SACRAMENTO COUNTY

View of the American River in Sacramento County

Sustainable Communities & Climate Adaptation

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What is a Sustainable Community?

A "sustainable community" seeks to maintain and improve the economic, environmental and social characteristics of an area so its members can continue to lead healthy, productive, enjoyable lives.

U.S. ENVIRONMENTAL PROTECTION AGENCY

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What we do today can sustain our communities as the climate changes….

- Approach infrastructure projects with a triple bottom line approach: **environmental, social and economic**.
- Cost and availability of resources and critical materials; changing conditions such as sea level rise or extreme weather events; changing social attitudes on environmental protection; and shrinking public funding **are challenges**.
- Sustainability can help efficiently design, build, operate and maintain infrastructure that deliver the needed services, affordably while conserving energy & natural resources for the future.
- Public works leaders who embrace sustainability will rethink and remake their communities **by being mindful of the interaction among the environment, economics and the community**.

APWA AMERICAN PUBLIC WORKS ASSOCIATION

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About Resilient Sacramento

Agencies and communities in the Sacramento region have shown tremendous leadership in their climate mitigation efforts over the past years. The Sacramento Regional Adaptation Collaborative (Resilient Sacramento) is working to leverage and enhance those efforts at a regional level. We intend to build Resilient Sacramento into an initiative that is a coordinating agency for adaptation related programs and funding strategies in support of local governments and regional agencies.

http://resilientsacramento.org/

- Resources
- Research: Agriculture & open space, Water, Plants and Animal species, Fires, Energy
- Regional Coordination

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TRENDS

Growth
California is still a fast-growing state, with over 8.8 million new residents expected by 2035. That increase is more people than the current population of all but 10 other states.

Climate Change
Climate change could have significant impacts on water supply in California through rising sea level and reduced snowpack. Climate change may also result in increased water demand due to higher average temperatures.

Environmental Regulation
Environmental regulations related to water delivery have increased at all levels of government. Regulations are limiting current and future water supply options.

WATER ISSUES

Drought
Challenges from drought have increased as demand for water grows due to increases in population, environmental needs, and planting of permanent crops. During drought periods, surface water supplies are reduced, storage is depleted, and groundwater pumping increases – making water more expensive and drawing down aquifers. **Governor Brown** declared a drought emergency in January 2014.

Flow Standards
State Water Resources Control Board sets water quality objectives and flow requirements for rivers to protect downstream environmental resour... in the Delta. Northern Californi... required to release or fores... these objectives.

Bay Delta Cons...
California Na... and **Depa...** is dev... in... ex... the... impl... ...on.

2014
The **Le...** ...o reduce or delay the $11 b... ...nd scheduled for the Nove... ...4 statewide ballot to something ...ser to a $5-7 billion bond.

Biological Opinion
U.S. Bureau of Reclamation is developing new operating criteria and plan for the Central Valley Project in response to a court ruling that the Biological Opinions issued for Delta Smelt and Chinook Salmon were deficient.

Folsom Reservoir Operations
The **U.S. Army Corps of Engineers**, in cooperation with the **Bureau of Reclamation**, is updating the water control manual to reflect the new spillway structure at Folsom Dam. Recent reports project that the water level may be too low to provide any municipal water in one out of every ten years.

Urban Water Supply Shortages
U.S. Bureau of Reclamation sets a Municipal and Industrial (M&I) Shortage Policy for Central Valley Project urban water contractors including many water suppliers. The ... prescribes reductions system-wi... ere are shortages farthe...

...ers may have their ...nder their water ...full supplies are

...or Schwarzenegger
...n requires urban water ...meet conservation targets by ...the Sacramento region, urban water ...iers must reduce per capita use ...y 20%. Agricultural water suppliers were also required to implement conservation measures.

Delta Plan
In 2013, the **Delta Stewardship Council** adopted the first Delta Plan. The Council is now implementing the plan and coordinating with other entities. Projects within the Delta must be consistent with the Delta Plan.

Storage
Storage, either through new or expanded reservoirs, or groundwater banking, is also being discussed. One new reservoir that has been discussed is at Sites, approximately 70 miles north of Sacramento. Existing reservoirs may be re-operated to increase water yield.

Headwater Protection and Restoration
Forest watersheds in the Sierra Nevada that provide nearly all of the state's drinking water are at risk. Threats include overgrowth, past forestry practices, invasive species, and wildfires.

WATER ISSUES FACING THE NORTH STATE

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What about Health….**Public Health Impacts**

- Increased rates of asthma & respiratory disease
- Variation in crop yields
- Insect caused disease
- Reductions in quality & quantity of drinking water
- Disproportional impacts on vulnerable communities: limited access to air conditioning, higher food prices will limit purchase of fresh fruit & vegetables, increase in chronic disease (obesity, diabetes, heart & lung disease) & food insecurity (more hungry people)

INSTITUTE FOR LOCAL GOVERNMENT
SUSTAINABLE COMMUNITIES
Understanding the Basics of Climate Change and Public Health: A Local Official's Guide

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Solutions: **Build sustainable communities !**

Goals & Principles

Walkability

Connectivity

Mixed of Uses

Diversity of Housing

Quality Urban Design

Increased Density

Transportation Choices

Quality of Life

THE NEIGHBORHOOD

Winn Communities
Village Properties

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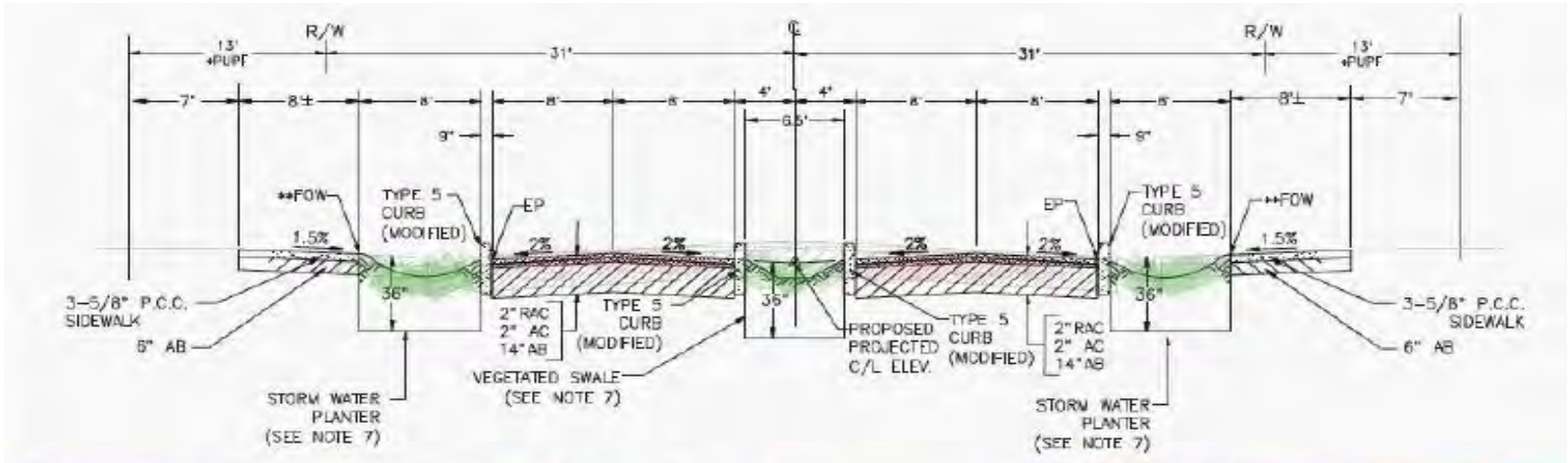
Solutions: **Build sustainable infrastructure !**

Freedom Park Drive Sustainable "Green Street" Project

Complete ⇨ Green ⇨ Sustainable Street



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Before

After……

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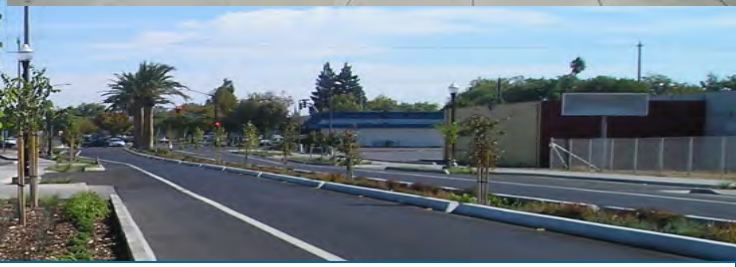
Round-abouts vs. 4-way stop intersection. Reduced speeds and vehicle emissions. Improved air quality and safer environment.



LID Storm water planters, street lights and tree shading. Reduced urban heat island, safety, improved air quality-carbon sequestration.

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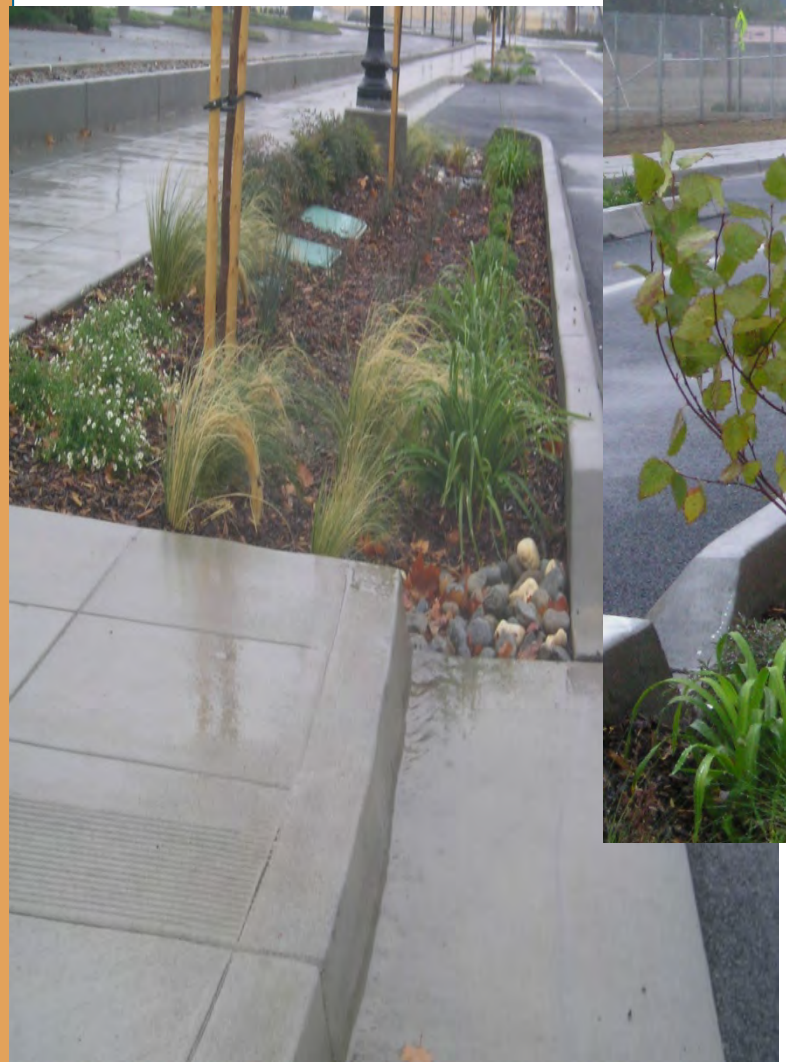
First Storm….



… no flooding, planters captured & filtered runoff

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What we Learned - Performance Metrics

123 Trees Planted =

5,300 lbs of CO_2 sequestered in 1st yr.

2-9º temp –urban heat island reduction

3,900sf of tree shade

Improved Sidewalks & Bike lanes =

14,000 lbs reduction in ozone precursors per year.

River Friendly Landscaped Median & Swales =

30% water conservation

98% infiltrated run-off 10yr storm

100% stormwater treatment by plants

964 lbs/yr in GHG reductions

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Sustainable Street Performance Metrics

2 Round-abouts = Reduced vehicle emissions by eliminating starts & stops at a 4-way stop.

Recycled Rubberized Asphalt = 4,000 tires recycled

LED Street lighting = 50% energy reduction

Destinations – Parks Museum, Schools…

SB 375 in the Ground !!

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Health Performance Metrics

Fact: A 5% increase in neighborhood walk-ability has been associated with 6.5% fewer vehicle miles traveled, and 1-2 lbs. In weight reduction.

Fact: Using transit = 81% reduced odds of becoming obese.

Walking distance to Transit = min. daily req. for physical activity, Surgeon General.

Fact: People walk 70 minutes longer in pedestrian friendly communities.

Fact: 25% reduced asthma rates in children living on tree lined streets

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Solutions- **Streambed Channel Naturalization**

Existing concrete lined channel

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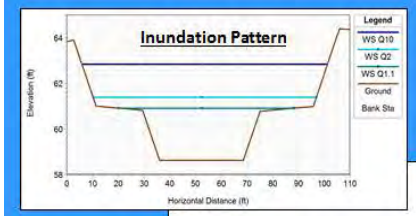
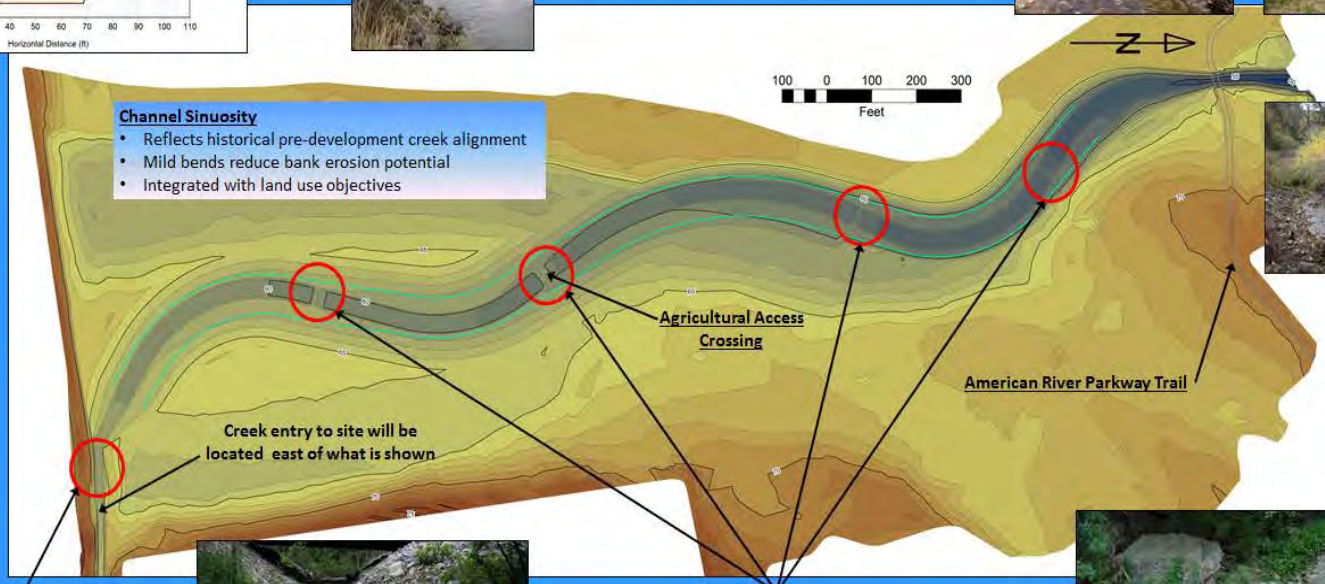
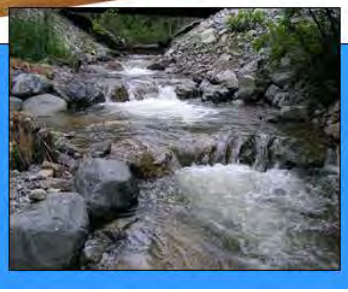
CORDOVA CREEK
STREAM NATURALIZATION PROJECT
PROPOSED CHANNEL FEATURES



Biotechnical Bank Stabilization
- Longitudinal peaked stone toe protection (**LPSTP**)
- Vegetated mechanically stabilized earth (**VMSE**)
- Rootwads
- Vegetated riprap



Step-Pool Structure
- Energy dissipation
- Reduces naturalized channel slope
- Reduces erosivity of inflowing water



Newbury Rock Riffles
- Provide hydraulic grade control
- Mimic natural riffle/pool habitat
- Create visual diversity
- Increase floodplain connectivity

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Actions:

- Efficiently design, build, operate and maintain infrastructure that affordably delivers the needed services, while conserving energy & preserving natural resources. (triple bottom line approach: environmental, social and economic).
- Be mindful of the interaction among the environment, economics and the community.
- Incorporate Healthy & Active Design in new and existing neighborhoods and communities.

RESULT: Sustainable and Healthy Communities!!

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Thank You

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