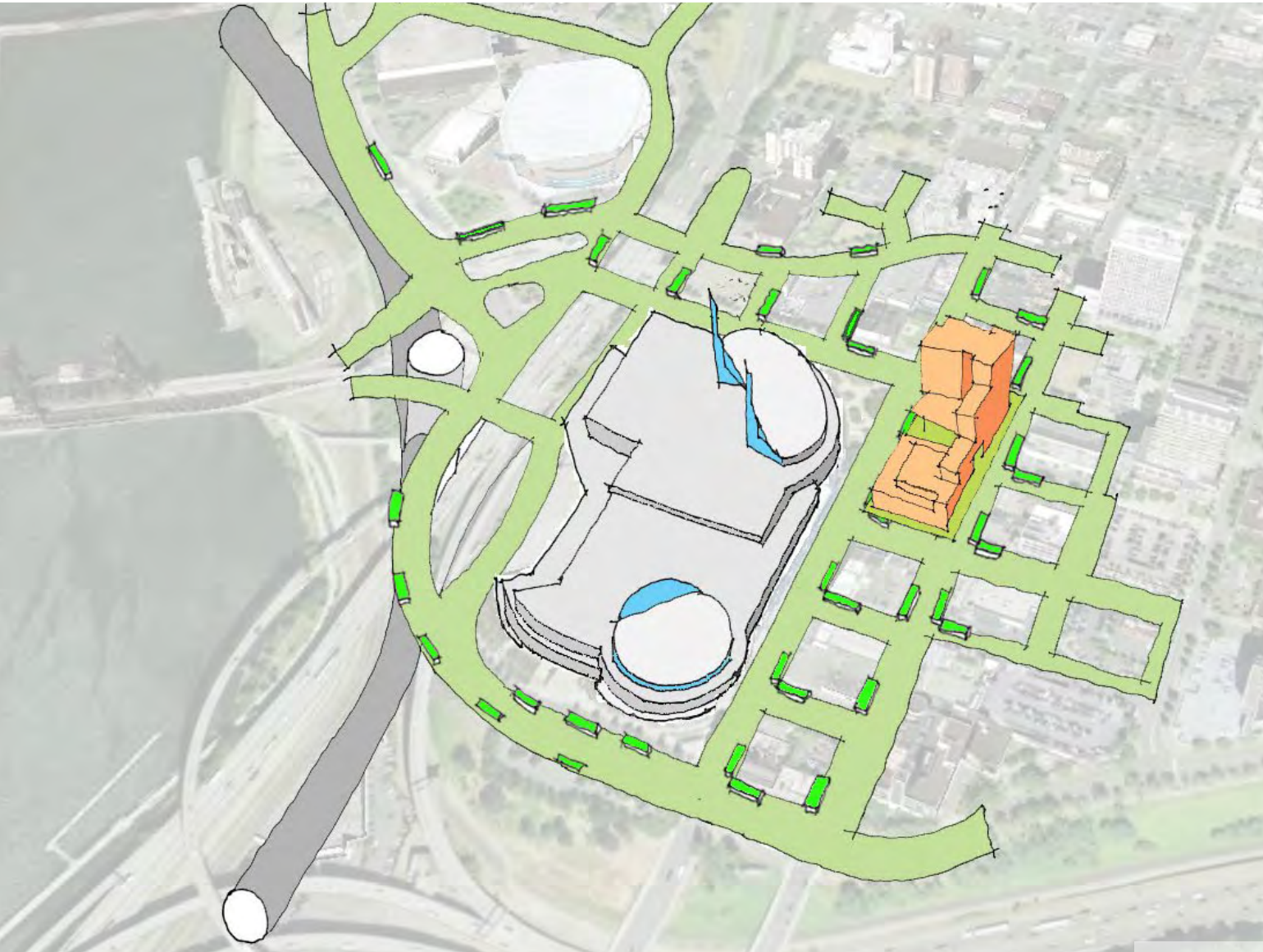
Regenerative Urban District Design Palette

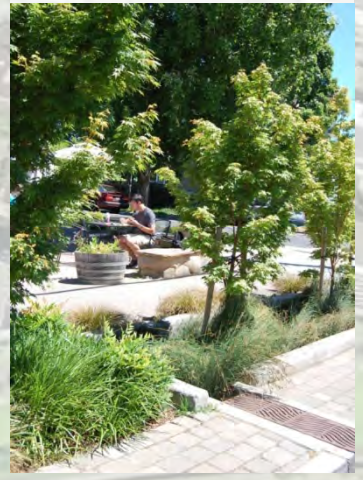
LAYER -- Intermodal Transit & Social Connections

Charles Kelley, ZGF Architects, Inc.

Regenerative Urban District Design Palette

LAYER -- Green Street flow-through planters

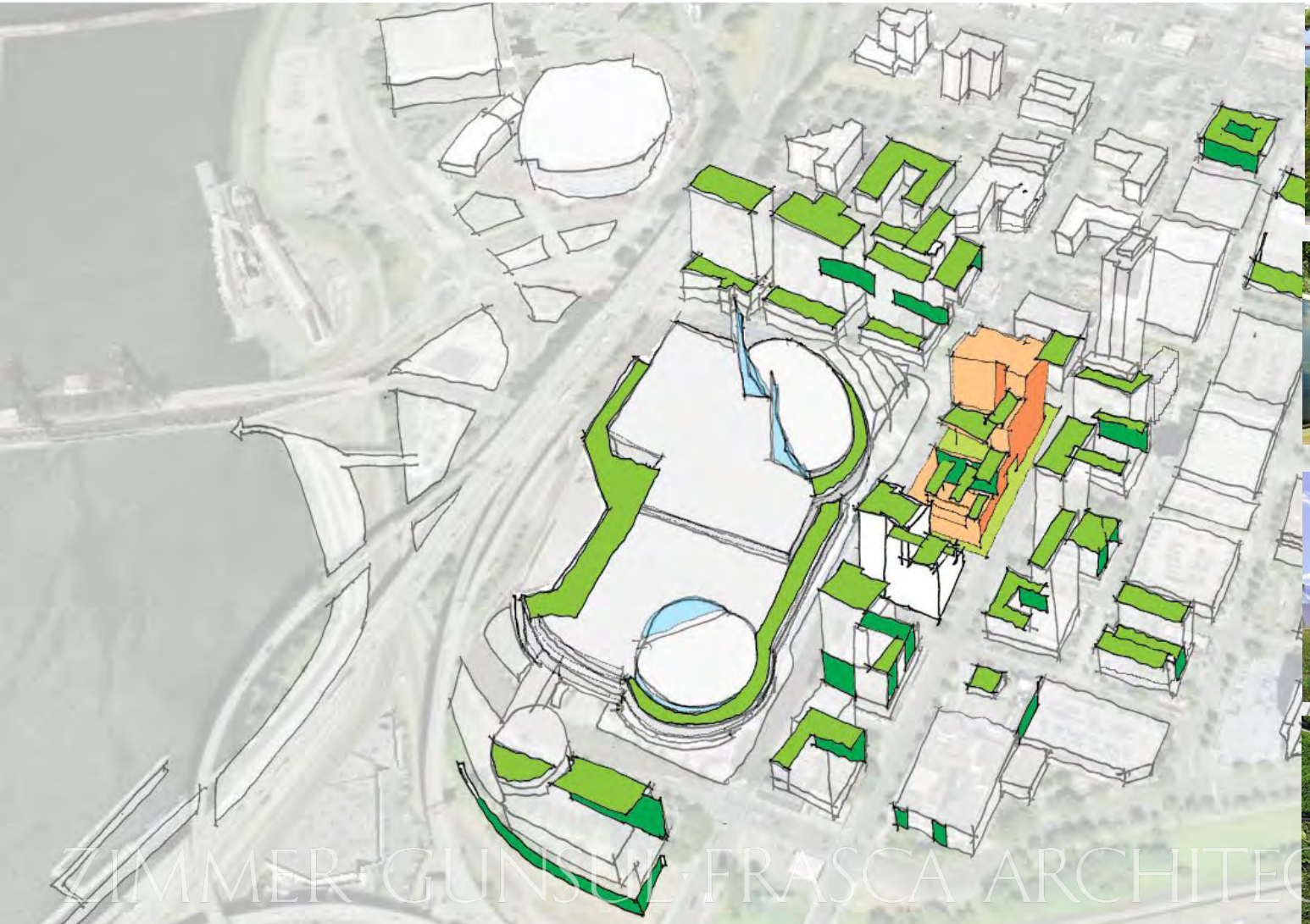




Charles Kelley, ZGF Architects, Inc.

Regenerative Urban District Design Palette

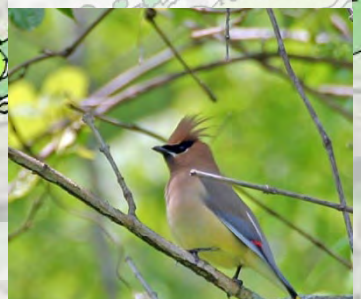
LAYER -- Vegetated Roofs & Walls



Charles Kelley, ZGF Architects, Inc.

Regenerative Urban District Design Palette

LAYER - Open Space & Habitat Corridors



Charles Kelley, ZGF Architects, Inc.

Regenerative Urban District Design Palette

LAYER - Purple pipe plumbing for non-potable water reuse

Charles Kelley, ZGF Architects, Inc.

Regenerative Urban District Design Palette

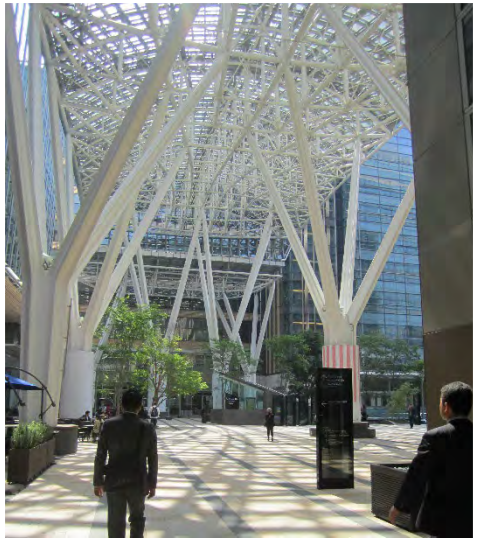
LAYER - Virtual Smart-City Internet: *Connect individuals AND building/community systems via cell phones & wifi*



Occupant

Building

Block



District

So individuals can adapt the environment to themselves and vice-versa for optimized efficiency, comfort, and choice (Principle: creative-fitting!!)

Charles Kelley, ZGF Architects, Inc.

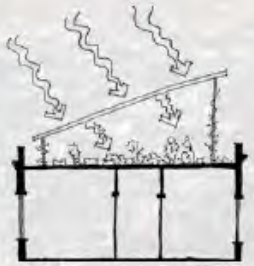
PRACTICE CASE 2

Question: How to make existing neighborhoods sustainable?

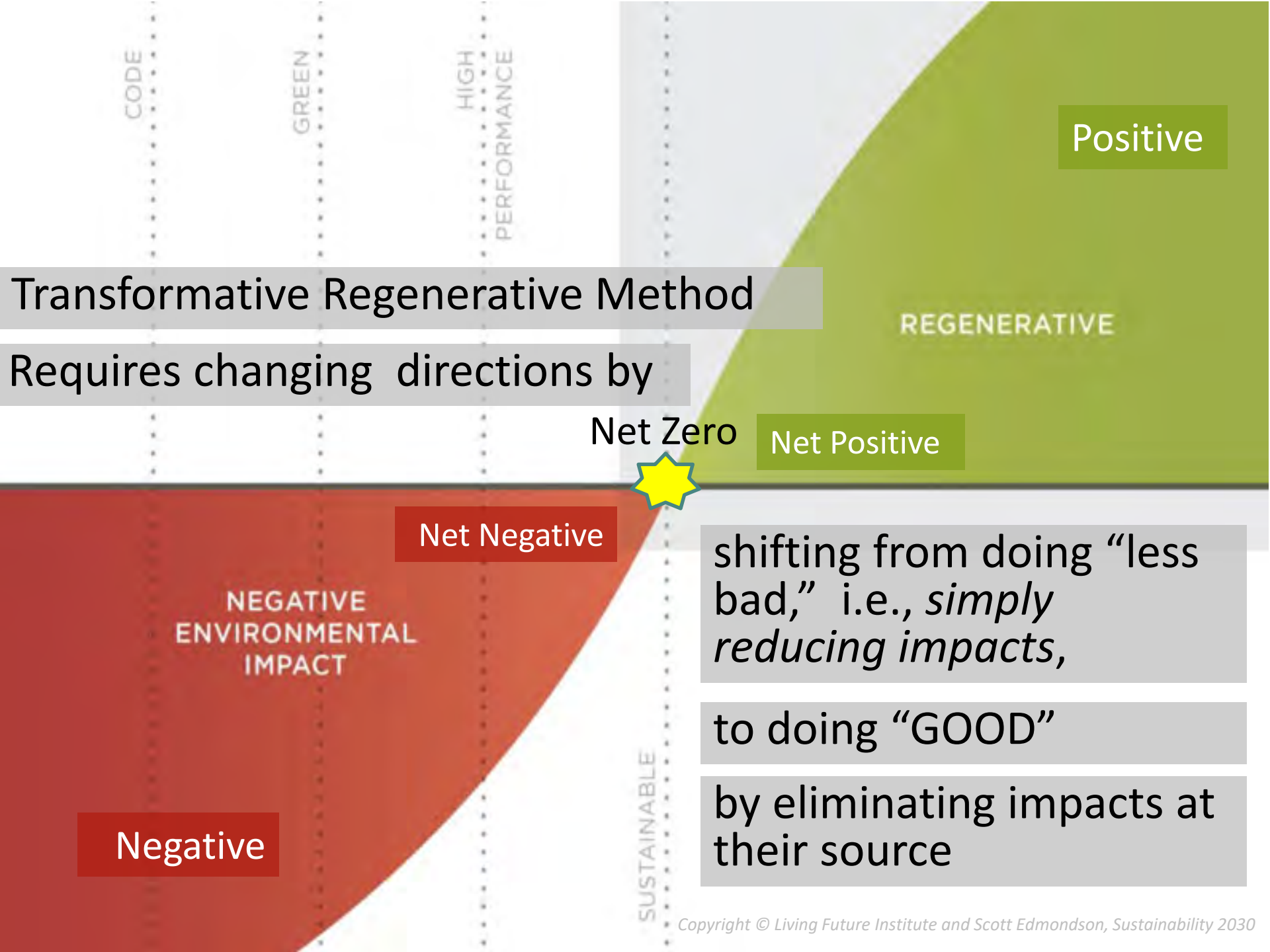
LIVING COMMUNITY PATTERNS

EXPLORATORY STRATEGIES FOR A SUSTAINABLE SAN FRANCISCO

A method for integrating local-regional sustainability "systems" planning

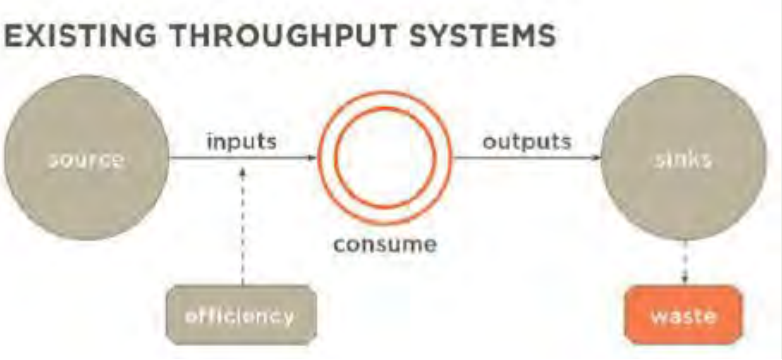


INTERNATIONAL LIVING FUTURE INSTITUTE



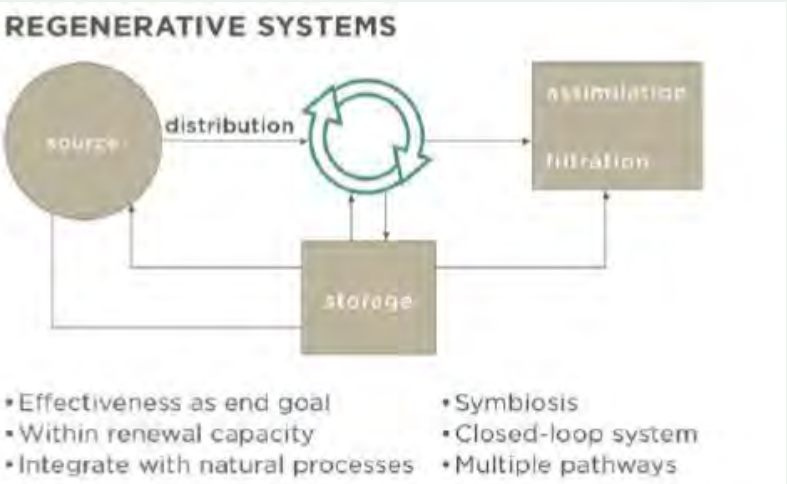
Enhance Ecological **&** Economic Carrying Capacity ***by Design***

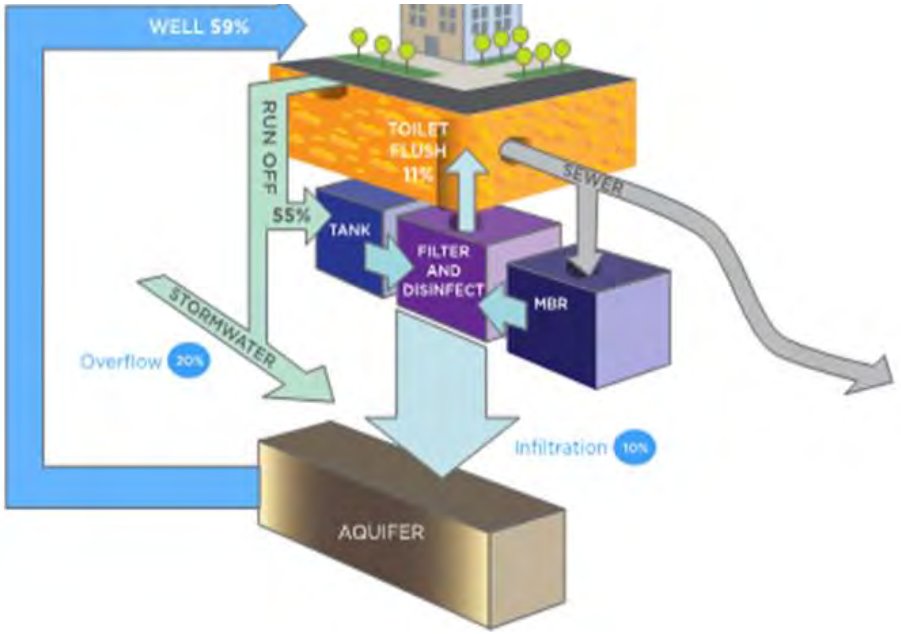
This is the Challenge & Promise of Regenerative System Design



Linear flows: produce waste & use up finite resources ***by design***

Figure 2. Linear Flows in Degenerative Systems (Greener, but not Sustainable), from *Regenerative Design for Sustainable Development* by John Tillman Lyle





Circular flows: no waste; use infinitely regenerated res. ***by design***

Invent and use new tools & integrative frameworks like the Living Community

Inspired by
Christopher Alexander's
A Pattern Language

- Synergistic
- 1 pattern -- achieves multiple goals
- Living language
  - develops with use
- Use only the patterns most suited to project
- Only a starting point for innovation
  - Invent/add more patterns

PATTERNS: Are Sustainability Creativity Strategies for Pl & D

They achieve multiple sustainability systems imperatives simultaneously

PETALS

The Petals of the Living Community Challenge represent seven performance areas: Place, Water, Energy, Health, Materials, Equity, and Beauty—that together produce the system conditions of a restorative future.

IMPERATIVES

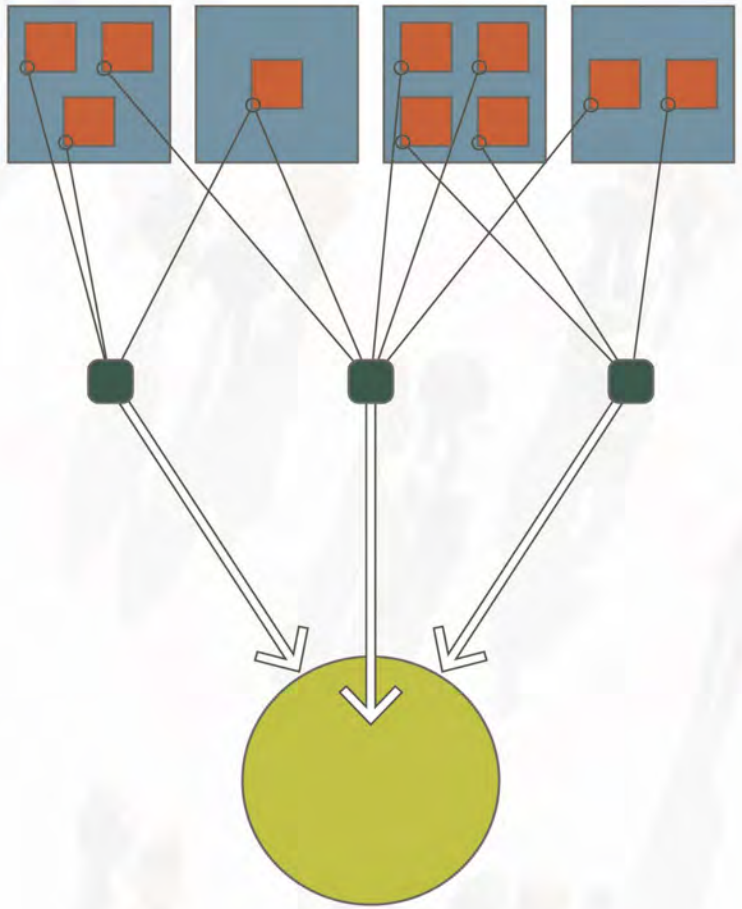
From the Petals, the Imperatives define the specific performance metrics of success.

PATTERNS

Patterns are strategies, concepts, and templates to create projects that culminate in Living Communities.

PROJECTS

The Petals, Imperatives, and Patterns can be used to design projects that create Living Buildings and Living Communities.



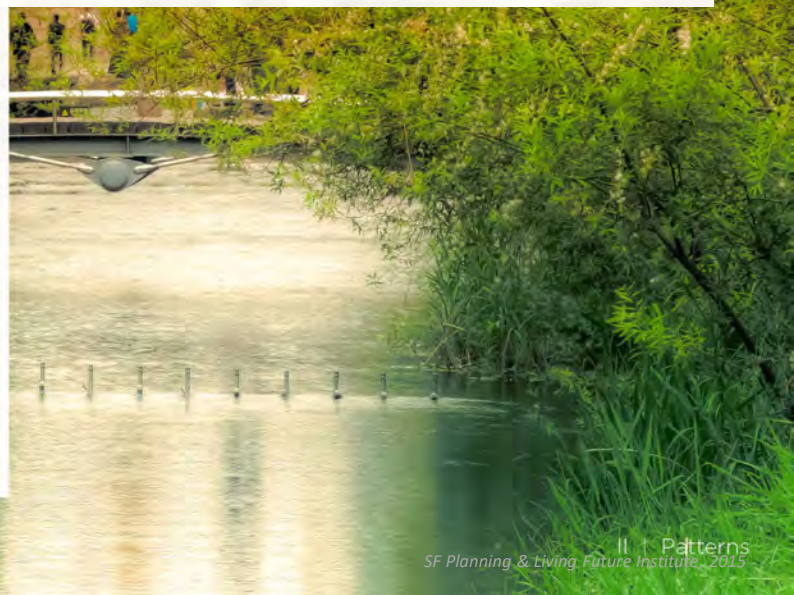
PATTERN 01
URBAN REWILDING

Image Source: Baron Reznik

Description:

COMMUNITIES SHOULD INTEGRATE NATURE, INCLUDING WILD NATURE, INTO THEIR BUILT ENVIRONMENTS THROUGH A NEW SYNTHESIS OF RESTORATION ECOLOGY, ARCHITECTURE, AND URBAN PLANNING AND DESIGN People need frequent contact with

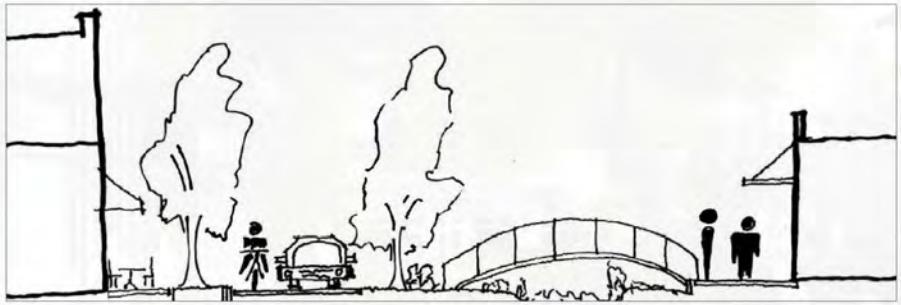
and bay shores can be restored to their original wild states, bringing with them native fish and aquatic habitat. Native plant species and soils should be used in planting strips, medians, parks and plazas, so that the city's indigenous ecology is re-created, in turn promoting native biota and insects. Wild corridors should be re-created through the city, allowing wild reptiles, mammals, and birds to reclaim habitat and have a presence. Wilderness in the city also allows all people to experience nature, not just those who have the means to leave the city to travel to distant wild places.



Use water and habitat for aesthetics, urban activation, ecosystem services

PATTERN 04
BLUE-GREEN STREETS

Description:



SOME STREETS CAN BE REBUILT AS NEW, MULTI-FUNCTIONAL PLACES OF WATER COLLECTION AND STORAGE, BIOPHILIA, RECREATION, WASTEWATER TREATMENT, AND OTHER ECOSYSTEM SERVICES. The Blue-Green Street integrates stormwater flows, natural or storing stormwater, or that connects a network of eco-machines treating later stages of wastewater. With the provision of water, a lush, wild landscape of large shrubs and tree groves is possible, providing a cooling microclimate on hot days. A Blue-Green Street can be integrated into many street types, from boulevards to neighborhood streets, and from alleyways to bike paths. The result is places that are much more people-centric and biophilic.

NOE VALLEY ILLUSTRATIVE PLAN

Street-to-Table
The 20'+ sidewalk on Dolores Street lends itself to a large planting strip that could incorporate urban agriculture

Car Share Parking + Grower/ Maker Space
5 parking spaces for Mobility in the Middle sized automobiles are created at the northern end of the street which could include a charging station partially powered by the Grower/Maker Space solar array. This community building is sized to host a tool-share or gathering place.

Blue-Green Street II
These linear rain gardens on 22nd and 23rd Streets will store rainwater during a significant rain event from the north and south sections of Fair Oaks

Blue-Green Element
Though the 10' ROW along Quanes Street does not allow for Blue-Green elements within the ROW, there are opportunities for public/private partnerships to create rainwater capture gardens.

Blue-Green Street Alley
Ames Street has a 15' ROW that can be reconfigured to include a travel lane and planting areas while preserving garage access.

can be mapped to build momentum.

Reconfigured Circulation
This circulation loop allows

Improved Crosswalk

Blue-Green Street II
The north and south

the water as it descends down the hill.

Street I
Blue-
mpletely
ROW to
ace/path
hybrid with permeable surfaces, Blue-Green
is preserved on the eastern edge with movable bollards

Place-Based Memory
This existing art-wall on

Sketch patterns onto area

See what "bubbles up"

Establish new sustainability systems infrastructure

Create better & sustainable places

Enhance neighborhood sustainability

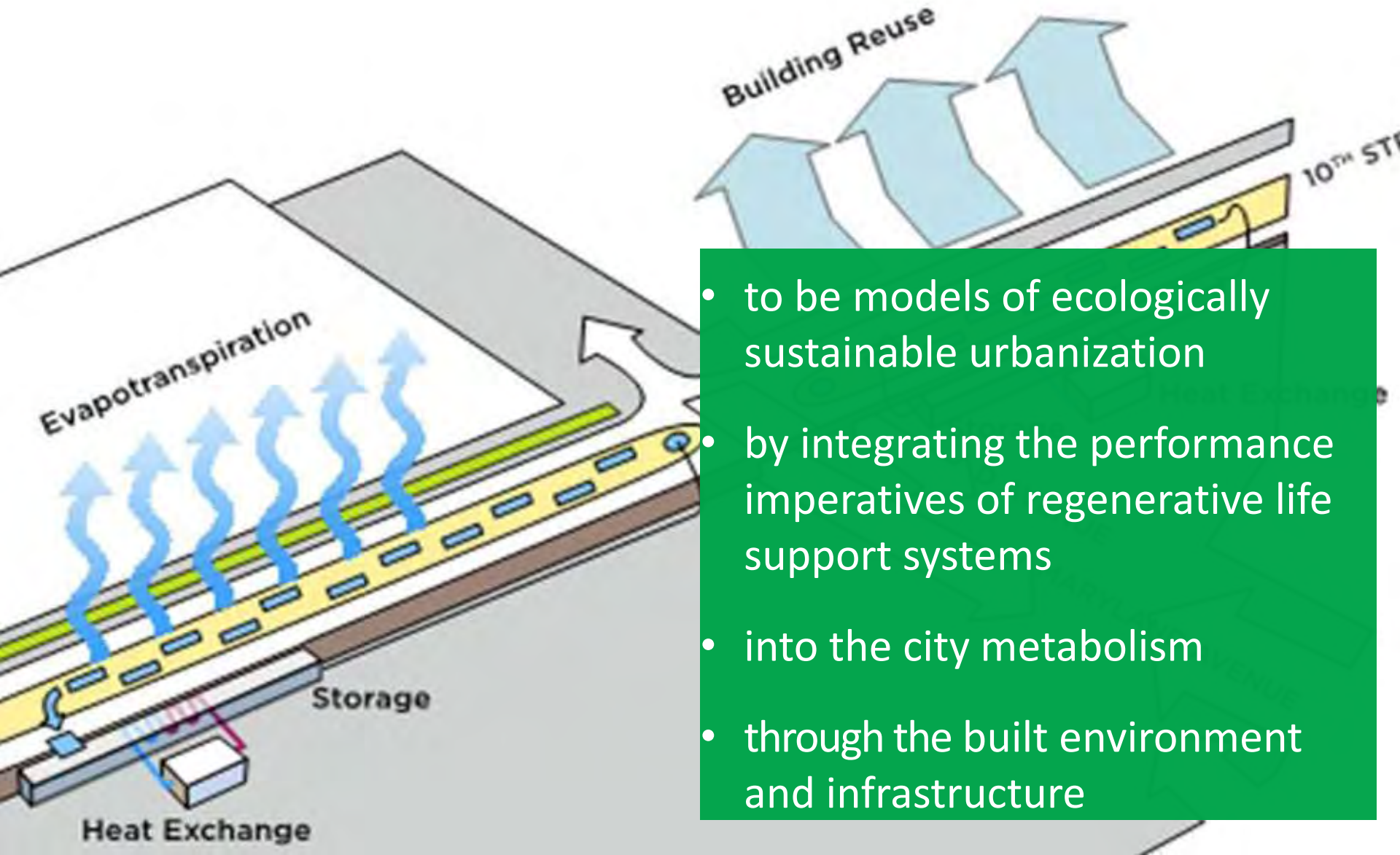
with regenerative living system urban design

using blue-green streets and other living community patterns

to transform existing neighborhoods for sustainability success.

Planning & Living Future Institute, 2015

Take Away: use all planning, development, and maintenance decisions to create cities as regenerative life support systems



- to be models of ecologically sustainable urbanization
- by integrating the performance imperatives of regenerative life support systems
- into the city metabolism
- through the built environment and infrastructure

PRACTICE CASE 3

A Regenerative City Assessment

Tested Approach on a Plan Area

Prepared For: San Francisco Planning

Prepared By: ecala

With Support From: ZGF, URBAN FABRICK

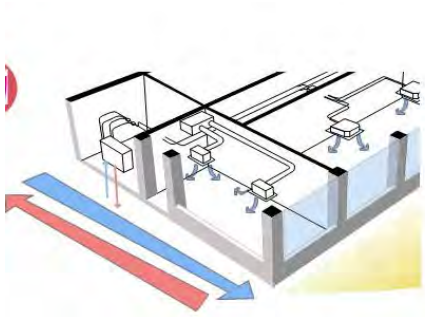
Developed Four Big Regenerative District Ideas

Essentially, it is "bio'*system*'mimicry," writ large

Set of cross-district urban design improvements produce multiple benefits

- ❑ Big Idea 1: **District water** for cooling and heat exchange
- ❑ Big Idea 2: Coordinated Blue-Green **Biophilic Infrastructure & Eco S. Services**
- ❑ Big Idea 3: **Connecting across scales** (buildings, blocks, districts, cities, regions)
- ❑ Big Idea 4: **Circular economy** to create regenerative urban metabolism

They build a transformational value proposition: Biophilia, Healthy Choices, Social Mobility, Sustainability, and Resiliency.



Heat Pump

Black Water Treatment

Heat Sink

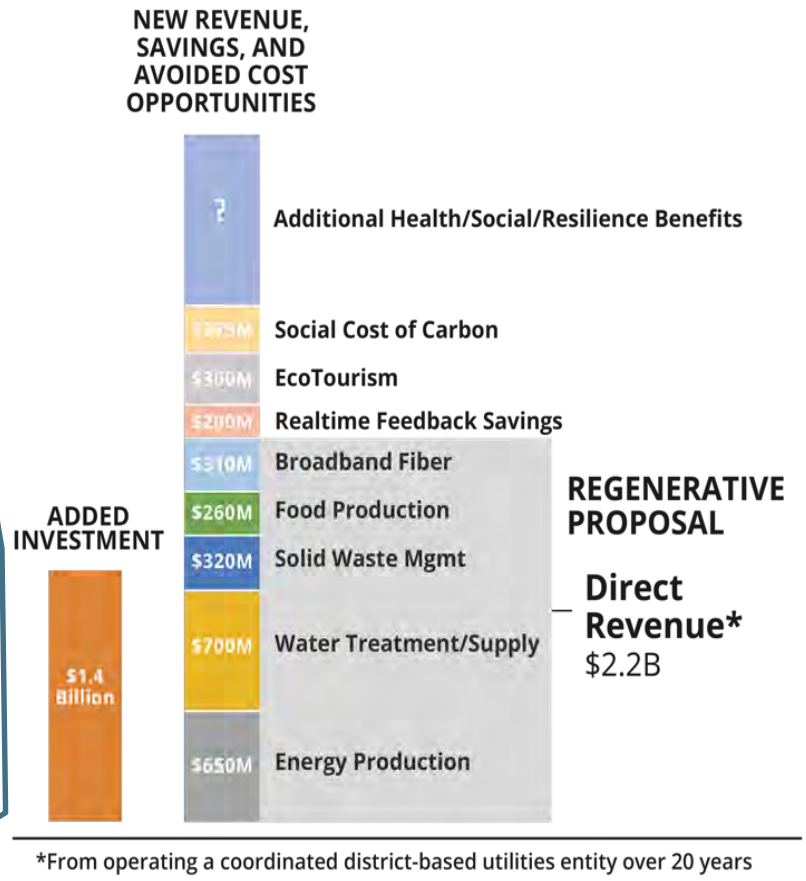
Recycled Water

Preliminary Analysis: Benefits exceed Costs

Proposed Regenerative Infrastructure

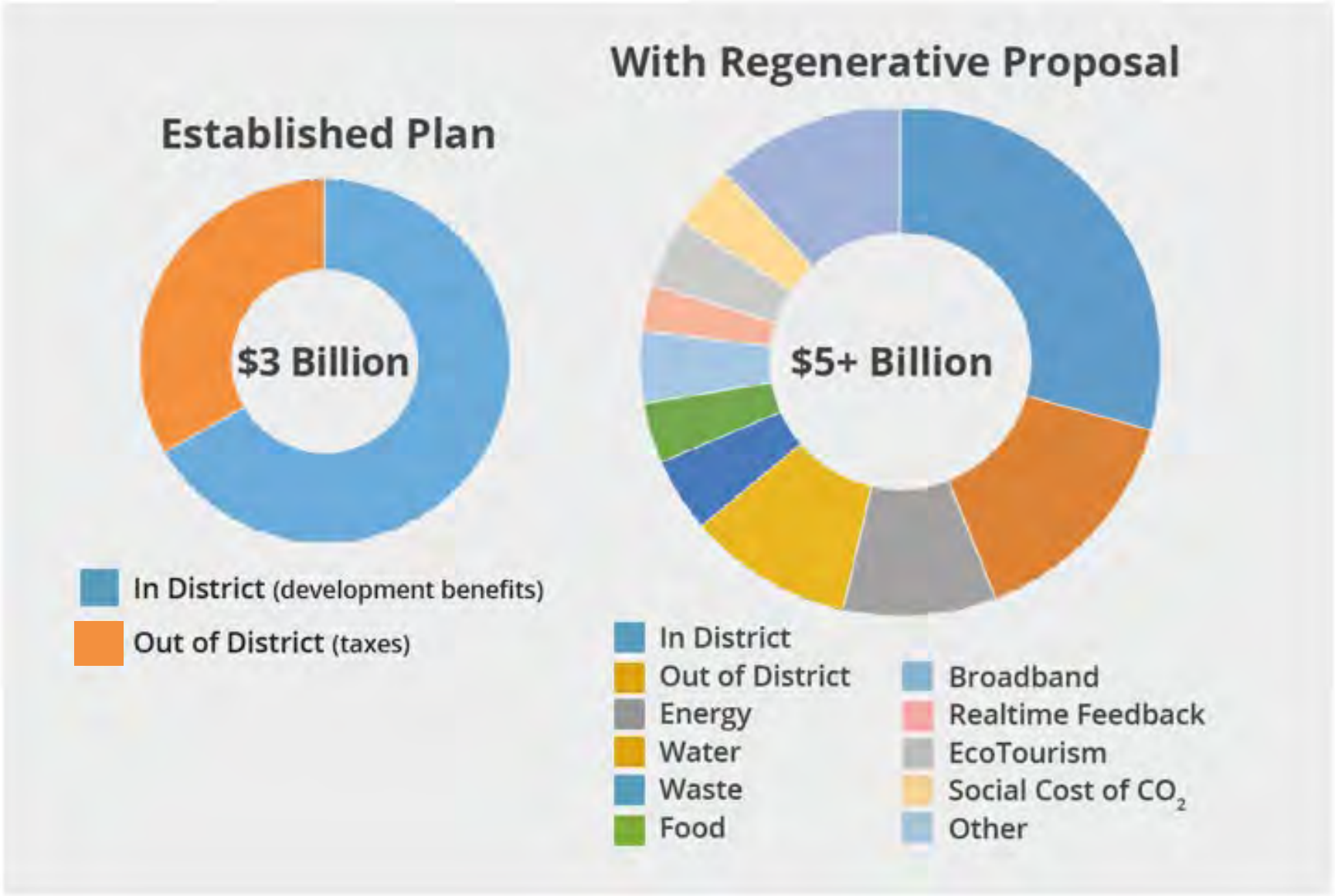
Regenerative Proposal Element	Investment
1. Green Infrastructure	$25M
2. Utilidor	$65M
3. District Energy	$125M
4. District Water	$68M
5. IT / Smart Grid	$28M
6. Solid Waste	$90M
7. Urban Agriculture	$15M
8. Site Work	$70M
9. Building Premiums	$890M
TOTAL	$1.4B

- Added cost ($1.4B) is less than the added revenue ($2.2B direct).
- The added cost is 10% of traditional development costs anticipated in the plan.



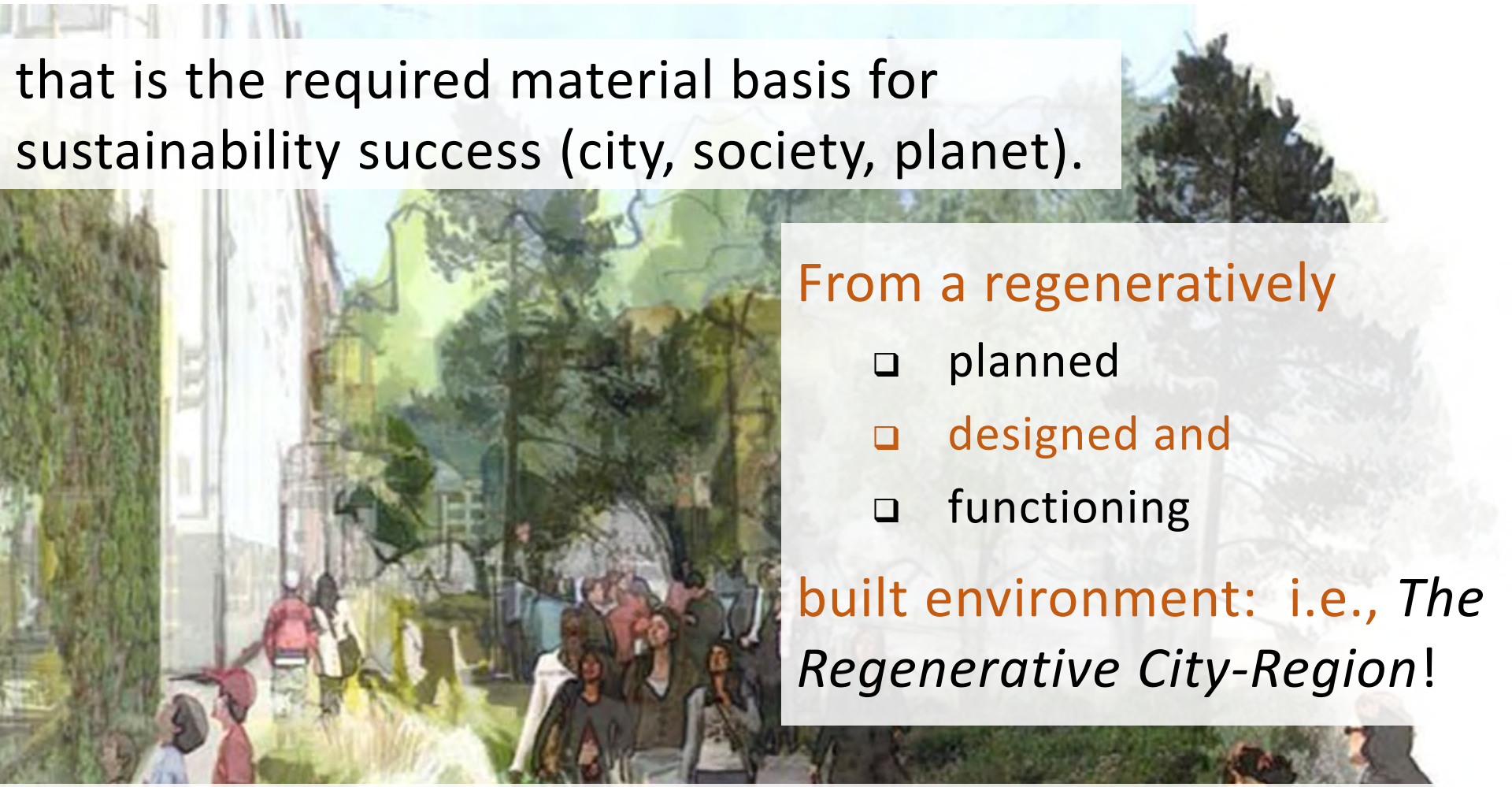
Regenerative District Revenue

Creates 60% more Value ($5B/$3B) + Better Places



BUT, it's more than city + environment

We unwittingly build the spatial sustainability economy



that is the required material basis for sustainability success (city, society, planet).

From a regeneratively

- planned
- designed and
- functioning

built environment: i.e., *The Regenerative City-Region*!

RU = city + environment + economy = Sustainability Success

RU's Economic Connection Expands Our Professions' Value Proposition

(planning, design, environment, sustainability)

- FROM a **nice-to-have** aesthetic value creator
- TO a **must-have** economic value creator
  - of the sustainability economy that is
  - the necessary basis for sustainable cities (etc.)
- With RU as the source code of sustainability success
- Planning could become the lead, the guide,
  - if it steps up to this new role: creating urban & regional sustainability systems performance.

Formula for Regenerative Urbanism

And the game-changing new value proposition

Sustainable "Living" Systems Performance Imperatives

+ high-performance regenerative urban "system" design

+ integrated utilities for circular urban metabolism

+ enabling planning policies and laws

= produces the regenerative built environment

= which is the core component of a sustainability economy

= and is the **BIG new value proposition for our professions**
and a **game changer:**

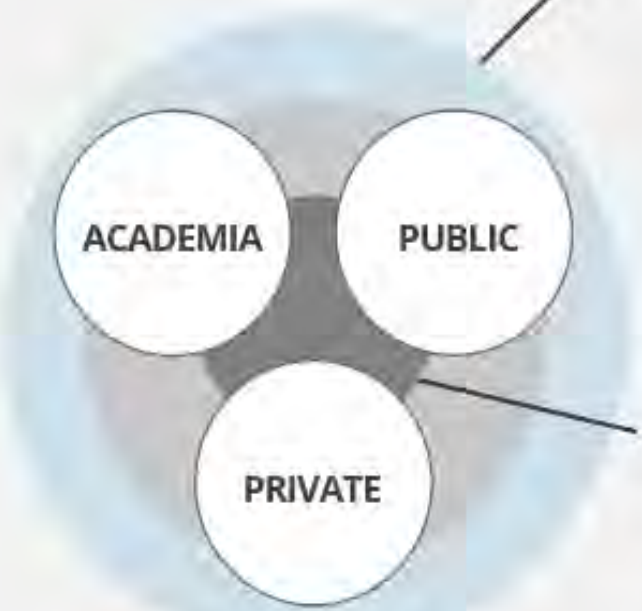
- **shifting sustainability from optional to mandatory**

Result: Great Sustainable City-Regions & Planet

New Governance Challenge for Systems Success

Inventing a new collaboration entity capable of producing sustainability *systems* success:

- ❑ Planning
- ❑ Development
- ❑ Management
- ❑ Renewal



COOPERATIVE GROUPS

- Kashiwa City Development & Promoting Foundation
- Chiba Prefecture
- Wacoal Art Center/SPIRAL
- Urban Design Institute Co, Ltd.
- UG Toshi-Kenchiku Co, Ltd.
- NPO Support Center Chiba
- Japan Life Design Systems
- PRAP Japan, Inc.
- YRP Ubiquitous Networking Laboratory
- FUJISAKI Office Co, Ltd.

COMPOSITION GROUPS

Public

- Kashiwa City
- The Kashiwa Chamber of Commerce & Industry
- Regional Council of Tanaka Area

Academic

- University of Tokyo
- Chiba University

Private

- Mitsui Fudosan Co. LTD.
- Tsukuba Express Metropolitan
- Intercity Railway Company

CONCLUSION:
Regenerative Sustainability & Urbanism

- Is arising spontaneously in our professions' innovation
- Creates great places AND the sustainability economy
- Is a game-changing value proposition for planning
- Is the basis for sustainability success
- Is the *only* real antidote for unsustainability, *and* . . .
  - Is the only real antidote for climate change, *BUT*
  - Climate change is only the tip of unsustainability
  - So, responding to climate change with it would be a sustainability accelerator & winning strategy

CONCLUSION:
Regenerative Sustainability & Urbanism

To realize this value and pursue this winning strategy, we need to:

- Recognize it
- Understand it
- Use it
- Develop it
- Scale it, and
- Accelerate it.

How to start, on Wednesday morning back at the office?

- ❑ **Buy** it "off-the shelf" from leading consultants
- ❑ **Embrace** the innovation / **Learn** it
- ❑ **Apply** it in our own cities as experimental regenerative city labs
- ❑ **Institutionalize** it (regs, policy, etc.).
- ❑ **And achieve** authentic sustainable cities, regions, and planet ASAP

We need to MAKE the market for regenerative urbanism!

The future "we" want.

Thank You

Is . . . Regenerative Urbanism

- ❑ the next big sustainability step
- ❑ the next powerful way of understanding sustainability,
  - the "end-game," and how to get there?

Scott T. Edmondson, AICP, scott.edmondson@sfgov.org

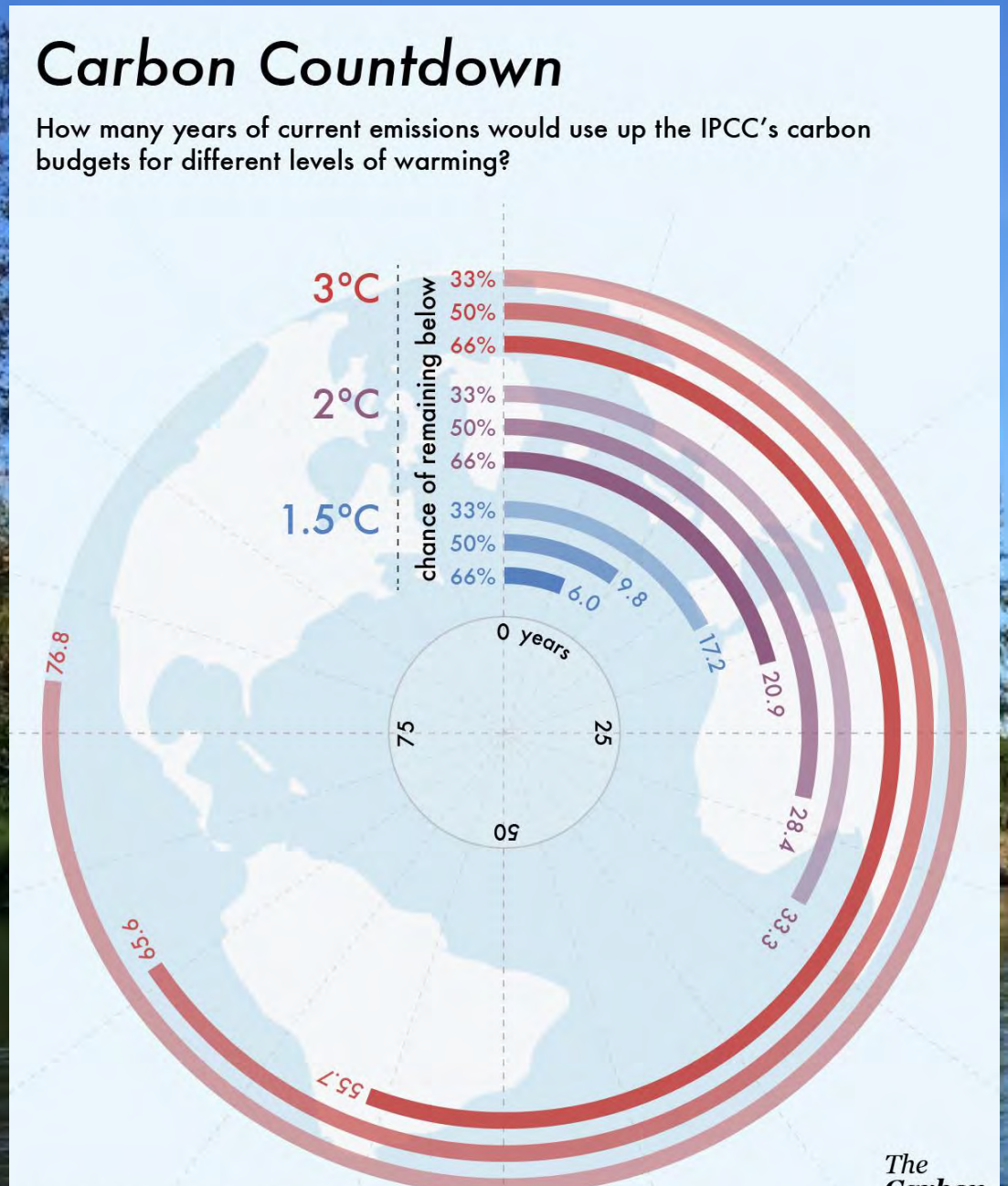
Regenerative Master Planning

Kirstin Weeks, Associate, Energy + Building Ecology, Arup

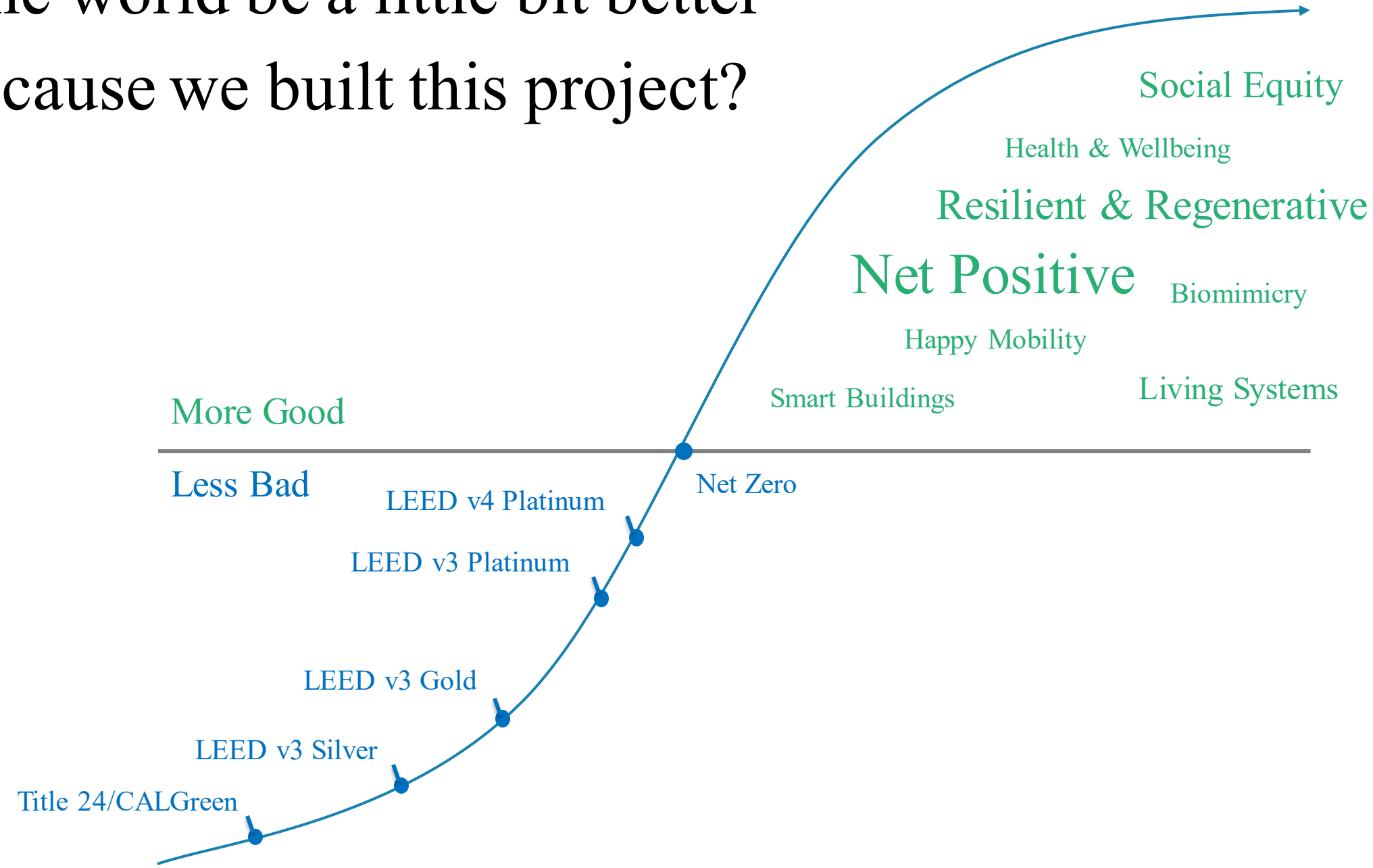
Climate

Biodiversity

Wellbeing



Can the world be a little bit better off because we built this project?



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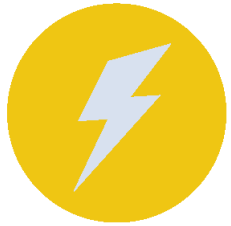
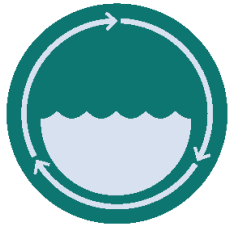
Proposed Net+ Focus Areas



ENERGY + CARBON

MATERIALS + CIRCULAR ECONOMY

WELLNESS + RESILIENCE



WATER + ECOSYSTEMS

MOBILITY

ARUP

ENERGY +
CARBON

MATERIALS,
WASTE +
CIRCULAR ECONOMY

WELLNESS,
RESILIENCE +
COMMUNITY

WATER +
ECOSYSTEMS

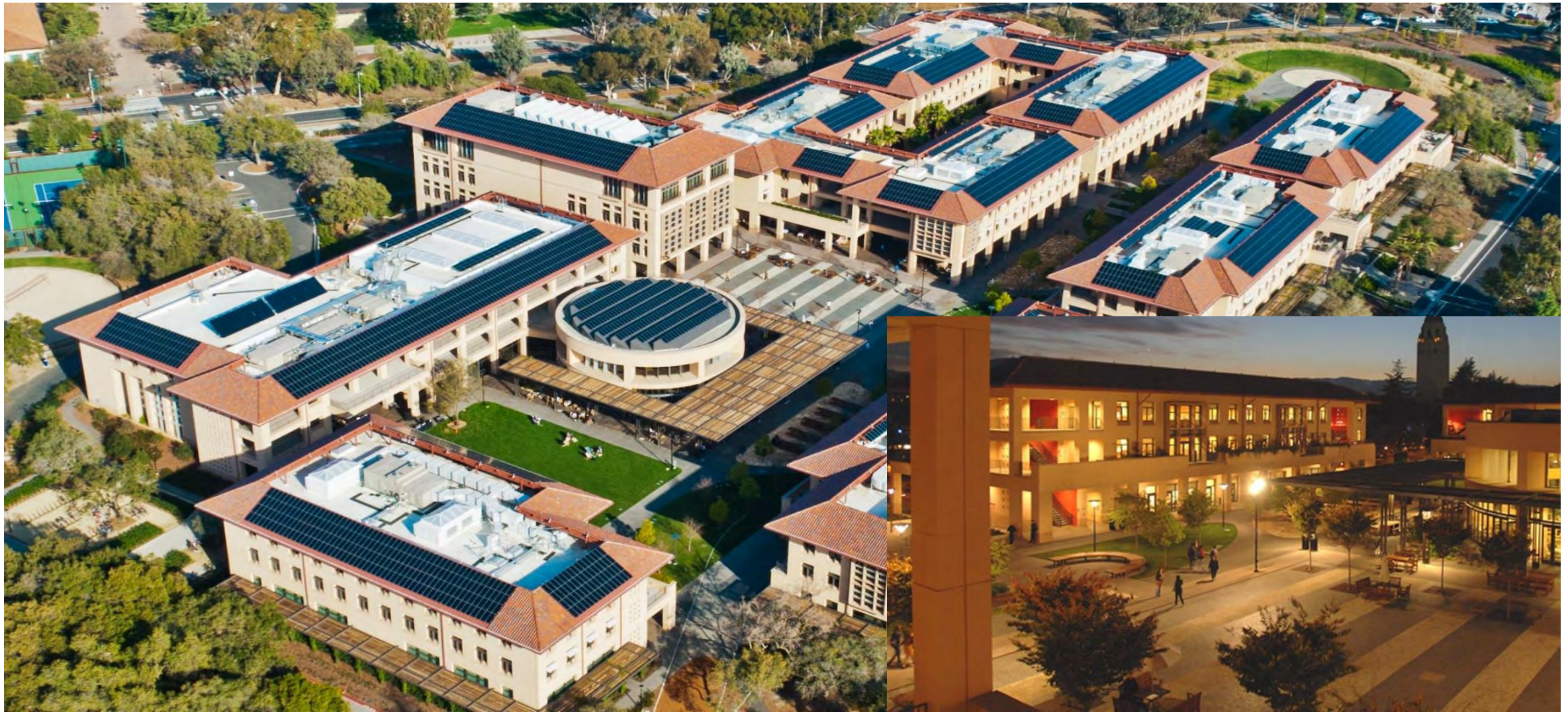
MOBILITY

ARUP

Energy + Carbon

ARUP

Stanford Graduate School of Business – ZNE On+Offsite



Knight Management Center, Stanford Graduate School of Business

ARUP

ENERGY + CARBON

MATERIALS, WASTE + CIRCULAR ECONOMY

WELLNESS, RESILIENCE + COMMUNITY

WATER + ECOSYSTEMS

MOBILITY

ARUP

Materials

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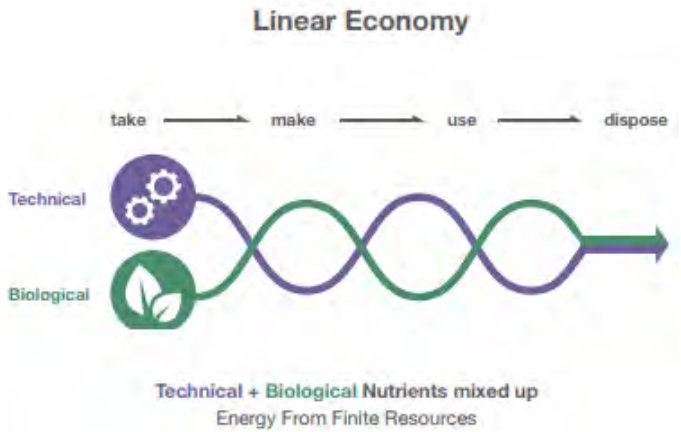
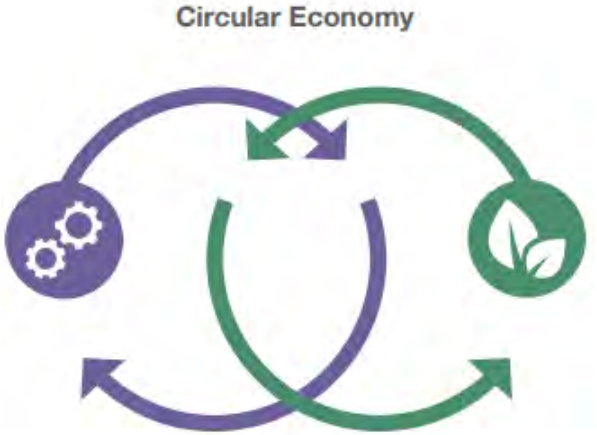
Circular Economy | Approach to Resources

Circular Pavilion, Arup, London



Technical + Biological Nutrients mixed up
Energy From Finite Resources



Living Systems
Energy From Renewable Resources

ARUP

ENERGY + CARBON

MATERIALS, WASTE + CIRCULAR ECONOMY

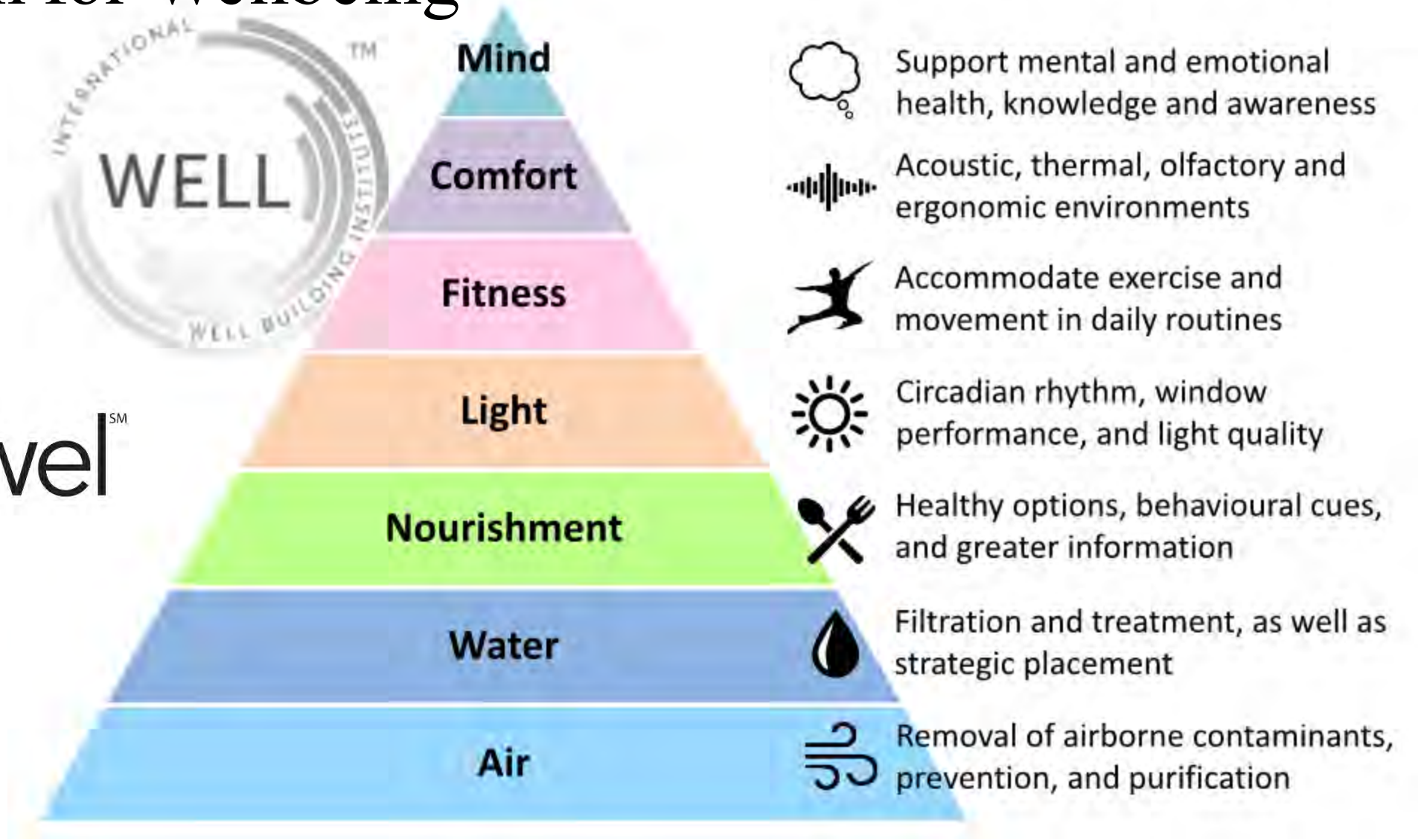
WELLNESS, RESILIENCE + COMMUNITY

WATER + ECOSYSTEMS

MOBILITY

ARUP

Design for Wellbeing



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Biophilic design – connection to nature

ARUP

Community Wellbeing: 3333 California Masterplan

ARUP

Community + Wellness: 3333 California Masterplan

Key features:

- Open space with community access
- Biophilic Design (Living roofs, public open spaces and green walking paths, street trees and green site edges, view)
- Car free site + underground parking
- Best construction practices for waste, air quality and noise control
- Extensive community engagement

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ENERGY + CARBON

MATERIALS, WASTE + CIRCULAR ECONOMY

WELLNESS, RESILIENCE + COMMUNITY

WATER + ECOSYSTEMS

MOBILITY

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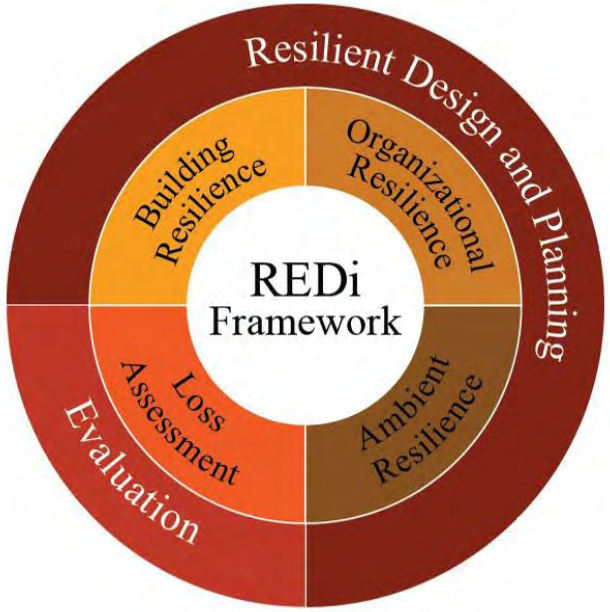
Resilience - WeatherShift™ – Bringing Climate Science into Daily Practice

ARUP

Resilience - Seismic



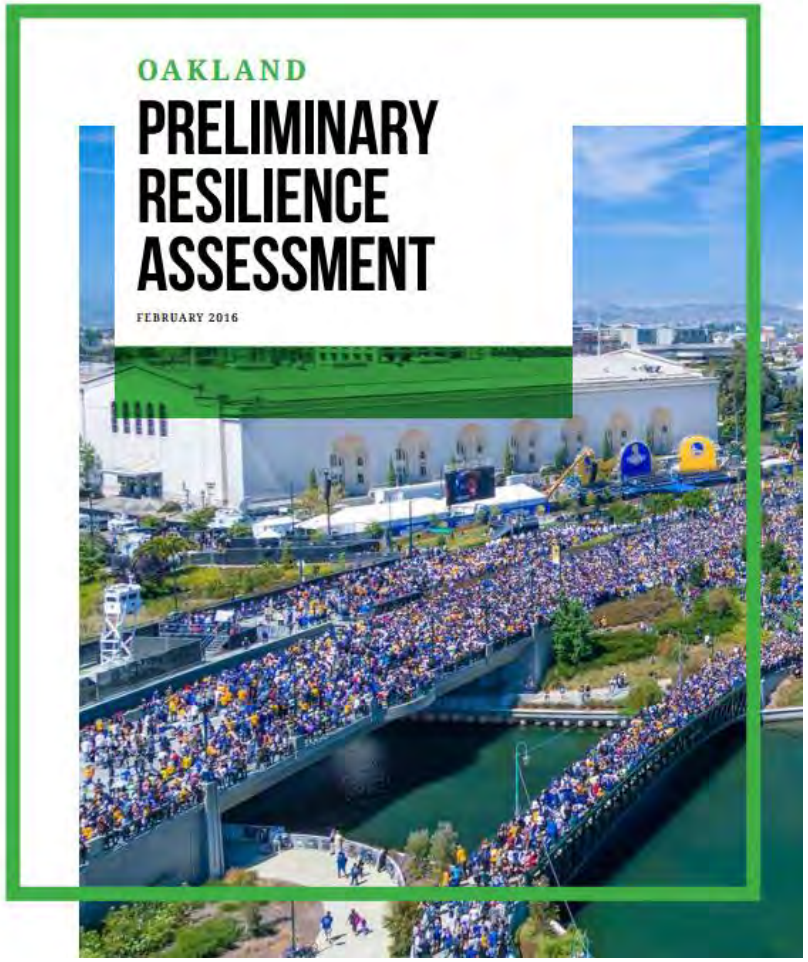
- Business continuity following major earthquake
- Protect financial and resource/carbon investment

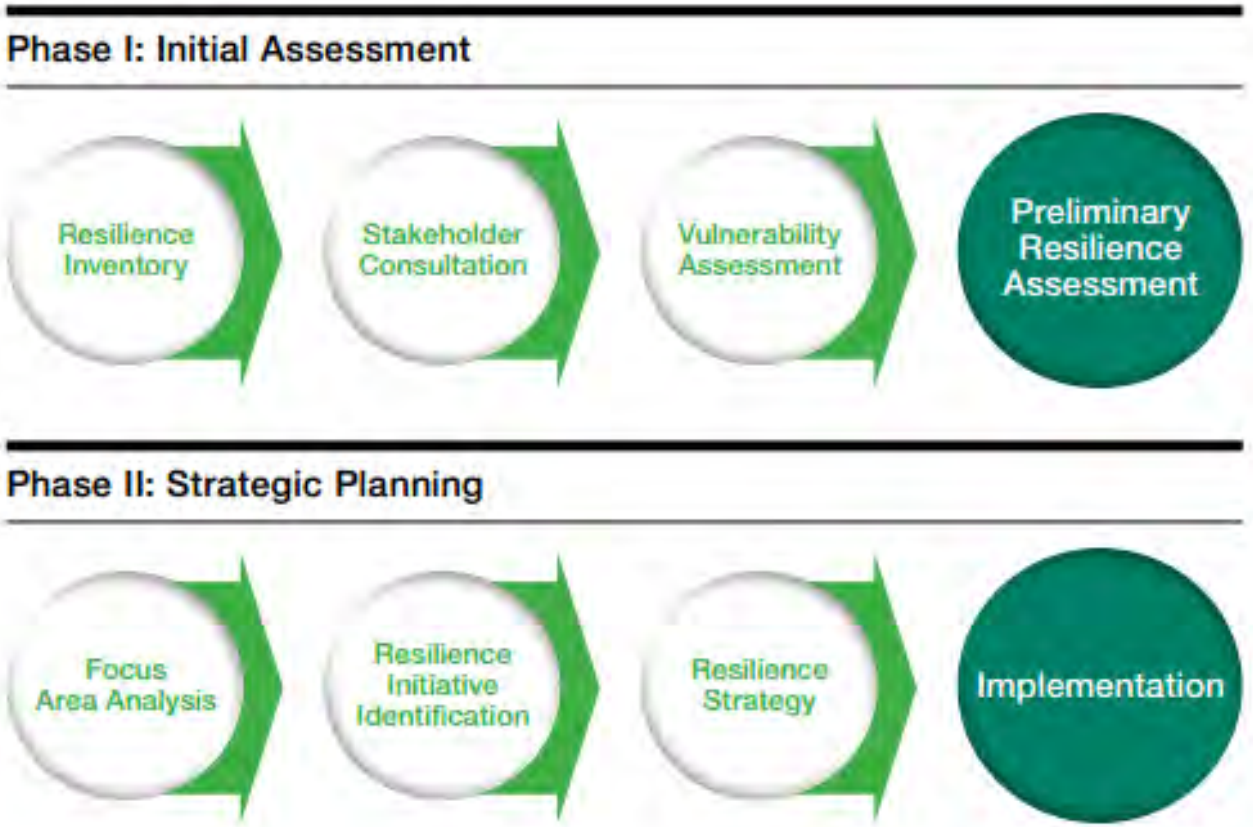
ARUP

Welcome to SolarResilient, a sizing tool for solar PV and battery storage systems

This tool estimates the required rating and physical size of grid-connected photovoltaic (PV) and battery energy storage to provide power for extended periods during a large scale grid power outage. SolarResilient is designed for buildings that form part of a cities resilience strategy - it allows building owners and city departments to develop equipment sizing before embarking on more detailed

Building Inherent Resilience





Resource:
Oakland Preliminary Resilience Assessment, City of Oakland, February 2016:
http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak057651.pdf

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ENERGY + CARBON

MATERIALS, WASTE + CIRCULAR ECONOMY

WELLNESS, RESILIENCE + COMMUNITY

WATER + ECOSYSTEMS

MOBILITY

ARUP

Water + Ecosystems

planning.org/NPC19

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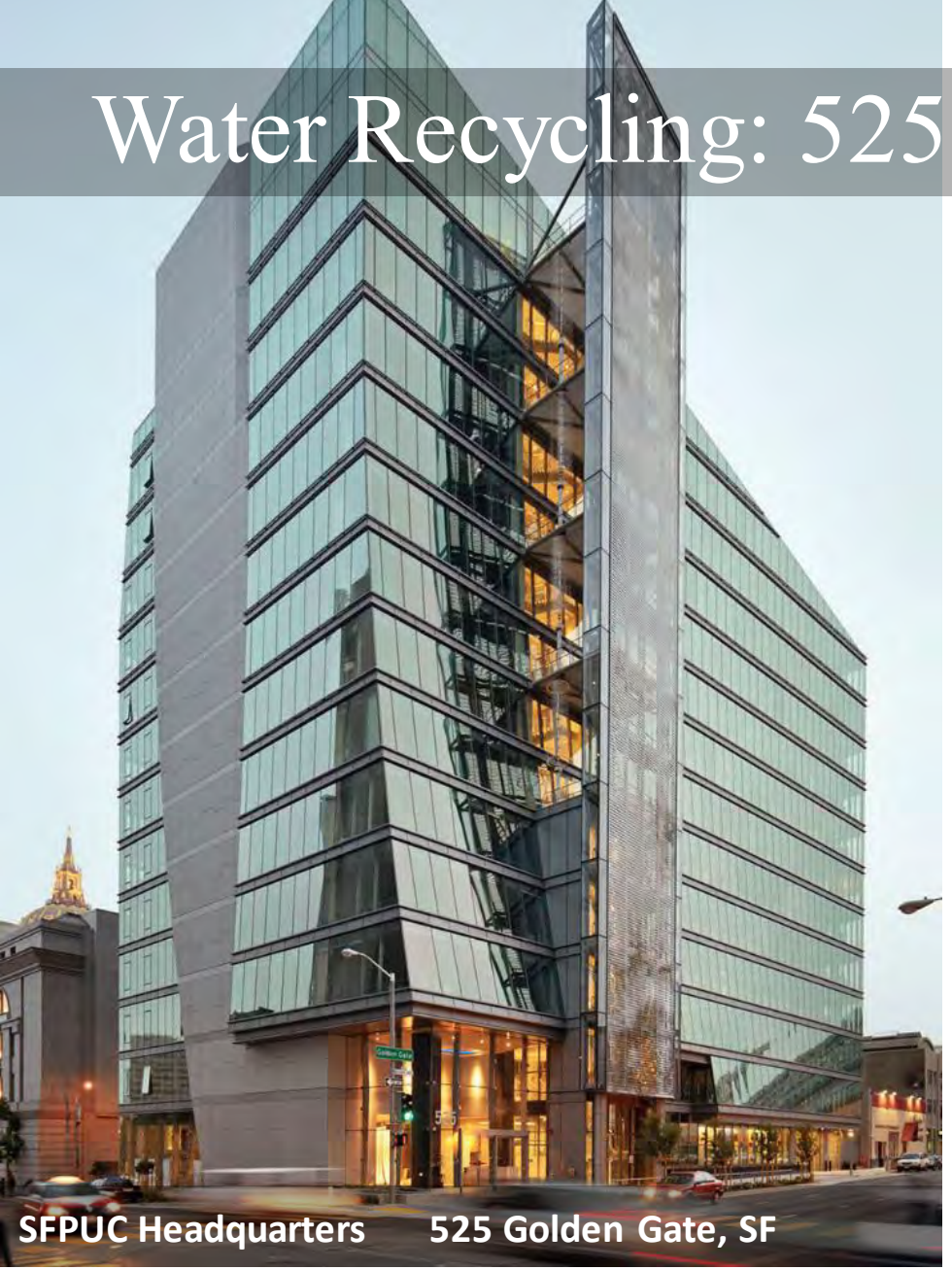
Water Recycling: 525 Golden Gate



SFPUC Headquarters 525 Golden Gate, SF

ARUP

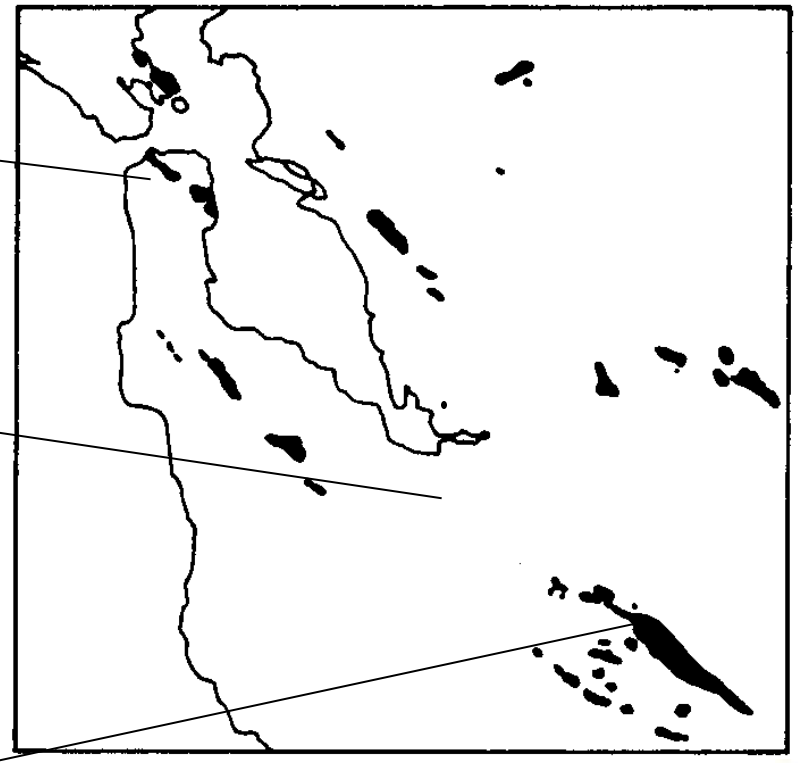
Water Recycling: Apple Park

Habitat network enhancement example

Academy of Sciences Roof

Casa Feliz Roofs

Natural Serpentine



Bay Checkerspot Butterfly

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ENERGY +
CARBON

MATERIALS,
WASTE +
CIRCULAR ECONOMY

WELLNESS,
RESILIENCE +
COMMUNITY

WATER +
ECOSYSTEMS

MOBILITY

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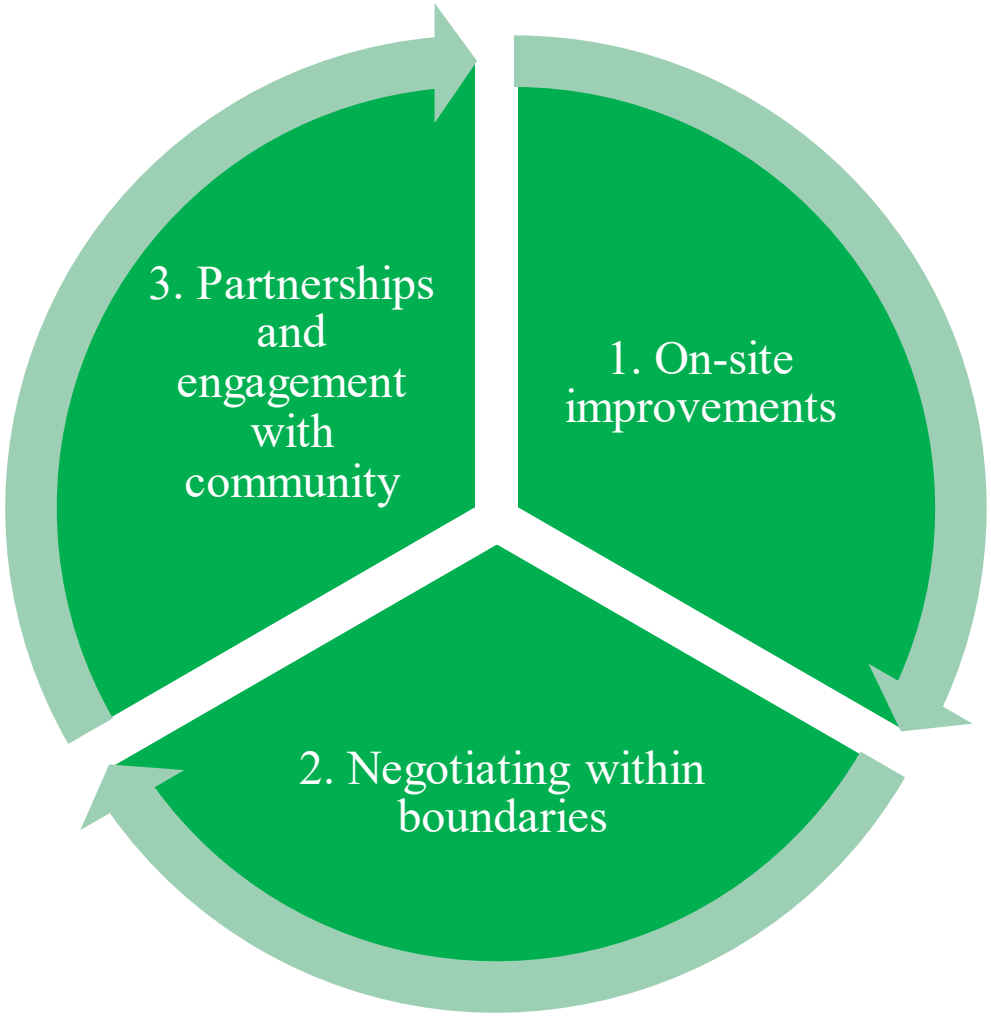
3. Partnerships and engagement with community
1. On-site improvements
2. Negotiating within boundaries

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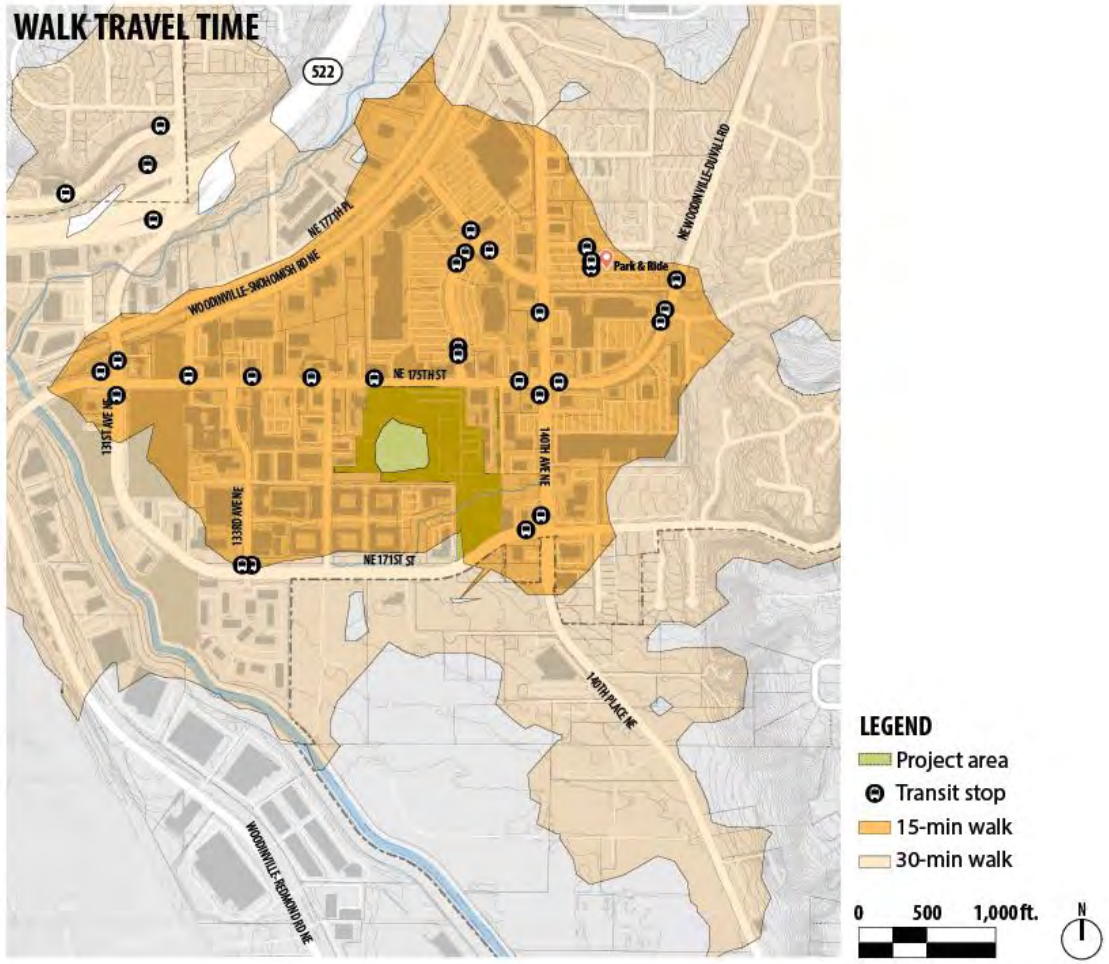
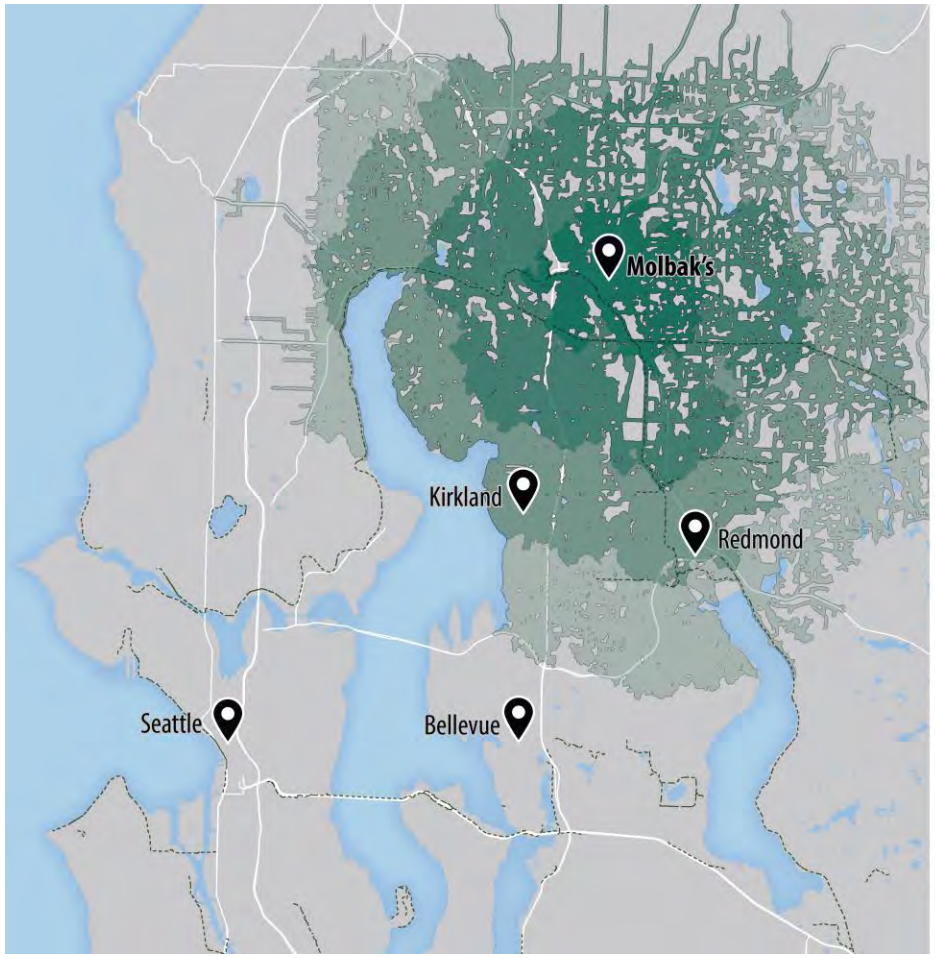

WALK TRAVEL TIME
522
NE 177TH PL
WOODINVILLE-SNOHOMISH RD NE
NE WOODINVILLE-DUVALL RD
Park & Ride
NE 175TH ST
131ST AVE NE
140TH AVE NE
133RD AVE NE
NE 171ST ST
140TH PLACE NE
WOODINVILLE-REDMOND RD NE
LEGEND
Project area
Transit stop
15-min walk
30-min walk
0 500 1,000 ft.
N


Molbak's
Kirkland
Redmond
Seattle
Bellevue
BIKE TRAVEL TIMES
15 minutes
30 minutes
45 minutes
1 hour
0 2 4 Miles

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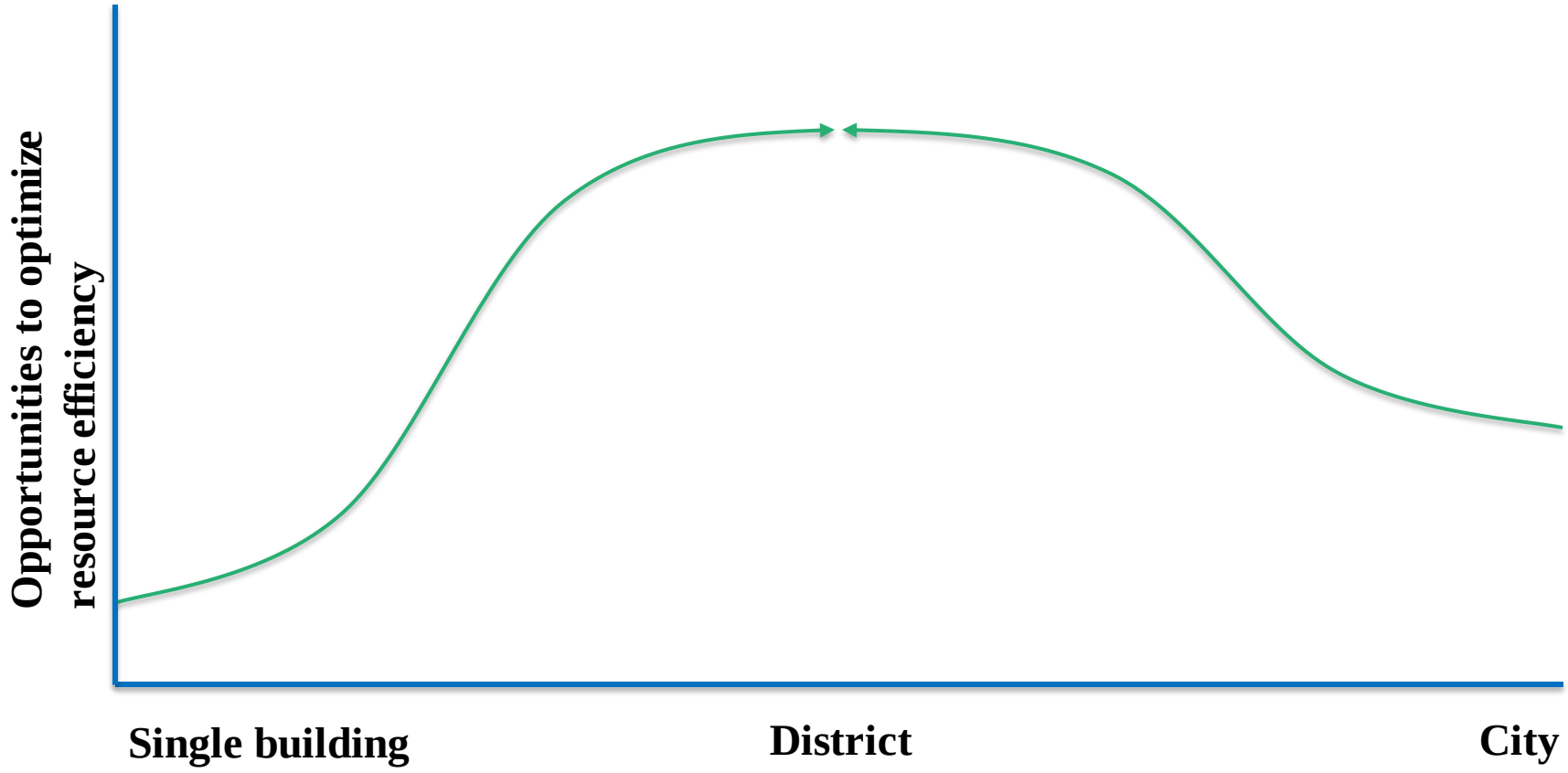
Optimization at District Scale



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Rating Systems + Regenerative Planning

Why Certify?

- Leadership - opportunity to share lessons and motivate others
- Help maintain adherence to key goals throughout design + construction process
- Contribute to economic success of project – recognition, marketing, recruitment, etc.

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Rating the Rating Systems

		Focus Area	Intent	Wellness	Mobility	Energy	Water	Materials	Ecosystems	Resilience
LEED for Neighborhood Development	LEED-ND	Environment + Community Wellbeing	Minimize impacts on local ecology, reduce demand for personal vehicles, encourage walking and bicycling, promote social interaction, and reduce resource demand							
Living Community Challenge		Environment + Community Wellbeing	Guide the design and construction of buildings and neighborhoods into becoming "socially just, culturally rich, and ecologically restorative							
WELL Building Standard	INTERNATIONAL WELL BUILDING INSTITUTE WELL	Human Wellbeing in Buildings	"Advancing health and well-being in buildings"							
Reli/Redi	RELi ©	Resilience	**"Buildings + Communities that are shock resistant, healthy, adaptable and regenerative through a combination of diversity, foresight and the capacity for self-organization and learning."**							
One Planet	ONE PLANET LIVING	Planetary Boundaries, Community Wellbeing	What if everyone, everywhere lived happy, healthy lives within the limits of our one planet, leaving space for wildlife and wilderness?							

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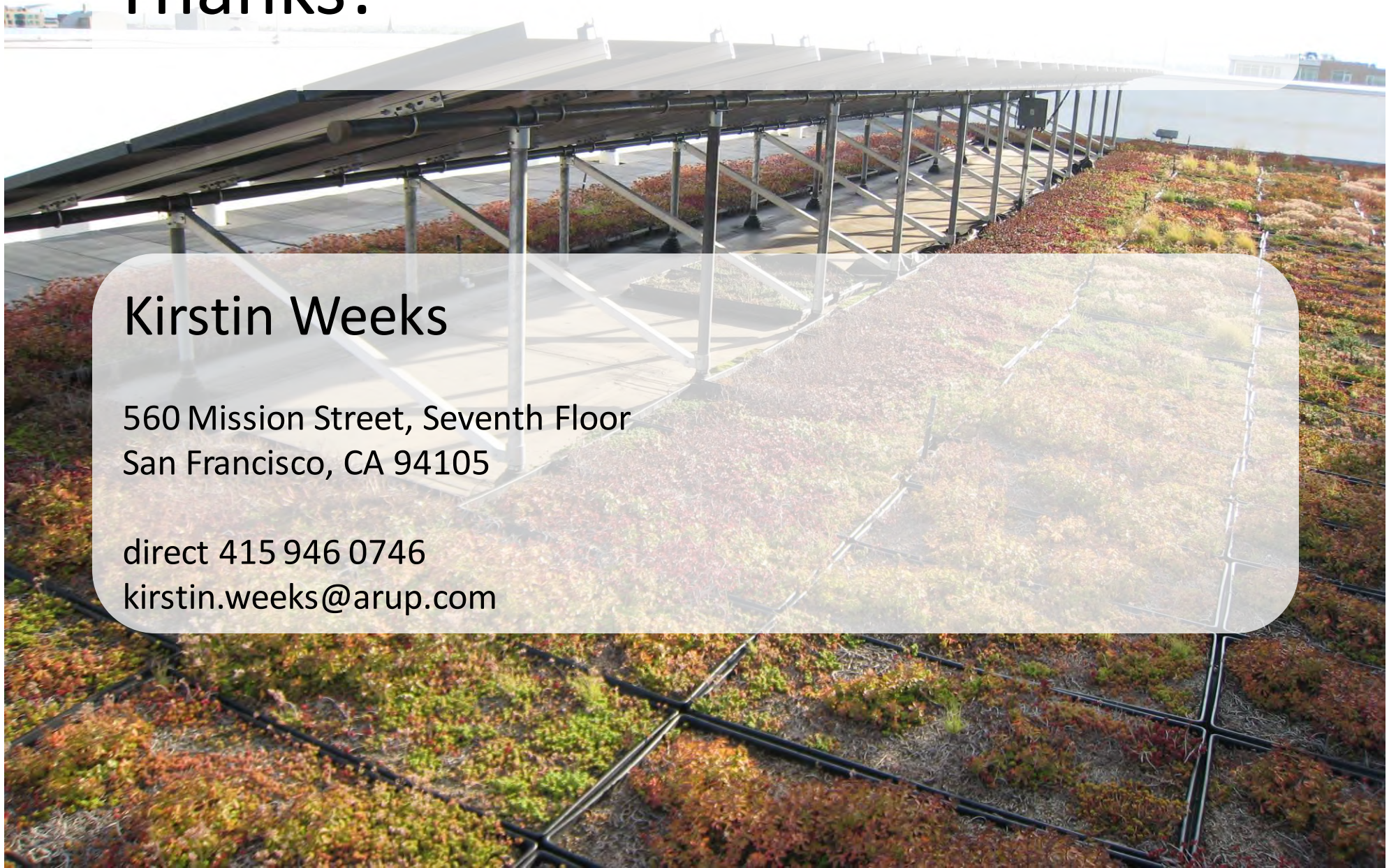
Thanks!



Kirstin Weeks

560 Mission Street, Seventh Floor
San Francisco, CA 94105

direct 415 946 0746
kirstin.weeks@arup.com

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SACRAMENTO VALLEY STATION

Pathway to Regenerative Urbanism: The Living Community Challenge Framework for the Sacramento Valley Station Master Plan

Greg Taylor, AIA, LEED AP
Supervising Architect, SVS Project Manager
City of Sacramento, Department of Public Works

Pathway to Regenerative Urbanism: The Living Community Challenge Framework for the Sacramento Valley Station Master Plan

- **Sacramento Climate Policy Context – AB 32 Goals**
- **Sacramento's Livable City Goals & Initiatives**
- **Non-Linear Path to a Sustainable Station Master Plan**
  - Sustainable Community Grant Award for Planning
  - SMUD Accelerator Project
  - Demonstration Partnership Project
- **Mayors' Commission on Climate Change 2018 - 2020**
- **Next Steps**

2007

Sacramento Sustainability Master Plan

MARCH 2009

2030 General Plan (GP) policies

FEB. 2010 (UPDATED JUNE 2016)

Internal Operations Climate Action Plan (CAP)

FEB. 2012

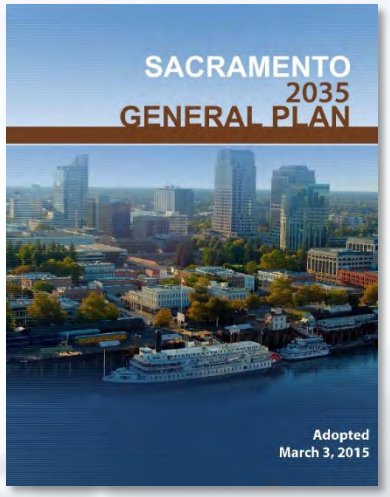
Community-wide CAP

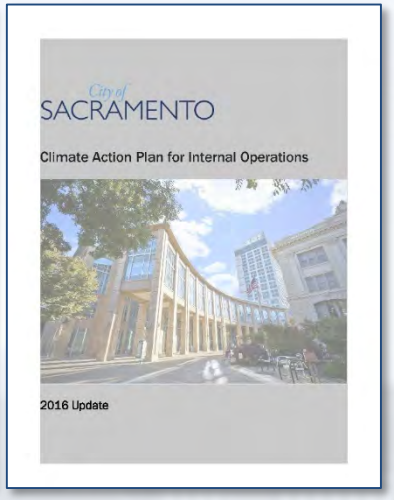
MARCH 2015

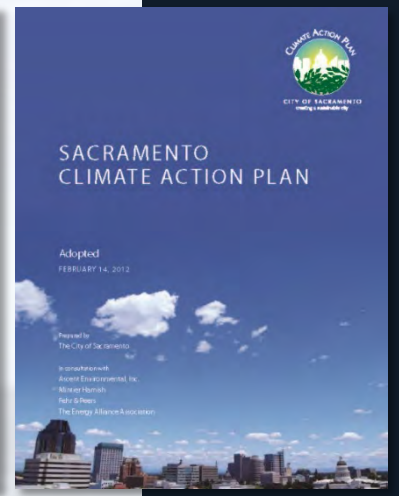
2035 General Plan integration

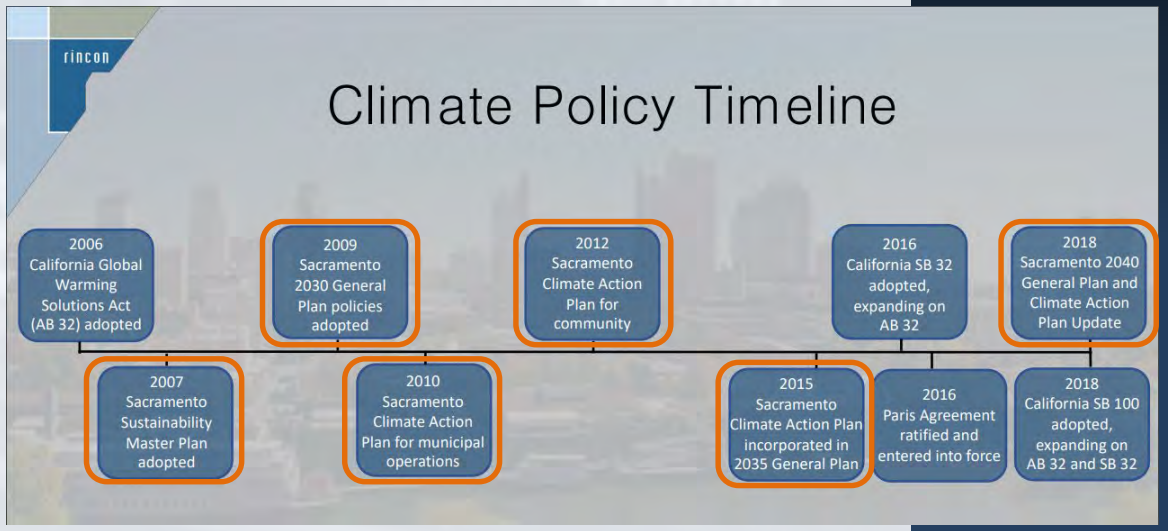
JUNE 2018

Update Internal Operations CAP









2019

Progress on State Mandated Goals

The City is committed to improving health and sustainability of the community through improved regional air quality and reduced GHG emissions that contribute to climate change.

General Plan Environmental Resources Goal 6.1

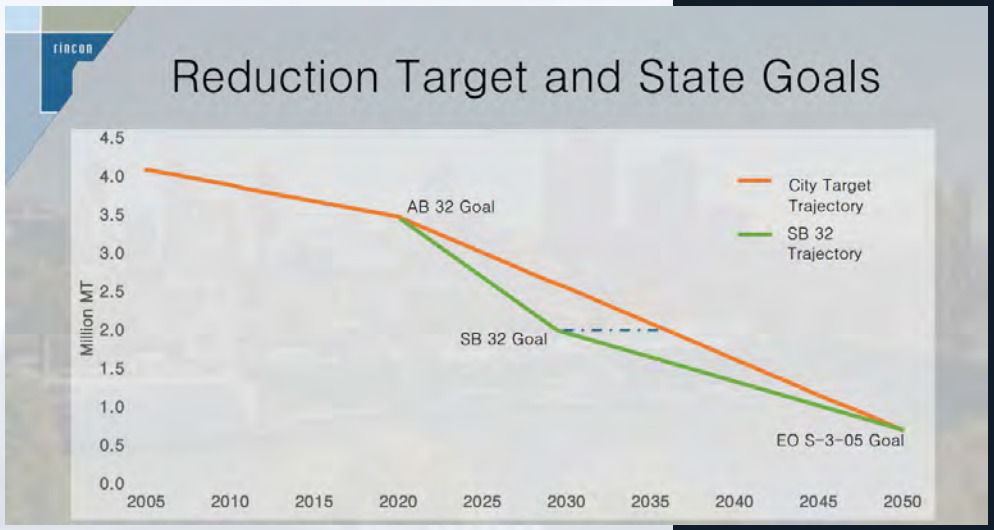
GHG Reduction Targets & Progress (AB32)

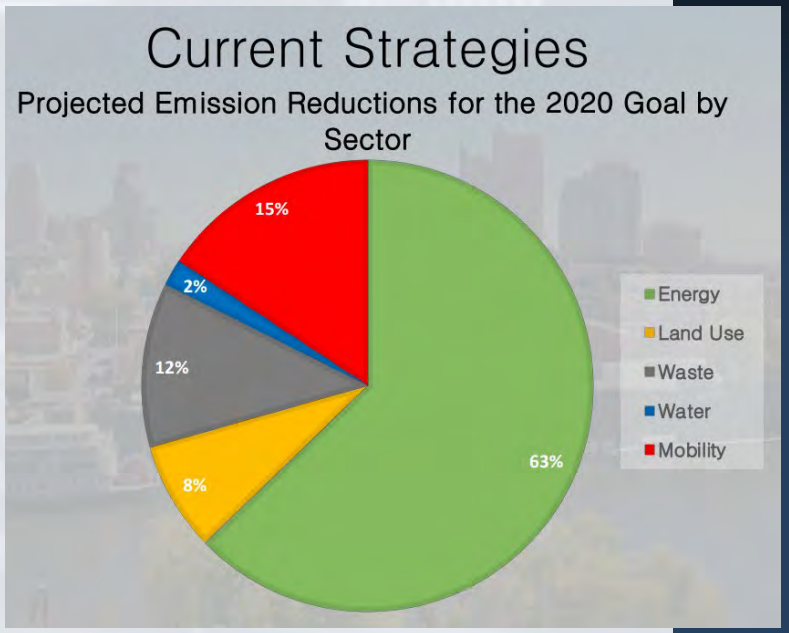
15% below 2005 community-wide levels by 2020

Target Evaluation in Progress

22% below 2005 municipal levels by 2020

Actual Progress is at 24%





Sample Energy Initiatives

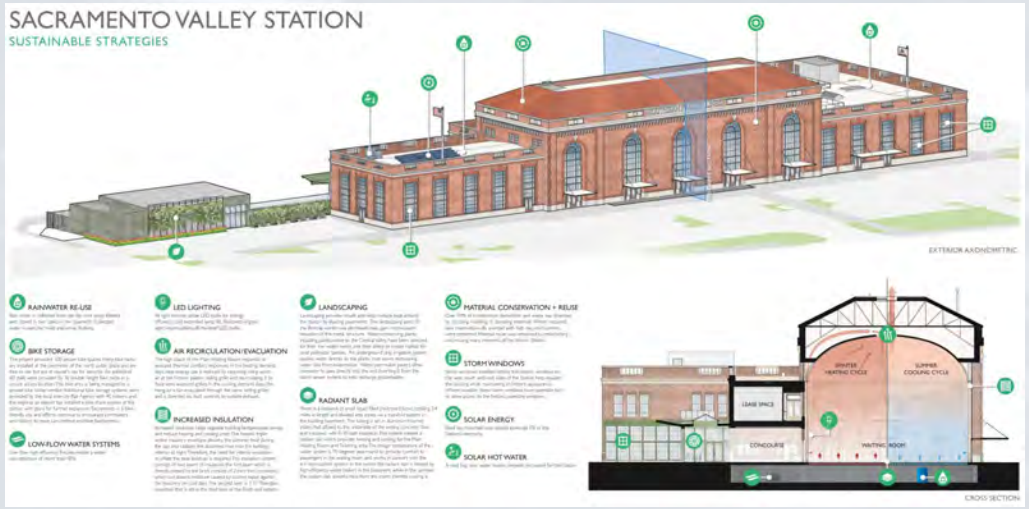
4.9 MW of solar PV on City facilities

- >7 million kWh generated annually, offsetting electricity of approx. 900 homes

13 MW of off-site solar with SMUD's SolarShares Program

- Anticipated 20-year savings of approximately $8 million
- Offsets 37% of municipal energy use

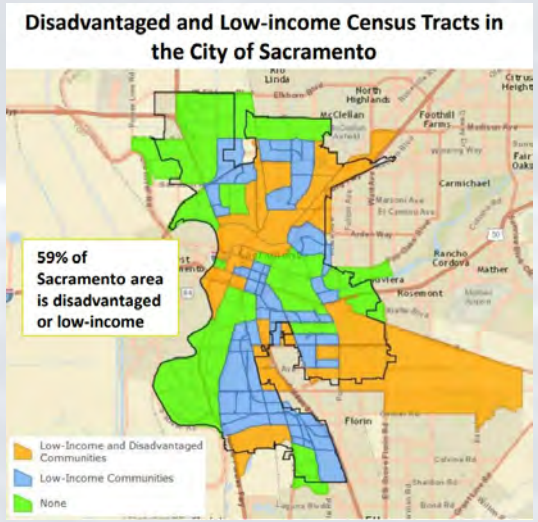
Fairbairn Water Treatment Plant

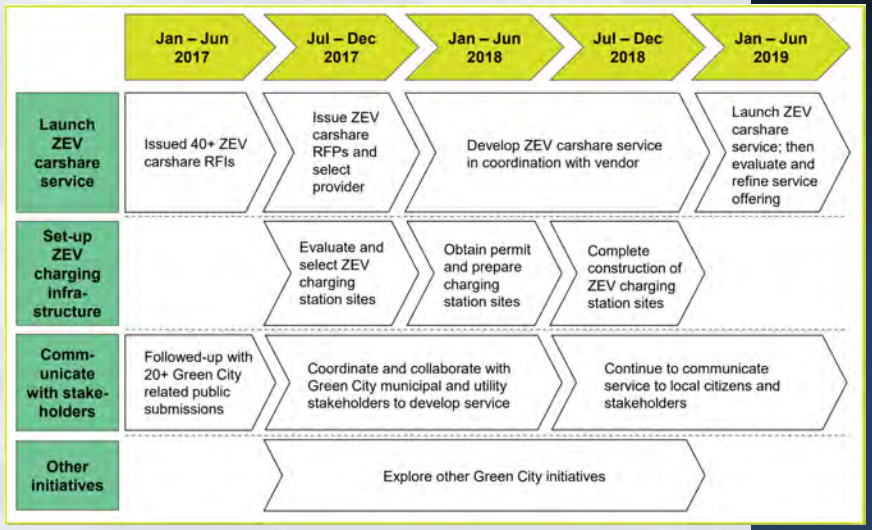


Sacramento Valley Station

Sample Mobility Initiatives

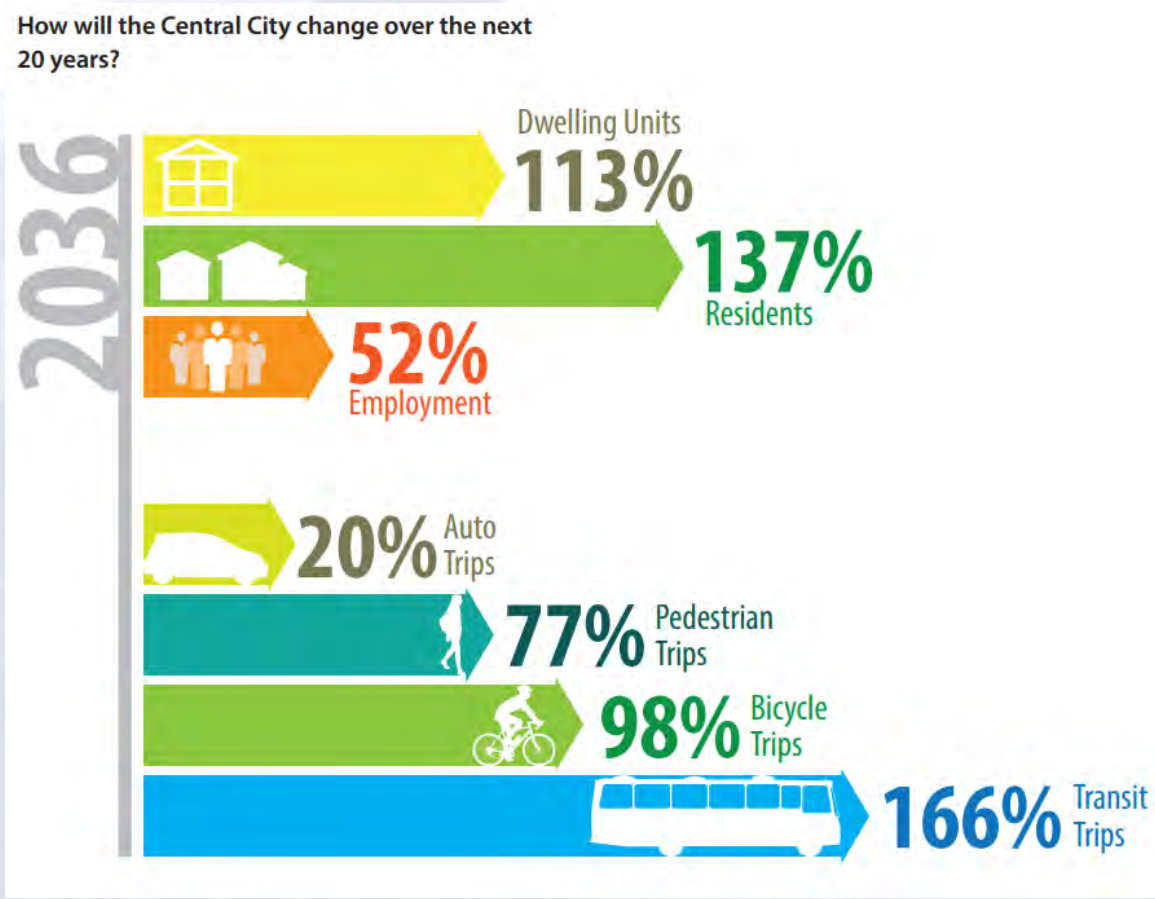
- Sacramento 1st in state low-income EV car share $44M investment, 400 EV's by 2019
- ZEV 1st – target 75,000 zero-emission vehicles by 2025
- Over 900 electric-assist bike share rentals in place
- SMUD partnerships incentives for EV Ubers
- Regional Transit on-demand electric shuttles in outlying areas

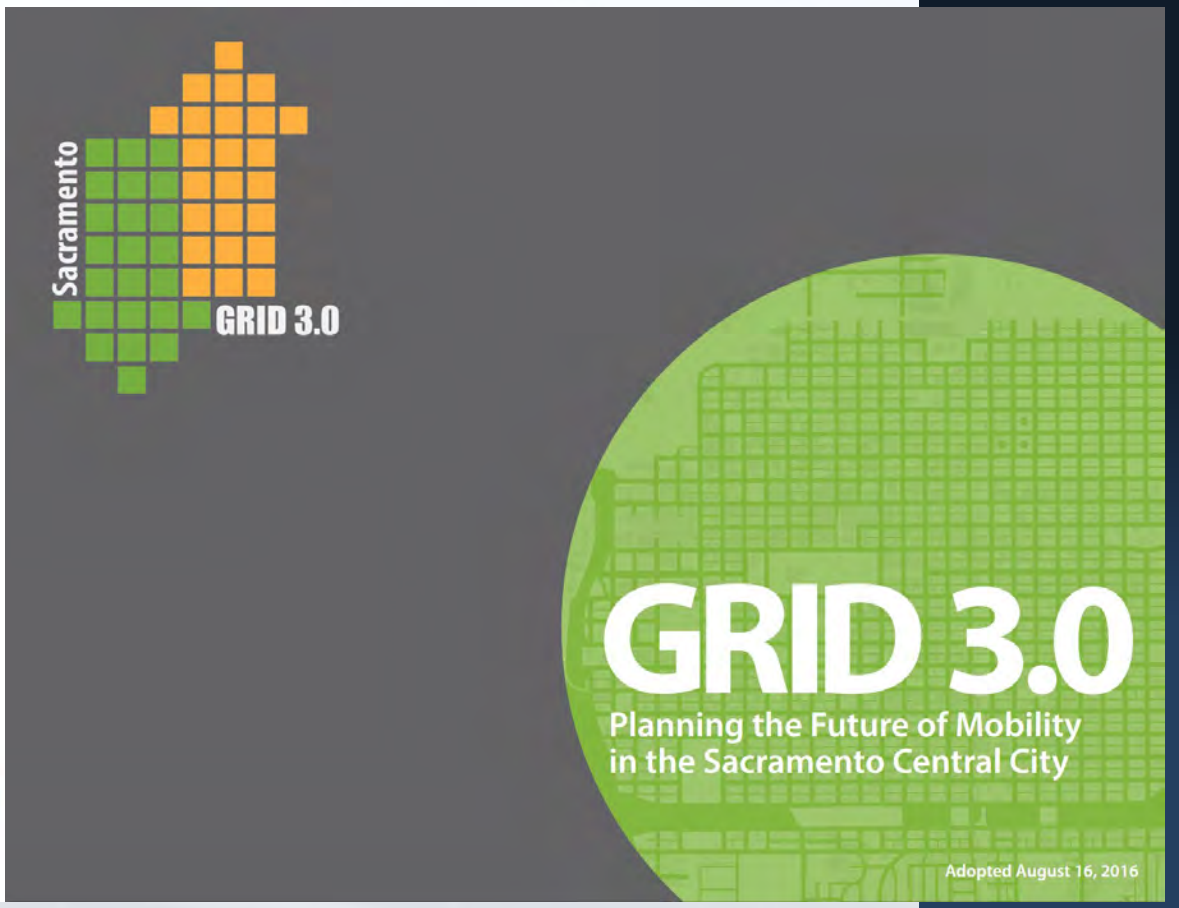




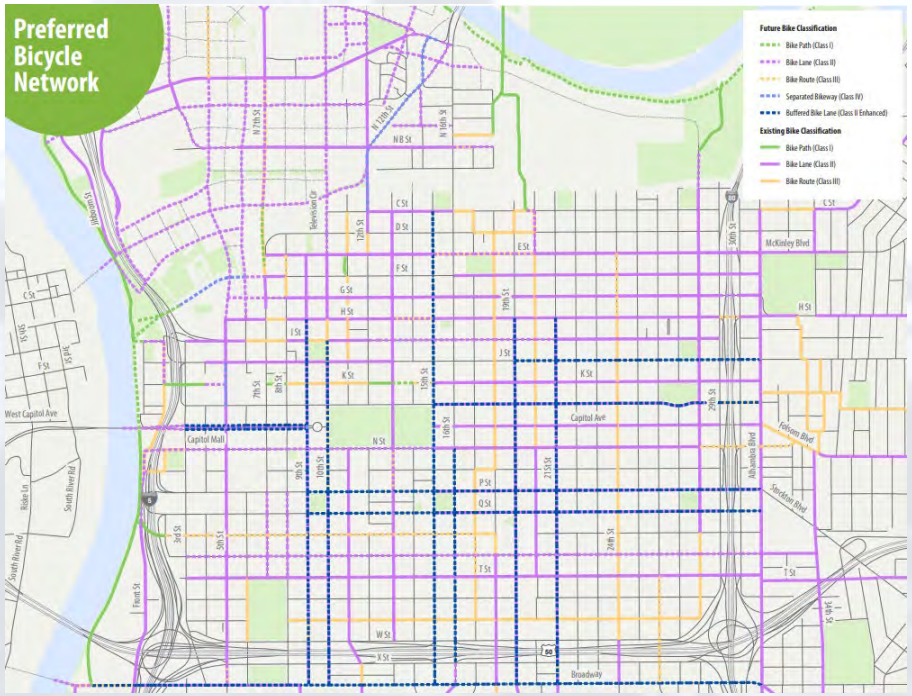
Source: Electrify America (06/29/2017). Supplement to the California ZEV Investment Plan, Cycle 1. https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/california_zev_investment_plan_supplement_062917.pdf

Sample Mobility Initiatives





Sample Mobility Initiatives



October 2018 study:
Sacramentans rent Jump bikes (53%)
Uber's car service (47%)

Sacramento 1st of 16 Uber cities with both bike and car service where the bikes are more popular.

SACRAMENTO VALLEY STATION

City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan

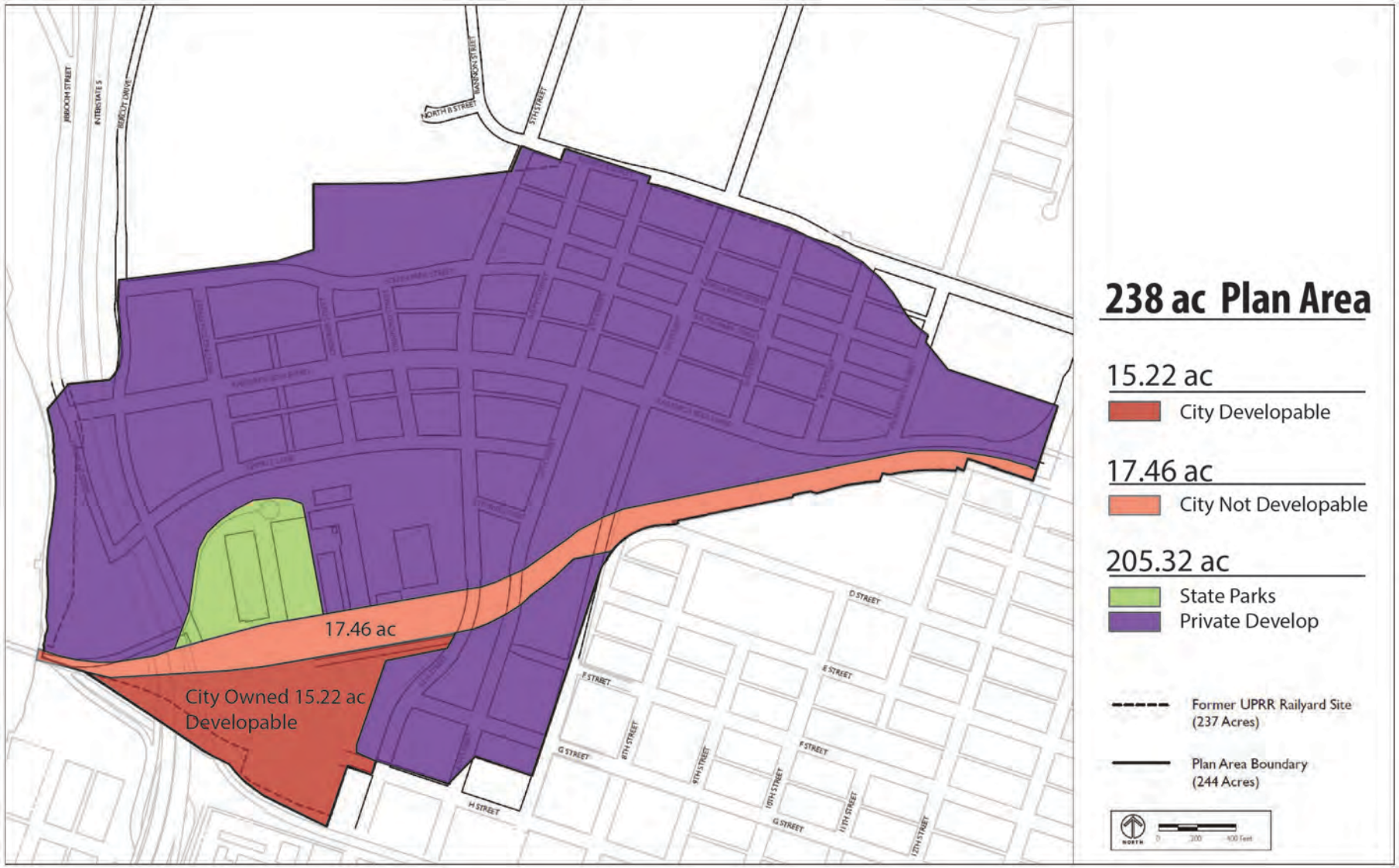


Figure 1-2. *Plan Area and Ownership*

City took possession 32.68 acres at time of developer's purchase from Union Pacific Railroad - December 2006

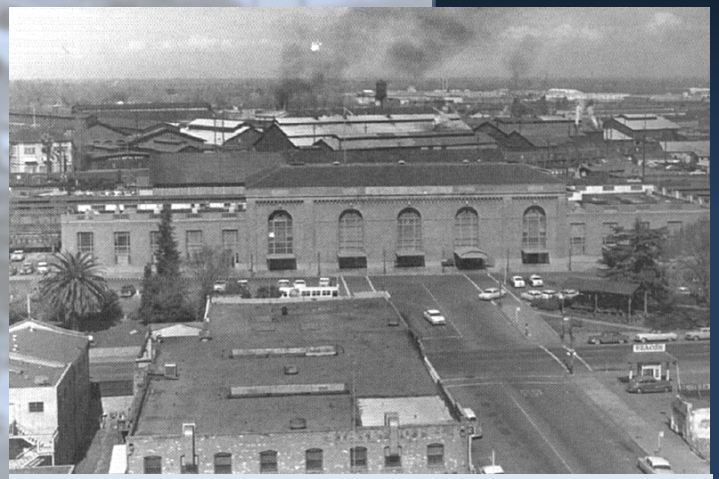
City's intent for purchase was for transportation hub and destination center

City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan

19th-20th Century Industrial Center



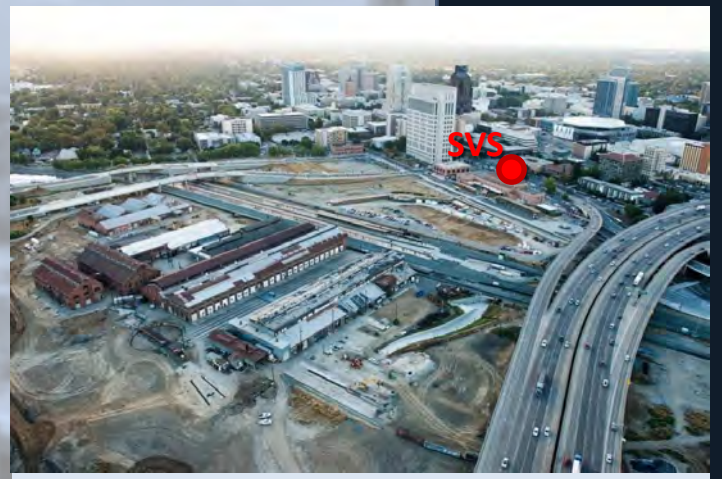
Station as Civic Edge to Private Capital

City of SACRAMENTO
Department of Public Works

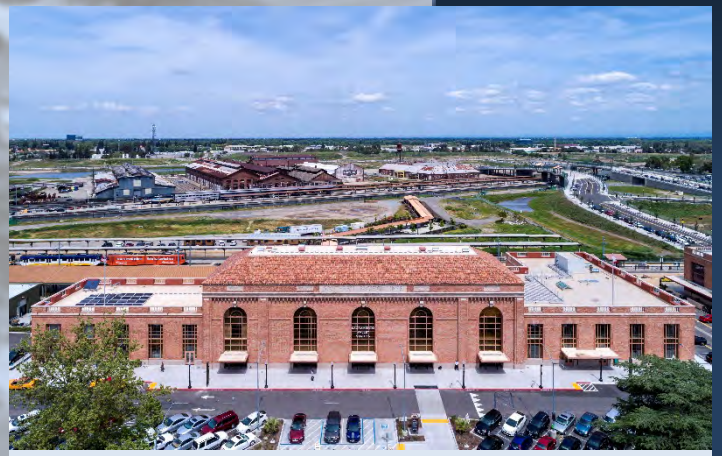
Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan

Sacramento City Council unanimously approves stadium plans



2016 – Historic Rail Shop & Station Site



Station as Civic Gateway to Downtown

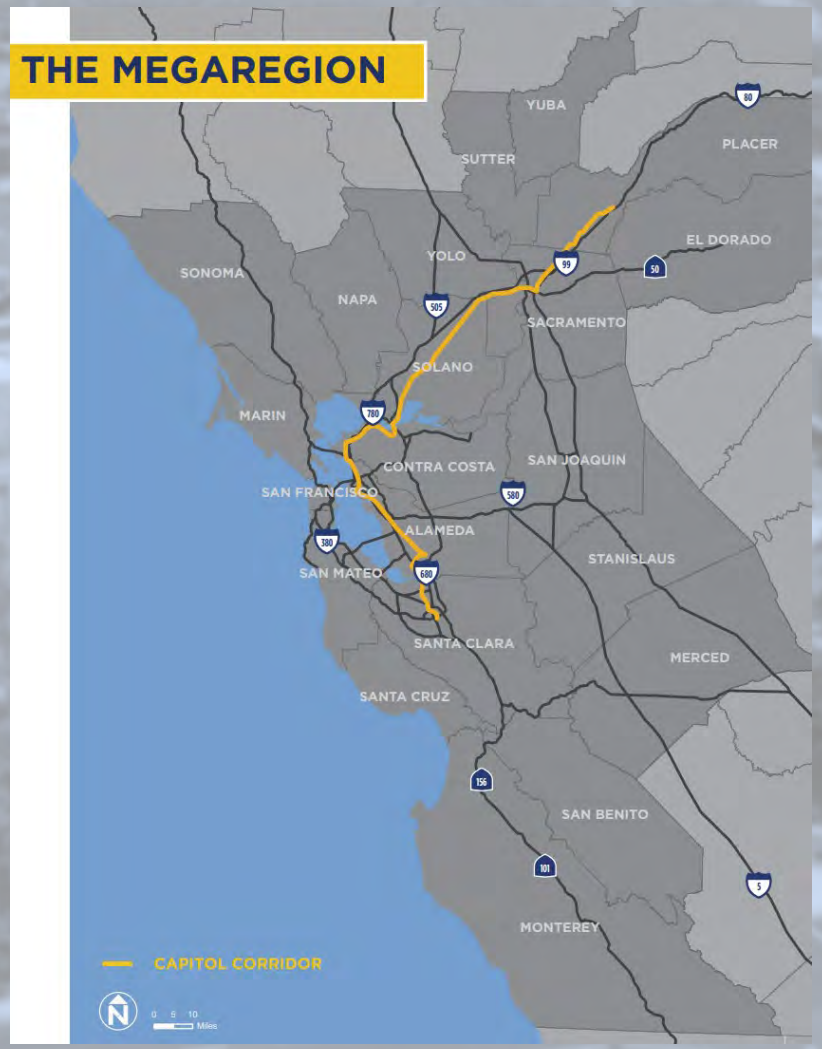
City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan

Sacramento Rail Future

- Sacramento Valley Station 2nd Busiest Amtrak Station in California
- Ranked 7th Busiest Amtrak Station in Nation
- Capitol Corridor service is Amtrak's 4th busiest
- San Joaquin service is Amtrak's 7th busiest



City of SACRAMENTO Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station Phase 3 Master Plan

Sacramento Rail Future

- Sacramento Valley Station 2nd Busiest Amtrak Station in California
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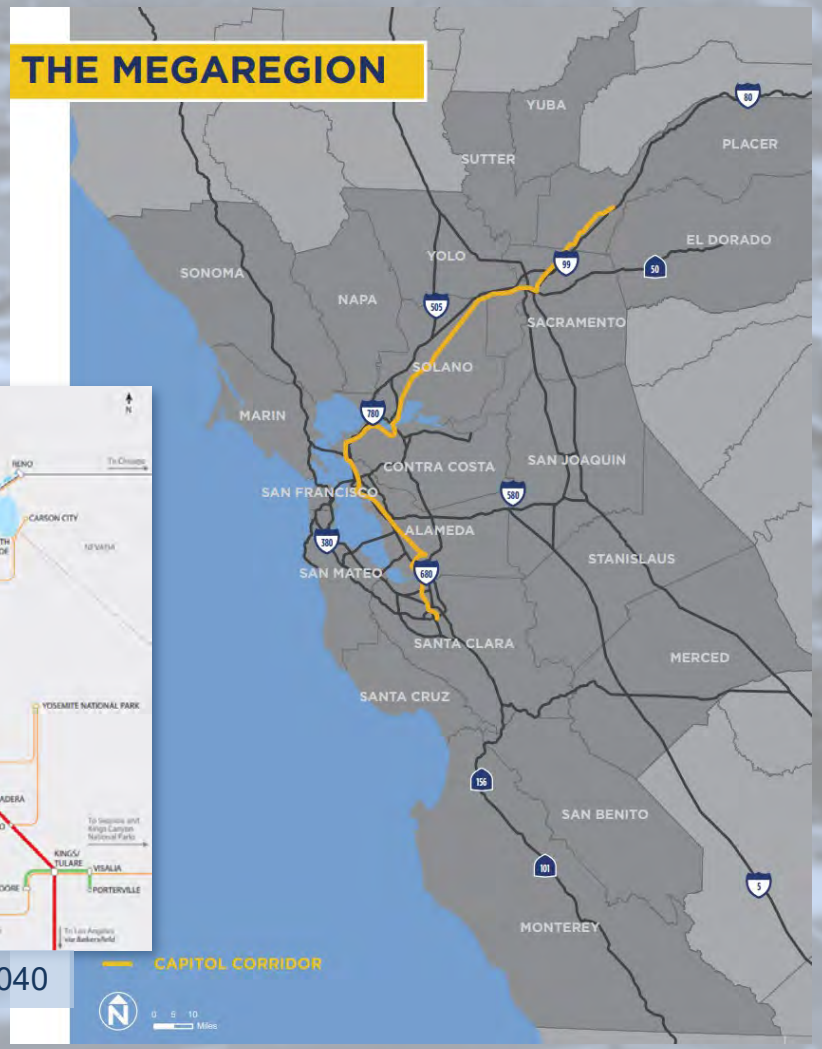
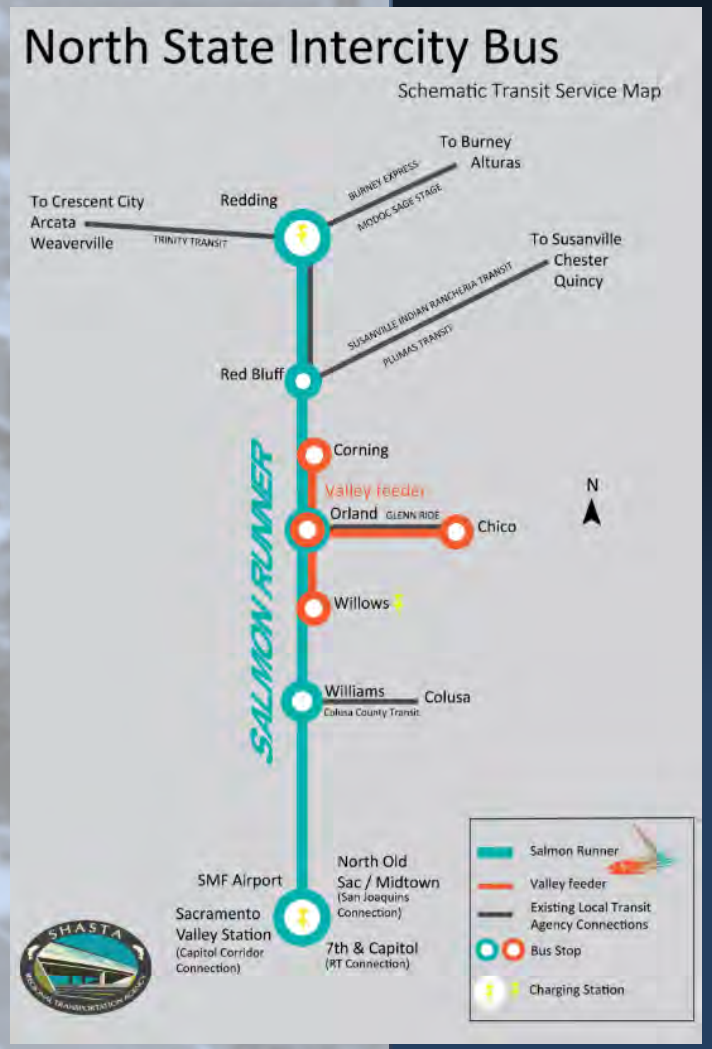
State Rail Plan Network 2040

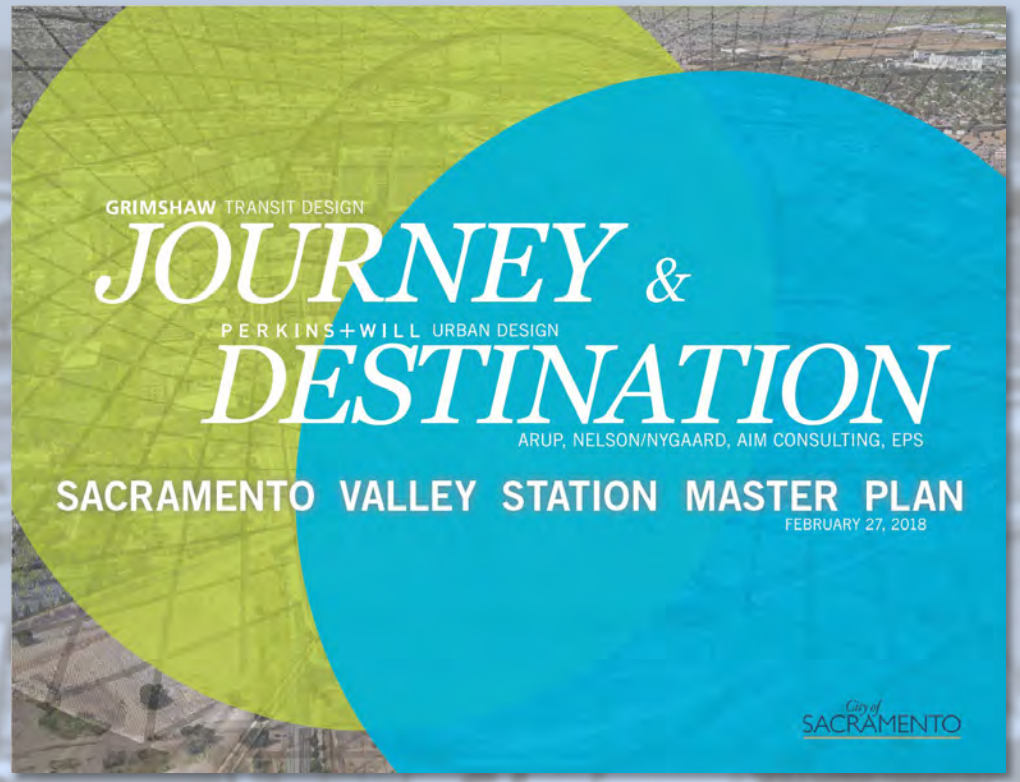




City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan



SVS Concept Master Plan

SVS Concept Master Plan

California Strategic Growth Council - State Sustainable Communities Planning Grant Awarded Spring 2014

Master Plan Initiation November 2016

Grant Application Goals

Promote infill and compact development – SVS Master Plan would lead to compact, infill development by increasing densities and promoting a diverse mix of land uses close to an upgraded, expanded multimodal hub.

Reduce automobile usage and fuel consumption –SVS land use patterns would integrate with transportation. Adjacent housing, jobs and destinations support non-vehicular modes. Improved transit facilities increase ridership. Planning CalHSR to be well-linked to the transportation center and the city reduces future auto usage.

Revitalize urban and community centers -The project would foster transit-oriented development with quality urban design, walking, biking and transit, and improved links to regional destinations.

OPTION ONE

City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

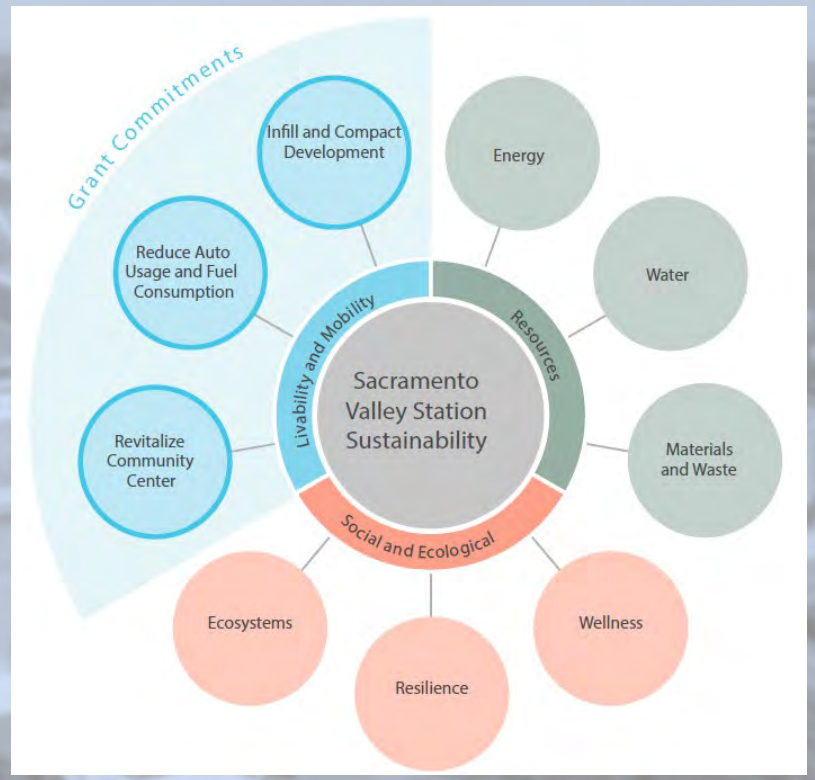
Sacramento Valley Station
Phase 3 Master Plan

OPTION TWO

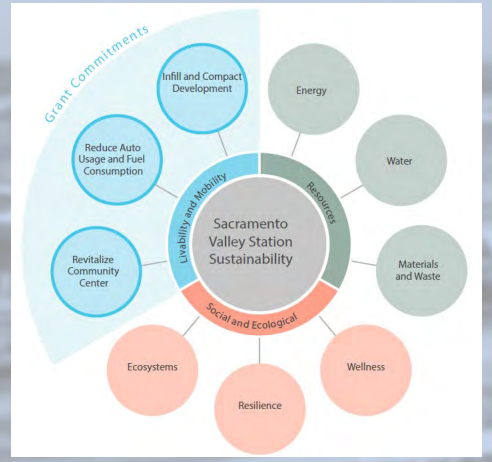
City of SACRAMENTO
Department of Public Works

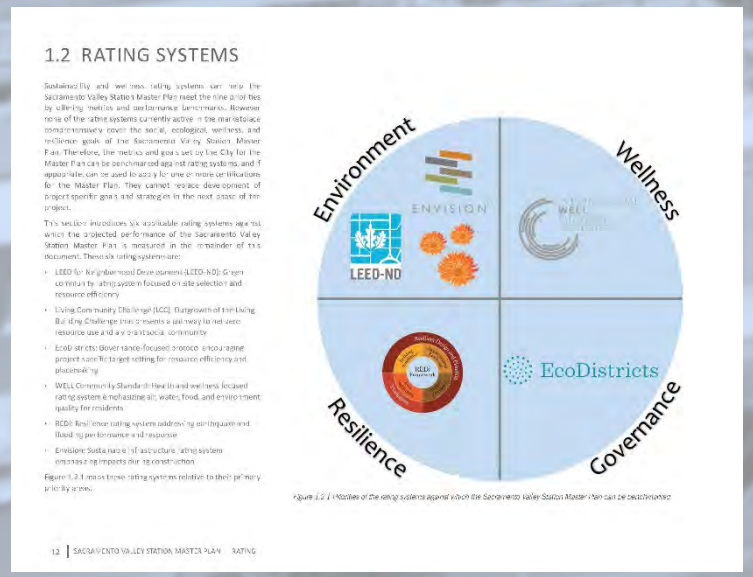
Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan



SVS Concept Master Plan- Sustainability Path





1.2 RATING SYSTEMS

Sustainability and wellness rating systems can help the Sacramento Valley Station's Master Plan meet the nine priorities by offering metrics and performance benchmarks. However none of the rating systems currently active in the marketplace comprehensively cover the social, ecological, wellness, and resilience goals of the Sacramento Valley Station Master Plan. Therefore, the metrics and goals set by the City for the Master Plan can be benchmarked against rating systems, and if appropriate, can be used to apply for one or more certifications for the Master Plan. They cannot replace development of project specific goals and strategies in the next phase of the project.

This section introduces six applicable rating systems against which the projected performance of the Sacramento Valley Station Master Plan is measured in the remainder of this document. These six rating systems are:

- LEED for Neighborhood Development (LEED-ND): Green community rating system focused on site selection and resource efficiency
- Living Community Challenge (LCC): Outgrowth of the Living Building Challenge that presents a pathway to net-zero resource use and a regenerative community
- EcoDistricts: Governance-focused protocol encouraging project specific target setting for resource efficiency and placemaking
- WELL Community Standard: Health and wellness focused rating system emphasizing air, water, food, and environment quality for residents
- REDi: Resilience rating system addressing earthquake and flood hydro performance and response
- Envision: Sustainable infrastructure rating system encouraging improvements during construction

Figure 1.2.1 lists these rating systems relative to their primary priority areas.

Figure 1.2.1 Matrix of the rating systems against which the Sacramento Valley Station Master Plan can be benchmarked

12 | SACRAMENTO VALLEY STATION MASTER PLAN RATING

		Focus Area	Intent	Infill and Compact Development	Reduce Automobile and Fuel Consumption	Revitalize Community Center	Energy	Water	Materials and Waste	Ecosystem	Resilience	Wellness and Wellbeing
LEED for Neighborhood Development	LEED ND	Environment	Minimize impacts on local ecology, reduce demand for personal vehicles, encourage walking and bicycling, promote social interaction, and reduce resource demand									
Living Community Challenge		Environment + Community Wellbeing	Guide the design and construction of buildings and neighborhoods into becoming "socially just, culturally rich, and ecologically restorative									
EcoDistricts		Environment + Community Governance	Foster the design of "people centered, economically vibrant, and planet-loving" neighborhoods and districts									
WELL Community Standard	WELL	Community Wellbeing	"Improve health and well-being for everyone that visits, works in, or experiences the community"									
REDi	REDi Framework	Resilience	"To provide owners and other stakeholders a framework for implementing "resilience-based earthquake design", a holistic "beyond-code" design, planning and assessment"									
Envision	ENVISION	Infrastructure Sustainability	"To foster a dramatic and necessary improvement in the sustainability performance and resiliency of physical infrastructure"									

Figure 1.2.2 Comparison of rating systems and their relative applicability to the nine sustainability priorities of the Sacramento Valley Station Master Plan. While implies that the rating system does not address the priority. Light to dark green represents the degree to which the rating system addresses the priority: light = minimal, dark = comprehensive.

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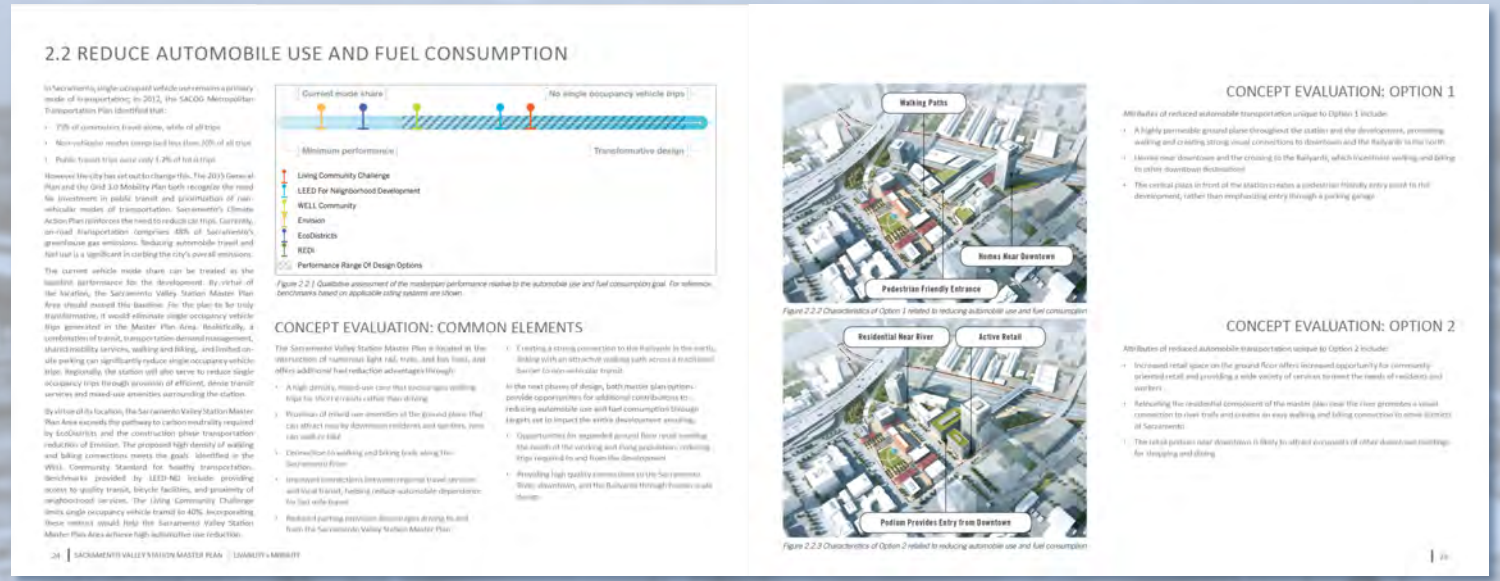
City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan



2.2 REDUCE AUTOMOBILE USE AND FUEL CONSUMPTION

In Sacramento, single-occupant vehicle use remains a primary mode of transportation. In 2012, the SACOG Metropolitan Transportation Plan identified that:

- 75% of commuters travel alone, while of all trips
- Non-vehicular modes comprise (walk) less than 10% of all trips
- Public transit trips make only 1.2% of total trips

However the city has set out to change this. The 2013 General Plan and the Grid 3.0 Mobility Plan both recognize the need for investment in public transit and prioritization of non-vehicular modes of transportation. Sacramento's Climate Action Plan reinforces the need to reduce car trips. Currently, on-road transportation comprises 48% of Sacramento's greenhouse gas emissions. Reducing automobile travel and fuel use is a significant in cutting the city's overall emissions.

The current vehicle mode share can be treated as the baseline performance for the development. By virtue of the location, the Sacramento Valley Station Master Plan Area should exceed this baseline. For the plan to be truly transformative, it would eliminate single occupancy vehicle trips generated in the Master Plan Area. Realistically, a combination of transit, transportation demand management, shared mobility services, walking and biking, and limited on-site parking can significantly reduce single occupancy vehicle trips. Regionally, the station will also serve to reduce single occupancy trips through provision of efficient, dense transit services and mixed-use amenities surrounding the station.

By virtue of its location, the Sacramento Valley Station Master Plan Area exceeds the pathway to carbon neutrality required by EcoDistricts and the construction phase transportation reduction of Envision. The proposed high density of walking and biking connections meets the goals identified in the WELL Community Standard for healthy transportation. Benchmarks provided by LEED-ND include: providing access to quality transit, bicycle facilities, and proximity of neighborhood services. The Living Community Challenge limits single occupancy vehicle transit to 40%. Incorporating these metrics would help the Sacramento Valley Station Master Plan Area achieve high automotive use reduction.

Figure 2.2.1 Qualitative assessment of the masterplan performance relative to the automobile use and fuel consumption goal. For reference, benchmarks based on applicable rating systems are shown.

CONCEPT EVALUATION: COMMON ELEMENTS

The Sacramento Valley Station Master Plan is located in the intersection of numerous light rail, trains, and bus lines, and offers additional fuel reduction advantages through:

- A high density, mixed-use core that encourages walking trips for short errands rather than driving
- Provision of mixed use amenities at the ground plane that can attract new by downtown residents and workers, who can walk or bike
- Connection to walking and biking trails along the Sacramento River
- Improved connections between regional travel services and local transit, helping reduce automobile dependence for last mile travel
- Reduced parking provision discourages driving to and from the Sacramento Valley Station Master Plan
- Creating a strong connection to the Railyards in the north, linking with an attractive walking path across a multilevel Sacramento Union vehicular transit

In the next phases of design, both master plan options provide opportunities for additional contributions to reducing automobile use and fuel consumption through targets set to impact the entire development amounts.

- Opportunities for expanded ground floor retail serving the needs of the working and living populations, reducing trips required to and from the development
- Providing high quality connections to the Sacramento River, downtown, and the Railyards through human scale design

Figure 2.2.2 Characteristics of Option 1 related to reducing automobile use and fuel consumption

Figure 2.2.3 Characteristics of Option 2 related to reducing automobile use and fuel consumption

CONCEPT EVALUATION: OPTION 1

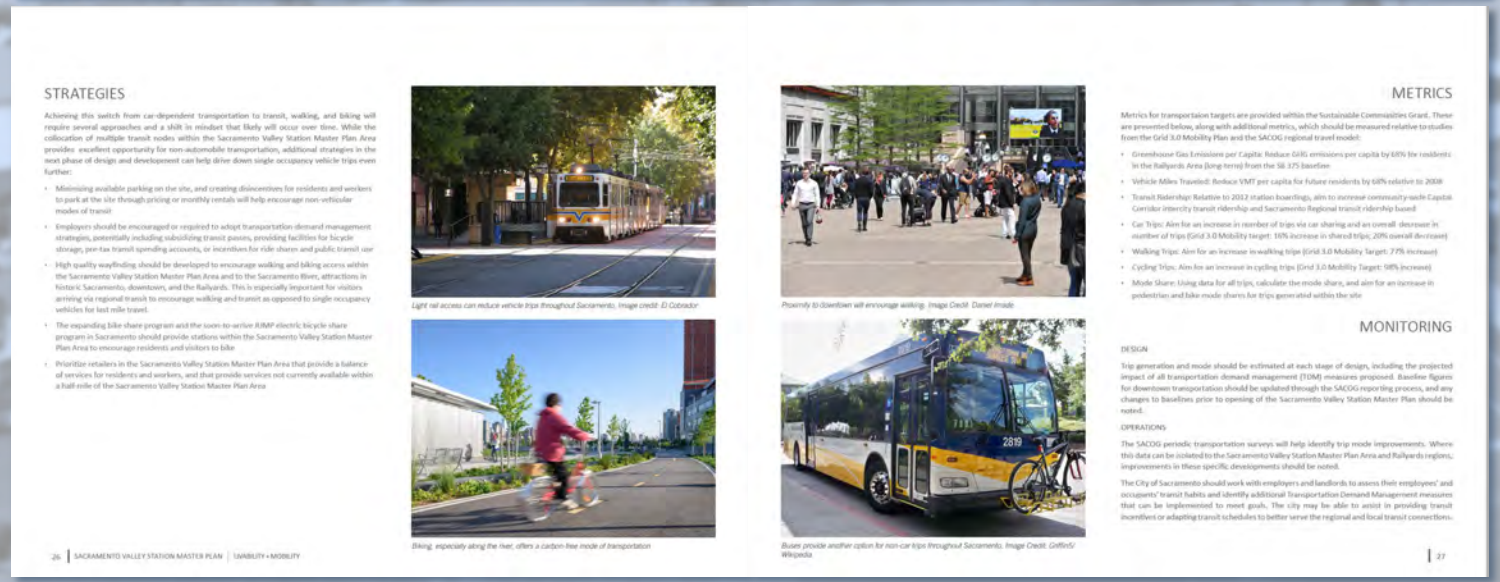
Attributes of reduced automobile transportation unique to Option 1 include:

- A highly permeable ground plane throughout the station and the development, promoting walking and creating strong visual connections to downtown and the Railyards to the north
- Homes near downtown and the crossing to the Railyards, which incentivize walking and biking to other downtown destinations
- The central plaza in front of the station creates a pedestrian friendly entry point to the development, rather than emphasizing entry through a parking garage

CONCEPT EVALUATION: OPTION 2

Attributes of reduced automobile transportation unique to Option 2 include:

- Increased retail space on the ground floor offers increased opportunity for community-oriented retail and providing a wide variety of services to meet the needs of residents and workers
- Relocating the residential component of the master plan near the river promotes a visual connection to river trails and creates an easy walking and biking connection to other districts of Sacramento
- The retail podium near downtown is likely to attract customers of other destinations heading for shopping and dining



STRATEGIES

Achieving this switch from car-dependent transportation to transit, walking, and biking will require several approaches and a shift in mindset that likely will occur over time. While the collocation of multiple transit nodes within the Sacramento Valley Station Master Plan Area provides excellent opportunity for non-automobile transportation, additional strategies in the next phase of design and development can help drive down single occupancy vehicle trips even further:

- Minimizing available parking on the site, and creating disincentives for residents and workers to park at the site through pricing or monthly rentals will help encourage non-vehicular modes of transit
- Employers should be encouraged or required to adopt transportation demand management strategies, potentially including subsidizing transit passes, providing facilities for bicycle storage, pre-tax transit spending accounts, or incentives for ride-shares and public transit use
- High quality wayfinding should be developed to encourage walking and biking access within the Sacramento Valley Station Master Plan Area and to the Sacramento River, attractions in historic Sacramento, downtown, and the Railyards. This is especially important for visitors arriving via regional transit to encourage walking and transit as opposed to single occupancy vehicles for last mile travel.
- The expanding bike share program and the soon-to-arrive JUMP electric bicycle share program in Sacramento should provide stations within the Sacramento Valley Station Master Plan Area to encourage residents and visitors to bike
- Prioritize retailers in the Sacramento Valley Station Master Plan Area that provide a balance of services for residents and workers, and that provide services not currently available within a half-mile of the Sacramento Valley Station Master Plan Area

Light rail access can reduce vehicle trips throughout Sacramento. Image credit: El Cobrador

Biking, especially along the river, offers a carbon-free mode of transportation

Proximity to downtown will encourage walking. Image Credit: Daniel Imade

Buses provide another option for non-car trips throughout Sacramento. Image Credit: Griffinfc/Wikipedia

METRICS

Metrics for transportation targets are provided within the Sustainable Communities Grant. These are presented below, along with additional metrics, which should be measured relative to studies from the Grid 3.0 Mobility Plan and the SACOG regional travel model:

- Greenhouse Gas Emissions per Capita: Reduce GHG emissions per capita by 60% for residents in the Railyards Area (long-term) from the SB 375 baseline
- Vehicle Miles Traveled: Reduce VMT per capita for future residents by 60% relative to 2008
- Transit Ridership: Relative to 2017 station boardings, aim to increase commuter-scale Capitol Corridor intercity transit ridership and Sacramento Regional transit ridership based
- Car Trips: Aim for an increase in number of trips via car sharing and an overall decrease in number of trips (Grid 3.0 Mobility target: 16% increase in shared trips; 20% overall decrease)
- Walking Trips: Aim for an increase in walking trips (Grid 3.0 Mobility Target: 77% increase)
- Cycling Trips: Aim for an increase in cycling trips (Grid 3.0 Mobility Target: 58% increase)
- Mode Share: Using data for all trips, calculate the mode share, and aim for an increase in pedestrian and bike mode shares for trips generated within the site

MONITORING

DESIGN

Trip generation and mode should be estimated at each stage of design, including the projected impact of all transportation demand management (TDM) measures proposed. Baseline figures for downtown transportation should be updated through the SACOG reporting process, and any changes to baselines prior to opening of the Sacramento Valley Station Master Plan should be noted.

OPERATIONS

The SACOG periodic transportation surveys will help identify trip mode improvements. Where this data can be isolated to the Sacramento Valley Station Master Plan Area and Railyards regions, improvements in these specific developments should be noted.

The City of Sacramento should work with employers and landlords to assess their employees' and occupants' transit habits and identify additional Transportation Demand Management measures that can be implemented to meet goals. The city may be able to assist in providing transit incentives or adapting transit schedules to better serve the regional and local transit connections.

- Preliminary Concept Evaluation
- Target Strategies
- Metrics
- Monitoring

City of SACRAMENTO
Department of Public Works

Non-Linear Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan

planning.org/NPC19

Living Future Project Accelerator

After helping Arch Nexus prepare to become California's first Living Building, we're encouraging more innovation in SMUD's service territory through our Living Future Project Accelerator program.

By implementing strategies like on-site renewable energy, and water harvesting and treatment, Living Buildings, like a flower, give more than they take. The International Living Future Institute (ILFI) administers certification for the Living Building Challenge and Zero Energy Buildings.

SMUD helps commercial and residential customers through the process of becoming Living Building Challenge or Zero Energy certified, providing technical and financial assistance along the way.

Our educational classes and building tours are complete but you can still learn more about future-oriented building design and Living Buildings. Living Future Building Blocks, customized for specific building types in SMUD's service territory, are posted below.

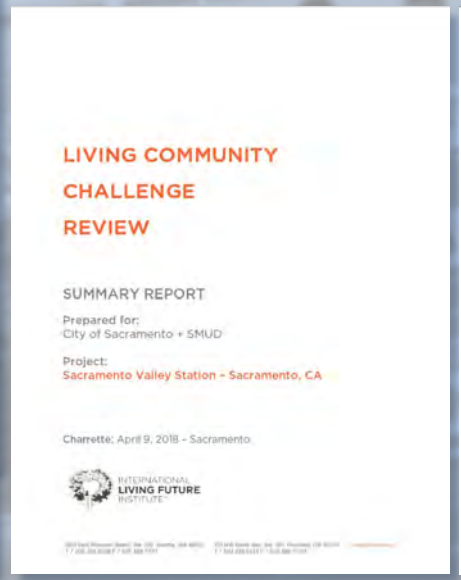
ARCH | NEXUS

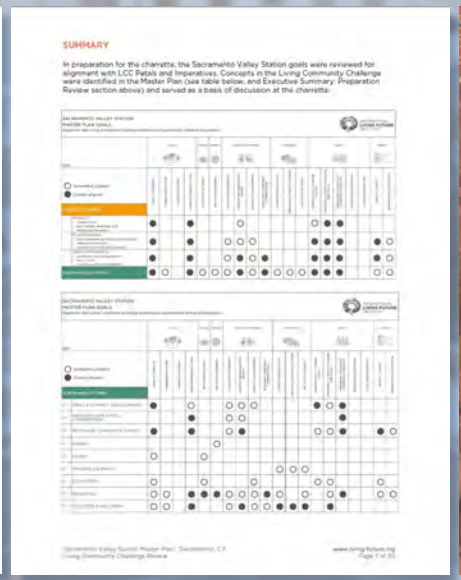
INTERNATIONAL LIVING FUTURE INSTITUTE

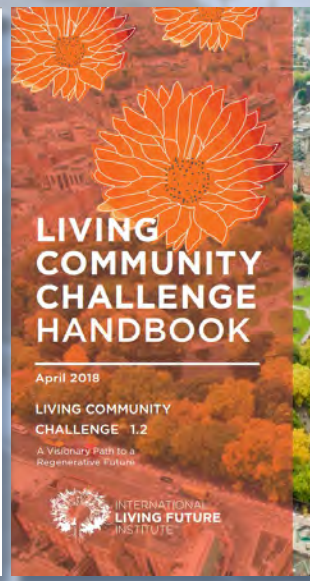
SMUD

↓

19TH LIVING CERTIFIED PROJECT IN THE WORLD
1ST LIVING CERTIFIED RE-USE PROJECT IN THE WORLD
1ST LIVING CERTIFIED PROJECT IN CALIFORNIA







SACRAMENTO MUNICIPAL UTILITY DISTRICT

City of SACRAMENTO
Department of Public Works

Path to the Living Community Challenge

Sacramento Valley Station
Phase 3 Master Plan

SUMMARY MATRIX

Solutions beyond project footprint are permissible

THE 20 IMPERATIVES OF THE LIVING COMMUNITY CHALLENGE

	LIVING COMMUNITY CHALLENGE	
PLACE		01. LIMITS TO GROWTH
	SCALE JUMPING	02. URBAN AGRICULTURE
		03. HABITAT EXCHANGE
		04. HUMAN-POWERED LIVING
WATER	SCALE JUMPING	05. NET POSITIVE WATER
ENERGY	SCALE JUMPING	06. NET POSITIVE ENERGY
HEALTH & HAPPINESS		07. CIVILIZED ENVIRONMENT
		08. HEALTHY NEIGHBORHOOD DESIGN
		09. BIOPHILIC ENVIRONMENT
		10. RESILIENT COMMUNITY CONNECTIONS
MATERIALS		11. LIVING MATERIALS PLAN
		12. EMBODIED CARBON FOOTPRINT
		13. NET POSITIVE WASTE
EQUITY		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

SCALE JUMPING

A term used to describe going outside the limits of the community boundary for better solutions. Scale Jumping will be considered beyond the community, based on project scale, occupancy, and energy demand on a case-by-case basis.

SACRAMENTO VALLEY STATION
MASTER PLAN GOALS
Alignment with Living Community Challenge performance requirements (Petals & Imperatives)

INTERNATIONAL LIVING FUTURE INSTITUTE™

KEY		PLACE				WATER	ENERGY	HEALTH & HAPPINESS				MATERIALS			EQUITY					BEAUTY	
○ Somewhat aligned ● Closely aligned		LIMITS TO GROWTH	URBAN AGRICULTURE	HABITAT EXCHANGE	HUMAN POWERED LIVING	NET POSITIVE WATER	NET POSITIVE ENERGY	CIVILIZED ENVIRONMENT	HEALTHY NEIGHBORHOOD DESIGN	BIOPHILIC ENVIRONMENT	RESILIENT COMMUNITY CONNECTIONS	LIVING MATERIALS PLAN	EMBODIED CARBON FOOTPRINT	NET POSITIVE WASTE	HUMAN SCALE + HUMANE PLACES	UNIVERSAL ACCESS TO NATURE AND PLACE	UNIVERSAL ACCESS TO COMMUNITY SERVICES	EQUITABLE INVESTMENT	JUST ORGANIZATIONS	BEAUTY + SPIRIT	INSPIRATION + EDUCATION
SUSTAINABILITY PATH																					
2.1	INFILL & COMPACT DEVELOPMENT	●			○			○	○	○					●	○	●				
2.2	REDUCED AUTO & FUEL CONSUMPTION				●			○	○								●				
2.3	REVITALIZE COMMUNITY CENTER	●			●			○	●						○	○	●			●	○
3.1	ENERGY						○														
3.2	WATER	○				○															
3.3	MATERIALS & WASTE											○	○	○							
4.1	ECOSYSTEM	○				○				○					○	○				○	
4.2	RESILIENCE	○	○		●	●	●	○	○	○	●	○		○		○	●			○	○
4.3	WELLNESS & WELLBEING	○	○		●			○	●	○	○	●	●	●		●					

WATER		
	Imperative 5: Net Positive Water	
	100% water needs must be supplied by captured precipitation or other natural closed loop water systems, and/or by recycling used community water	
	All stormwater and water discharge, including grey and black water, must be treated and managed at the community scale	
	Stormwater designed to emulate the natural state of the community site	**Feasible:** with some modifications of existing goals (e.g. existing sunken courtyard in Option 2 that form natural catchment and filtration points) highlighted metrics in 4.1 Ecosystem & Ecology (pg 51) 'should be less than 50% of the allowed discharge under code'
	Captured Water	**Potentially Feasible:** Study of potential drought-year impacts on potable supply is needed
ENERGY		
	Imperative 6: Net Positive Energy	
	105% of the Community's energy needs supplied by Community-generated renewable energy without combustion	**Aligned:** with project's deep efficiency and resiliency goals as well as exploration to date of possible technologies. Recommendations: Explicitly incorporate energy storage in next phase of work and clarify no use of combustion (see LBC exceptions - for example, Bunsen burners for lab facilities)
	energy storage provided for one week of the critical and emergency services	

LLC Charette – April 2018

Demonstration Partnerships Policy

Allows City staff to create a framework for innovative demonstration partnerships.

Facilitates the City in entering into Demonstration Partnership agreements to test, evaluate, and/or demonstrate innovative solutions consistent with specified criteria.

Serve as tool to improve service delivery and catalyze a vibrant entrepreneurial sphere for broad social, economic, and environmental benefit.

SACRAMENTO DEMONSTRATION PARTNERSHIP

CULTURE OF CIVIC INNOVATION AND COLLABORATION

Traditional models for delivering government services no longer respond to expectations and needs of a modern technological society. In a world of technology evolution, partnerships and collaboration are essential to promote innovation and coordination. The future focuses on partnerships that work.

COMPLETED PROJECTS

- Mayor's Office for Innovation and Entrepreneurship and the Rapid Acceleration, Innovation, and Leadership in Sacramento (RAILS) program
- Inaugural member of Transportation for America's Smart City Collaborative
- Regional EV-readiness planning

PROJECT IN PROGRESS

- Public Wi-Fi - through the City's public-private partnership with Verizon, 27 parks within Sacramento will receive free Wi-Fi for park visitors
- Digital Kiosks - through the City's public-private partnership with Verizon, 15 digital kiosks will provide Wi-Fi coverage to residents and visitors within close proximity of the unit.
- Demonstration Partnership Policy
- Autonomous Transportation Open Standards (ATOS) Lab – a public-private collaborative focused on attracting and supporting the development of the autonomous vehicle industry.

SACRAMENTO VALLEY STATION

REGISTERED COMMUNITY

INTERNATIONAL LIVING FUTURE INSTITUTE

SACRAMENTO, CA

SACRAMENTO VALLEY STATION

The Sacramento Valley Station (SVS) is a Transit Priority Area (TPA) and is rapidly transforming into a location of regional significance for inter-regional and local transport operations and private and public development.

The SVS Phase 3 planning area consists of the 33 acre city-owned property, including the existing passenger rail station, mainline track corridor and adjacent undeveloped land at the northwest sector of the downtown core; the privately-owned Railway Express Agency (REA) parcel at the eastern side of the station between H and I Streets; and the privately-owned Railyards Lot 40 situated between the SVS and 5th Street north of H Street. All parcels within the planning area are integral and significant to each other and have potential synergy with respect to the operation and expansion of the SVS.

"Please be bold, please be provocative, and don't be afraid to be controversial."

-Mayor Steinberg to Commissioners
November 26, 2018

Mayors' Commission on Climate Change goal is to develop a common vision and set of strategies for both cities to achieve Carbon Zero by 2045.

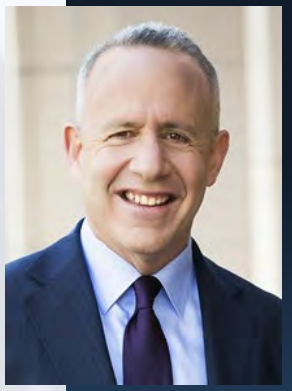
Commissioners

- **Anne Stausboll,** *Commission Chair*
- **Steve Hansen,** *Vice Mayor, City of Sacramento*
- **Chris Ledesma,** *Mayor Pro Tem, City of West Sacramento*
- **Alberto Ayala,** *Sacramento Metropolitan Air Quality Management District*
- **April Wick,** *Resources for Independent Living*
- **Arlen Orchard,** *Sacramento Municipal Utility District*
- **Dave Tanner,** *Sacramento Association of Realtors*
- **Flojaune Cofer,** *Public Health Advocates*
- **Henry Li,** *Sacramento Regional Transit*
- **James Corless,** *Sacramento Area Council of Governments*
- **Julia Burrows,** *Governing Institute*
- **Khaim Morton,** *Sacramento Metro Chamber*
- **Laurie Litman,** *350 Sacramento*
- **Meg Arnold,** *Valley Vision*
- **Mike Teel,** *Raley's*
- **Nikky Mohanna,** *Mohanna Development*
- **Robert Nelsen,** *Sacramento State*
- **Stephanie Bray,** *United Way California Capital Region*
- **Trish Rodriguez,** *Kaiser Permanente*

Sponsors

City of SACRAMENTO · KAISER PERMANENTE · nextgen policy · FORD FOUNDATION · Sacramento Regional Transit · AIR QUALITY MANAGEMENT DISTRICT · SMUD · Western Dental & Orthodontics

Sacramento Mayor Steinberg



- Elected June 2016
- Former California Senate President pro Tempore
- Sponsor of SB 375 – Sustainable Communities and Climate Protection Act of 2008
- Supported AB 32 and SB 32

West Sacramento Mayor Cabaldon

- Elected 2004, re-elected 7 terms
- Leader on transportation, land use, housing, air quality, economic development and climate change
- Served as Director of California League of Cities

Create Eco-Villages that embody the Living Community Challenge framework.

Recommendations to the Mayors' Commission on Climate Change
Built Environment Technical Advisory Committee (TAC)
Preliminary Recommendations: March 11, 2019 Draft

Built Environment TAC Process

The Built Environment TAC, comprised of agency, industry, and community leaders, convened over three facilitated meetings to identify a carbon zero vision, key milestones to achieve the vision by 2045, high-impact strategies to achieve the identified milestones, immediate actions including initial steps and pilot projects, and strategies to overcome common challenges.

This document includes the vision, milestones, and high-impact strategies. Based on input and comments shared at the March 18th public meeting of the Mayors' Commission on Climate Change, the TAC will reconvene to further refine its recommendations. After the TACs for Mobility and Community Health & Resiliency convene, the full set of recommendations will be released for public comment prior to finalization.

Built Environment 2045 Vision

We envision compact, walkable communities that integrate efficient design, localized renewable energy systems, and nature-based solutions, leveraging carbon neutrality to achieve positive health, equity, economic development, and resiliency outcomes. Investments will match priorities and strategies will be pursued in a manner that considers both costs, including avoided costs, and benefits.

Communities will be fossil-free and fully electrified with an abundance of green space and affordable housing, designed to prioritize vibrant public spaces, multimodal and active transportation, resource conservation, and quality of life for all.

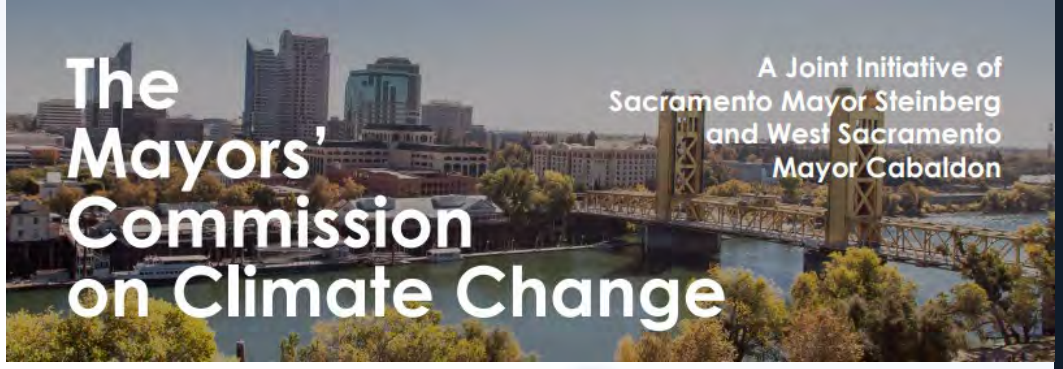
Key Principles to Achieve Vision

1. Authentically and inclusively engage residents, stakeholders, businesses and community leaders.
2. Prioritize investments and projects in existing communities and existing development, particularly in disadvantaged communities.
3. Align all local plans with the recommendations of the Commission by 2025.
4. Forge regional partnerships to support ambitious action on climate change.
5. Enable and implement the ambitious actions necessary to achieve the recommended carbon neutrality goal.

Catalyzing Concept

Zero Carbon Innovation Zones

Create a zoning category to attract research and development, venture capital, and targeted investments to create Eco-Villages that embody the Living Community Challenge framework. These Eco-Villages can demonstrate a regenerative approach to development (energy, water, waste, food systems, and more) while leveraging local talent to create a beautiful space that can educate and inspire communities. By experimenting with tiny houses, relocatable micro-dwelling clusters, deep retrofits of existing buildings, and mixed-use infill development, Sacramento and West Sacramento can rise to the forefront of innovation in sustainable architecture and serve as a model for the state.



Mayors' Vision

1. Establish goals and priority actions to achieve Carbon Zero by 2045
2. Strengthen local and regional partnerships to address climate change and increase resiliency
3. Engage local leaders to build political support for robust climate action
4. Provide a forum to develop and vet the guiding principles of ambitious strategies within the City of Sacramento and West Sacramento's Climate Action Plans
5. Advance social equity and economic prosperity
6. Attract additional investments into the region

OPTION 1

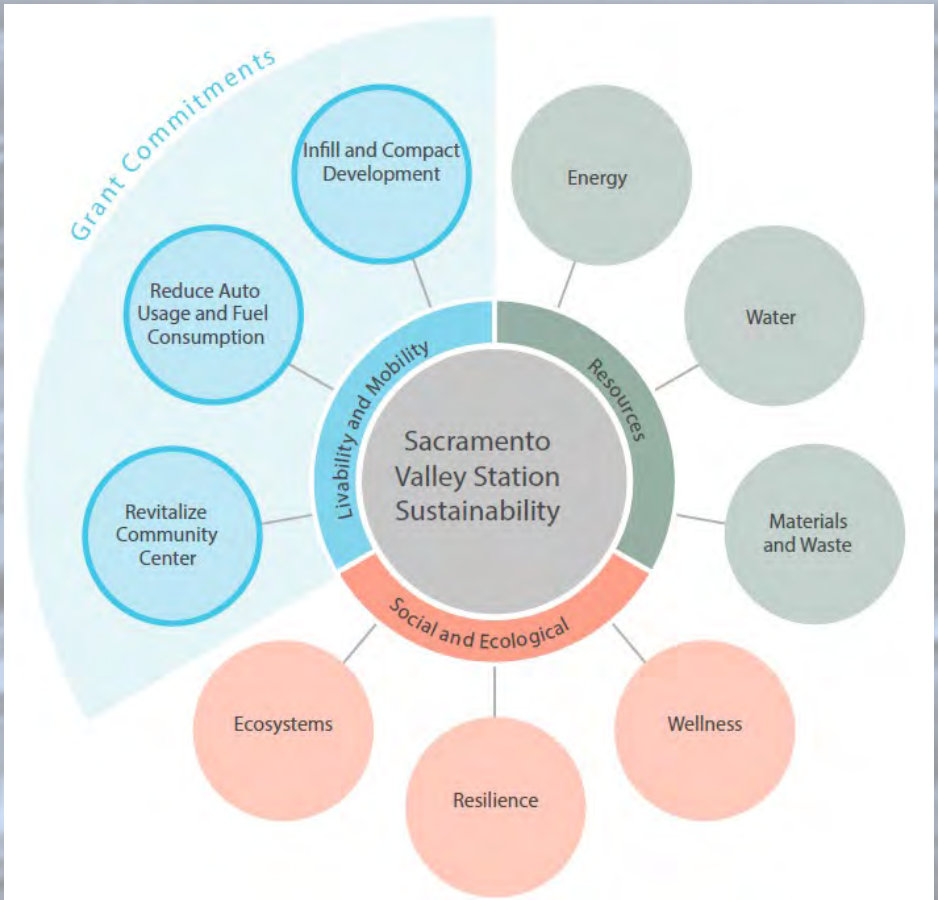
OPTION 2

OPTION 3

City of SACRAMENTO
Department of Public Works

Next Steps

Sacramento Valley Station
Phase 3 Master Plan


Grant Commitments
Infill and Compact Development
Reduce Auto Usage and Fuel Consumption
Revitalize Community Center
Ecosystems
Resilience
Wellness
Materials and Waste
Water
Energy
Livability and Mobility
Resources
Social and Ecological
Sacramento Valley Station Sustainability

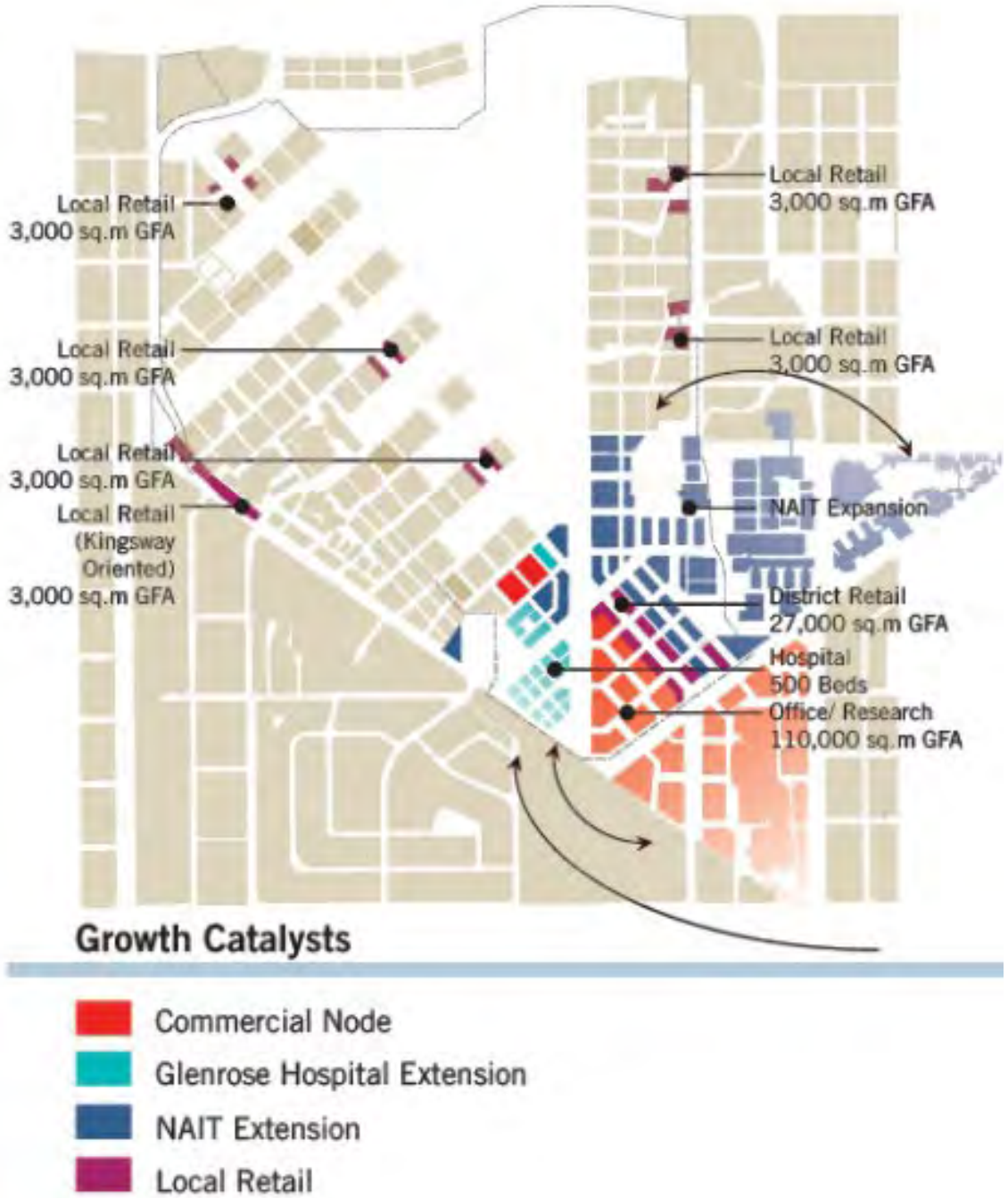

Beauty
Site
Equity
Water
Materials
Energy
Health

Next Steps

Regenerative Urban Developments are Game-Changing Planning - NPC198096

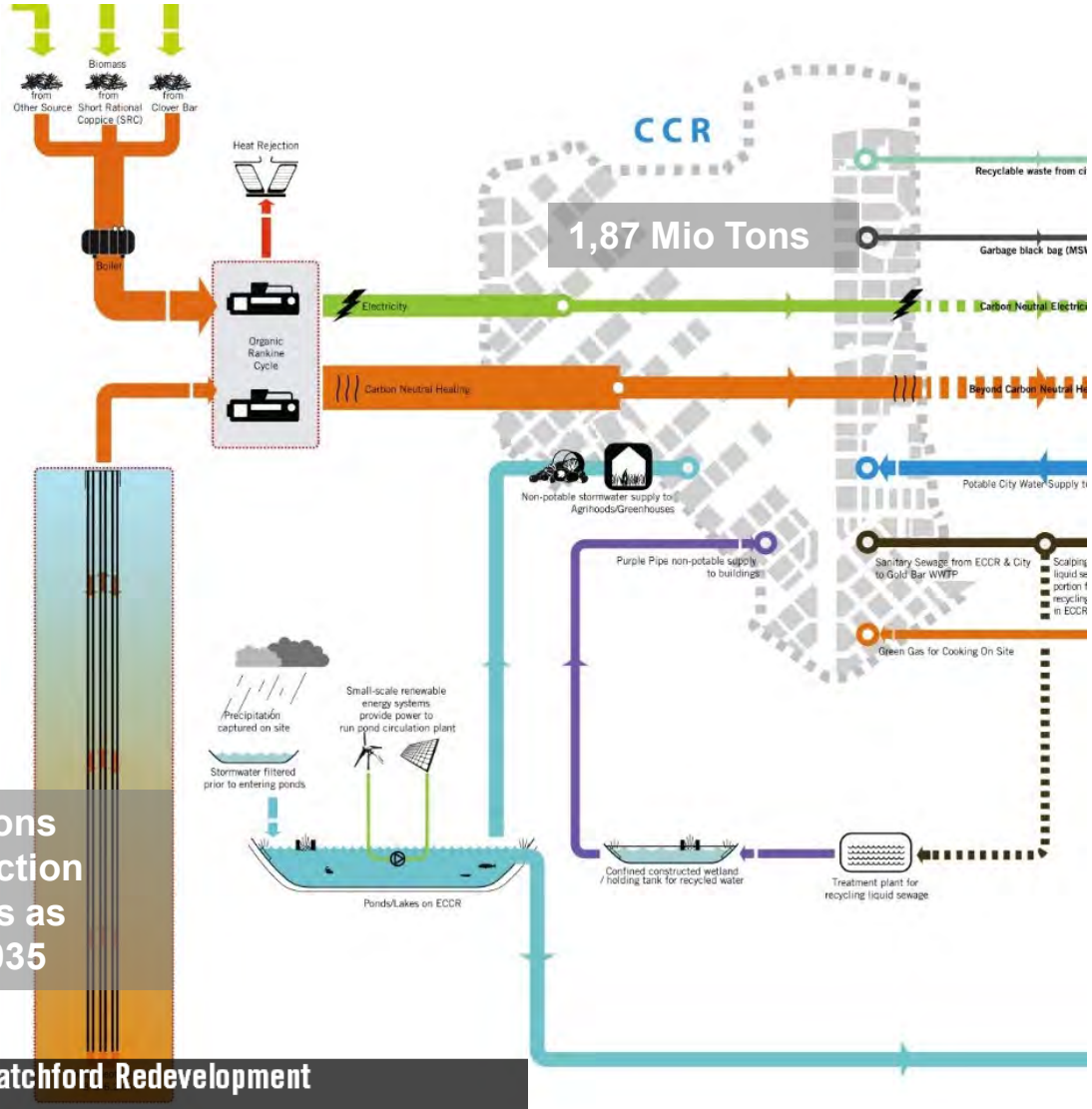
Geeti Silwal, Urban Design Practice Leader, AICP
Perkins&Will

CITY OF EDMONTON, Blatchford Redevelopment
Edmonton, AB, Canada



CITY OF EDMONTON, Blatchford Redevelopment
Edmonton, AB, Canada

BLATCHFORD: Carbon Neutral Operations

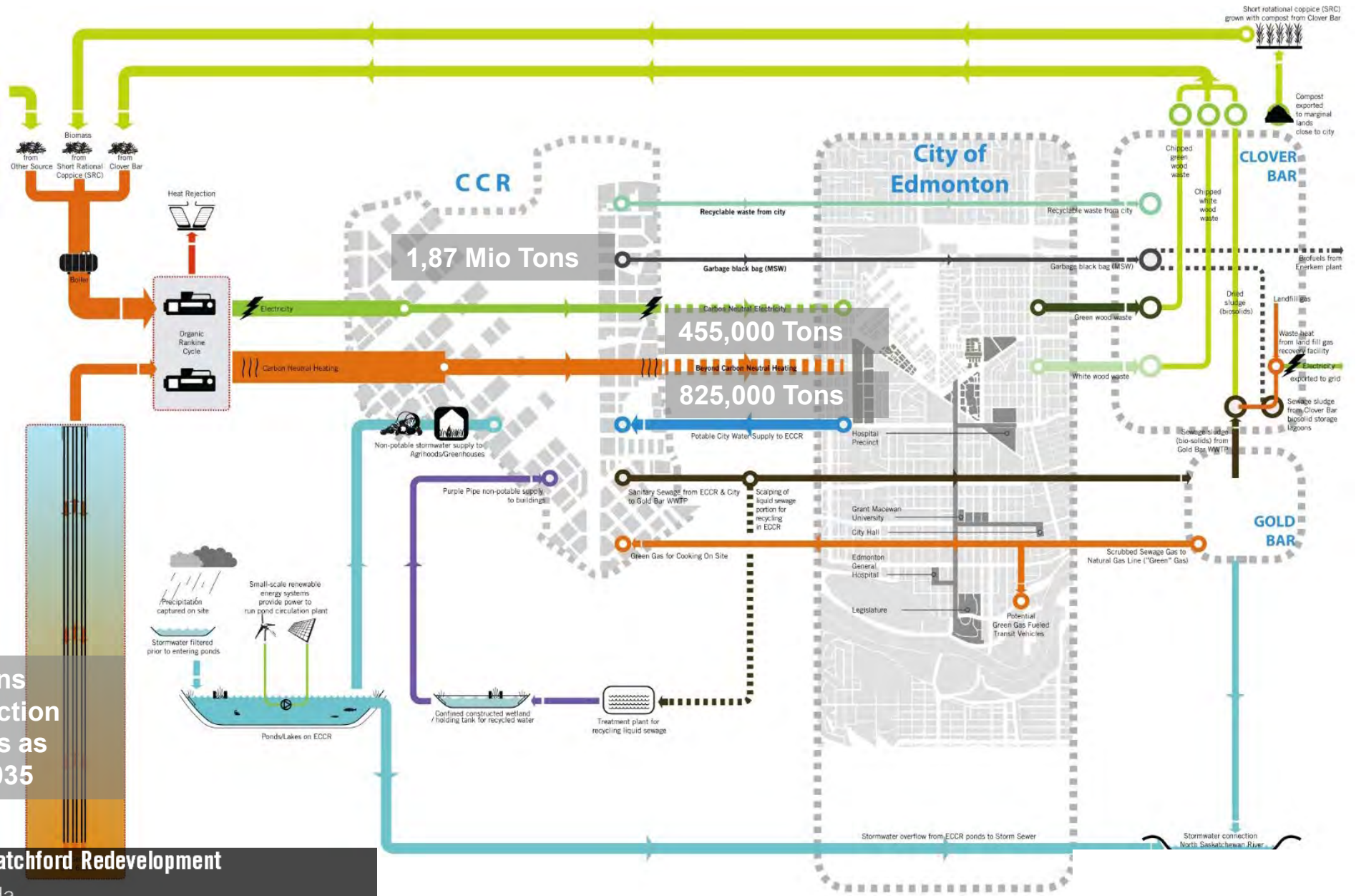


1.87 Million Tons Carbon Reduction from business as usual 2015-2035

CITY OF EDMONTON, Blatchford Redevelopment

Edmonton, AB, Canada

BLATCHFORD: Regenerative with City Waste Reuse



3.2 Million Tons Carbon Reduction from business as usual 2015-2035

CITY OF EDMONTON, Blatchford Redevelopment

Edmonton, AB, Canada

WINDMILL/ DREAM, Zibi Master Plan

Ottawa and Gatineau, ON and QC, Canada

planning.org/NPC19

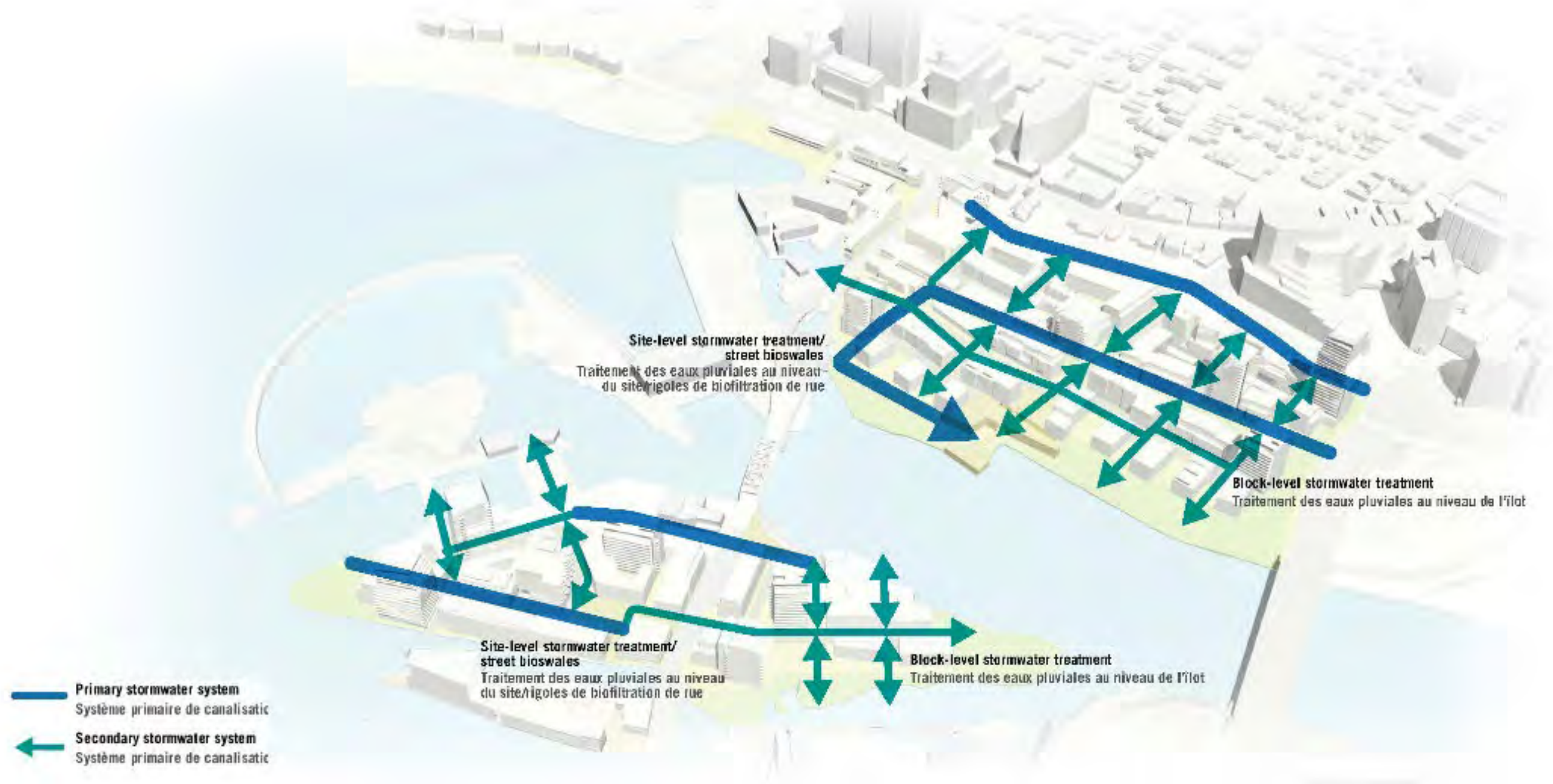
BEYOND NET ZERO

WINDMILL / DREAM, Zibi Master Plan

Ottawa and Gatineau, ON and QC, Canada

Health and happiness	Encouraging active, social, meaningful lives to promote good health and wellbeing
Equity and local economy	Creating safe, equitable places to live and work which support local prosperity and international fair trade
Culture and community	Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living
Land and nature	Protecting and restoring land for the benefit of people and wildlife
Sustainable water	Using water efficiently, protecting local water resources and reducing flooding and drought
Local and sustainable food	Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein
Travel and transport	Reducing the need to travel, encouraging walking, cycling and low carbon transport
Materials and products	Using materials from sustainable sources and promoting products which help people reduce consumption.
Zero waste	Reducing consumption, re-using and recycling to achieve zero waste and zero pollution
Zero carbon energy	Making buildings and manufacturing energy efficient and supplying all energy with renewables

Table 1. One Planet Living Principles



WINDMILL / DREAM, Zibi Master Plan

Ottawa and Gatineau, ON and QC, Canada

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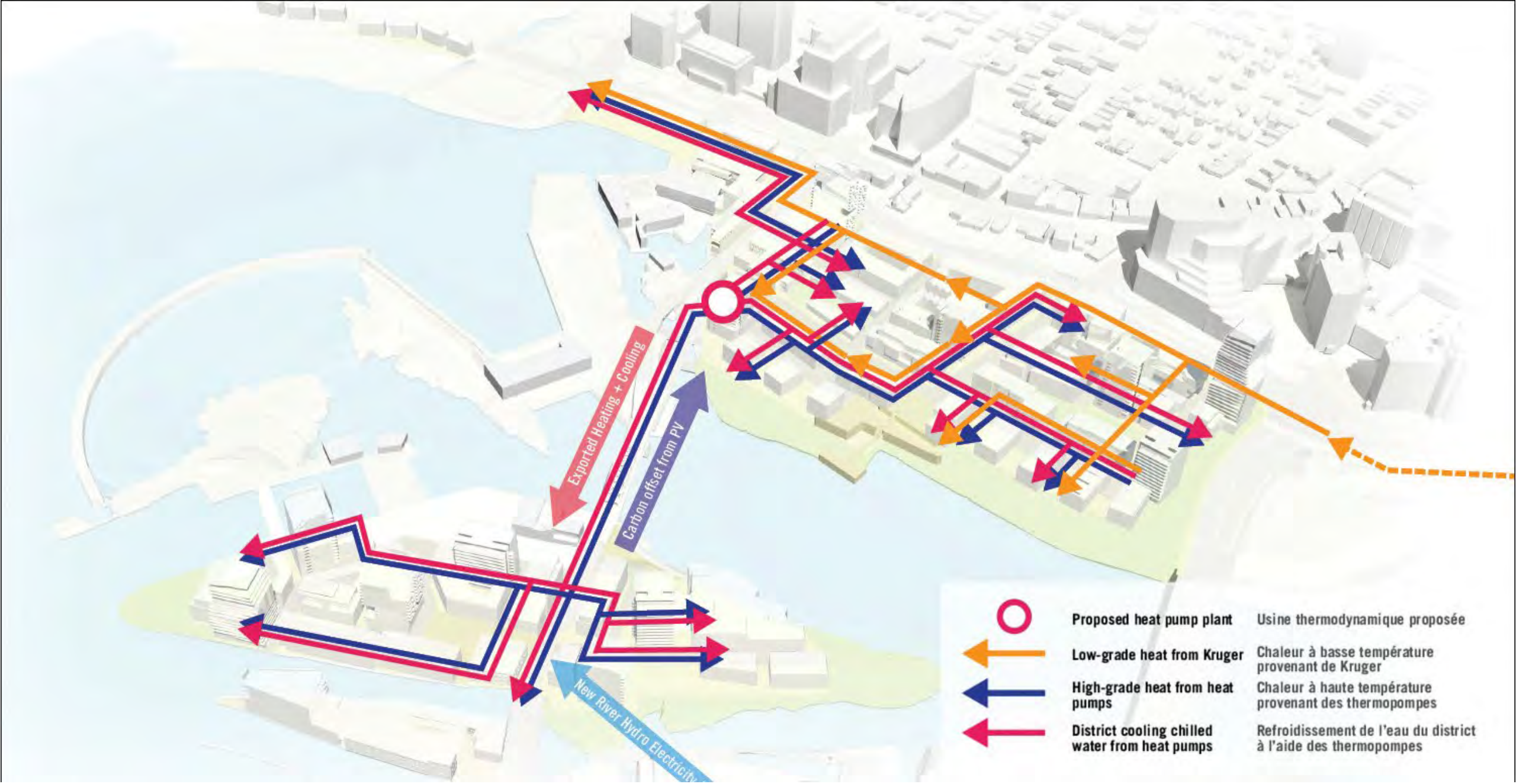

WINDMILL/ DREAM, Zibi Master Plan

Ottawa and Gatineau, ON and QC, Canada

SPEAKERS

- Scott Edmondson (AICP), City and County of San Francisco
- Kirstin Weeks (LEED AP, WELL AP, CEM, GRP), Arup
- Greg Taylor (AIA), City of Sacramento
- Geeti Silwal (LEED AP, AICP), Perkins and Will

Conversation

Scott T. Edmondson, AICP
Scott.Edmondson@sfgov.org

Geeti Silwal, AICP
Geeti.Silwal@perkinswill.com

Kirstin Weeks
Kirstin.Weeks@arup.com

Greg Taylor
GTaylor@cityofsacramento.org

APA Sustainable Communities Division Contact Information
SCD Chair: Matt Bucchin
Website: planning.org/divisions/sustainable
Blog: sustainableplanning.net
Facebook & Twitter: APASCD
LinkedIn: “APA Sustainable Communities Division”
Email: info_sustain@planning.org

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