

CASE STUDIES

This report offers nine different examples of collaboration and applied integration solutions, with a specific focus on integrated water and land-use planning. These case studies cover past, current and upcoming projects identified through interviews and focus-group discussions from around the state and our general research and literature review. The case studies are organized into five themes: community engagement, collaboration, planning, funding and infrastructure. The case studies offer models that can be used in other regions across the state.

Case Study Themes

1. Community engagement
2. Collaboration
3. Planning
4. Funding
5. Infrastructure

Community Engagement

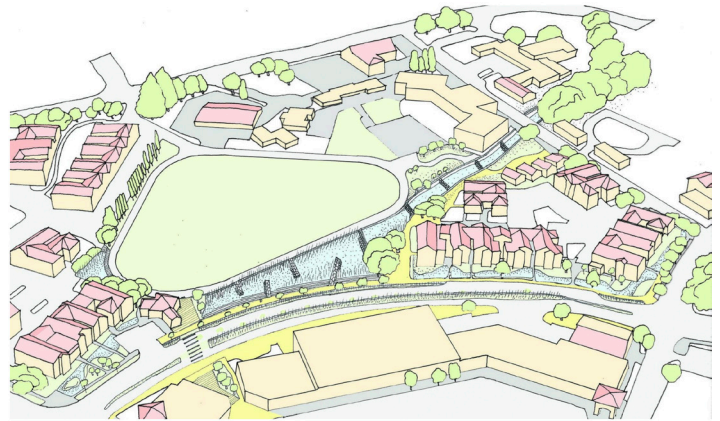
Resilient by Design Bay Area

Designing Our Own Solutions for Resiliency Planning; The People's Plan (P+Set)

Every community has residents with the skills, experiences and strategies needed to solve the local and regional problems they face. As part of the Resilient by Design Bay Area challenge, the Permaculture + Social Equity team (P+SET) created a social design process which builds community capacity and climate change literacy to address the challenges of coastal adaptation and resilience planning, particularly in vulnerable communities that have

experienced generations of marginalization and exclusion.

The P+SET design concept approach is a "Community Partnership Process" to establish local leadership across generations by partnering with residents. This process specifically designs programs for individual communities based on their unique assets and needs. In this process, community members are actors with political will and influence.



Local residents, organizations and institutions each bring their unique knowledge, skills and passion to the process. This diversity in expertise influences land use decisions that reflect culture, history and community vision. Based on community perspectives, P+SET provided the technical expertise and education to give stakeholders the skills needed to interpret and solve immediate challenges (such as flooding in a particular location). Small-scale projects will be implemented first, leading to larger, more complex collaborative designs.

P+SET piloted this capacity-building program in Marin City, which resulted in a "People's Plan" that reflects the residents' aspirations and priorities. Participants became "designers" and identified six priority projects to help solve challenges in the watershed, including an intergenerational garden, erosion mitigation and creek enhancement, rain gardens and bioswales.

This people-powered design process also allowed the community to enhance their existing advocacy practices and literacy to more effectively engage with municipal, regulatory and regional stakeholders to finance and implement these projects.

For more information on the People's Plan, visit: www.resilientbayarea.org

Collaboration

City of East Palo Alto

Creating Partnerships to Solve a Water Crisis

In 2016, the city of East Palo Alto issued a moratorium on development because the city couldn't guarantee that there would be enough water for new projects. East Palo Alto, which has been a historically low-income community, had only just been incorporated as a city the year before. Additionally, the city's water needs were managed by a county agency that later dissolved. The tech boom of the Bay Area then created demands for housing and office space that saw East Palo Alto become a desirable place for development once again. In order to address this issue, city officials began the hunt to find new water sources - which would result in new, groundbreaking partnerships.



East Palo Alto were already good water stewards. In 2015-16, the gross per capita water consumption in the city was 58 gallons a day, one of the lowest in the region (indeed, the state). The city doesn't have many attractions that are big water users, such as big parks or golf courses. Therefore, any gains made by increasing water conservation targets would be very minimal.

City officials began searching for outside partnerships. They knew that other cities in the region had more water than they needed. They hoped to find two municipalities to agree to transfer their water to East Palo Alto - something that had never been done before in the region. They eventually focused their attention on two cities: Mountain View and Palo Alto.

East Palo Alto's partnership with Mountain View was beneficial to all. Mountain View hadn't used their daily allotment of water in 30 years, so they had water to spare. For a one-time fee of \$5 million, Mountain View transferred 1 million gallons of their water daily to East Palo Alto. Mountain View saw an advantage in selling some of their water because they had contracts with SFPUC that stipulate purchasing a minimum of 8.9 million gallons of water per day, and the city was only using 7 million gallons a day.

East Palo Alto city officials then struck a deal with Palo Alto to collaborate on three different projects, one of which was a water transfer agreement of half a million gallons a day from Palo Alto's own allocation of water. The other two projects were a bridge project and traffic signal synchronization. Palo Alto did not seek payment for the water transfer because the water deal was part of multiple cooperative projects between the cities.

By creating these unique and co-beneficial projects with their neighbors, the city of East Palo Alto can now move forward with the sustainable growth plans envisioned in their General Plan.

For more information about the East Palo Alto water crisis, visit:

<https://currentwater.co/2017/08/21/water-shortage-east-palo-alto-construction-on-hold>

San Diego Regional Climate Collaborative

Innovative Partnerships and Initiatives

The San Diego Regional Climate Collaborative (SDRCC) was launched in 2012 as a network designed to support public agencies with preparing for the impacts of climate change and mitigate greenhouse gas emissions. The San Diego region faces a number of threats exacerbated by climate change, including diminishing water supplies, increasing wildfire risks, rising temperatures, and increasing coastal flooding and erosion due to sea-level rise.



SDRCC supports local governments and regional agencies across San Diego County to respond to these impacts, reduce emissions, and foster a clean energy and vibrant economy and community. SDRCC was initially formed by five public agencies (the Cities of Chula Vista and San Diego, the County of San Diego, the Port of San Diego, and the San Diego Association of Governments, or SANDAG); the University of San Diego (USD); the region's energy utility, San Diego Gas & Electric (SDG&E); and The San Diego Foundation (TSDF).

The collaborative's mission is to create regional partnerships between the region's residents, local businesses, public service agencies, and private companies. The collaborative also works to create a network for public agencies to learn from each other and to plan for the impacts of climate change.

SDRCC also provides a venue for cross-jurisdictional and cross-sectoral dialogue. The collaborative organizes regular workshops and trainings for local decision-makers on climate-related topics of interest, as well as provides direct technical assistance to jurisdictions in the region. In addition to coordinating stakeholders and providing networking opportunities, SDRCC has also helped build new innovative partnerships in furtherance of specific climate-related goals and initiatives, such as the Climate Science Alliance.

For more information on the San Diego Climate Collaborative, see:

www.sdclimatecollaborative.org

San Joaquin Valley Greenprint

Interactive Mapping for Regional Solutions

The San Joaquin Valley Greenprint project grew out of the San Joaquin Valley Blueprint – after the Blueprint revealed the need for better regional mapping of the Valley's non-urban areas to assist land use and resource management decisions. The project is funded by a grant from the California Strategic Growth Council to the San Joaquin Valley Policy Council, managed by the Fresno Council of Governments, and guided by the San Joaquin Valley Greenprint Advisory Committee. The goal of the project is to promote regional collaboration by providing more sophisticated planning data to water and planning professionals – with a focus on sustainability and economic development strategies for the San Joaquin Valley region.

The Greenprint is primarily a collection of maps, assembled as a comprehensive, interactive database that catalogs current

conditions and trends related to the region's resources. The maps and data collected for the Greenprint are publicly available, and are presented in an interactive, easy-to-use online tool. The collection of maps shows how resources are interrelated across political boundaries and how they are changing under the influence of population growth, changing land use practices, resource limitations, and changing climate.



Phase I of the Greenprint focused on identifying and mapping Valley resources for the eight counties that comprise the San Joaquin Valley, including Kern, Tulare, Kings, Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties. The compiled information includes over 100 datasets related to agriculture, biodiversity, energy, and water resources, as well as supplemental datasets including land use planning, transportation, soils, and land cover.

Phase II of the Greenprint built on the work in Phase I by demonstrating the real world utility of this information, as well as finding an appropriate platform for these curated resources, specifically a host that could provide a user-friendly interface as well as the capacity to update and maintain the data. The San Joaquin Valley Gateway, hosted by Data Basin, was identified as the best platform.

The San Joaquin Valley faces many challenges and opportunities associated with the management and conservation of water, agricultural, energy, and biological resources. The SJV Greenprint project was developed to provide reliable data in support of the State and Federal agencies; non-governmental organizations; community-based organizations; universities and colleges; and individuals who are working to address these issues.

The Greenprint was also intended to provide a forum for elected officials, agencies, local business leaders, and other stakeholders to collaborate on issues that affect the rural areas of the Valley.

For more information on the San Joaquin Valley Greenprint, see:

www.sjvgreenprint.ice.ucdavis.edu

Planning

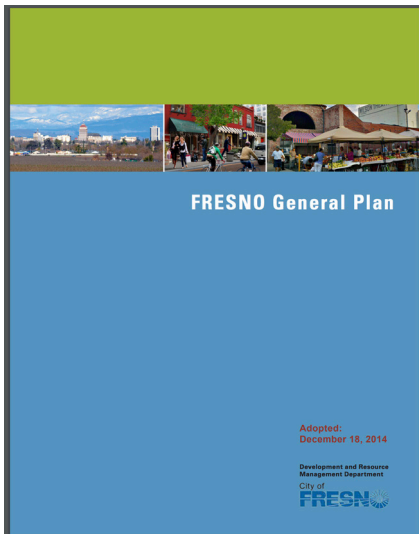
City Of Fresno General Plan

Preserving Land for Natural Groundwater Recharge

Until very recently, the City of Fresno has been dependent on groundwater for about 88% of its water supply. Unfortunately, the rate of groundwater recharge has been inadequate to keep up with the amount being withdrawn. Over the past 100 years, the city has lost 100 feet of water from the aquifer.

The City recently struck an agreement to use Fresno Irrigation District canals to distribute water to Fresno Flood Control District basins throughout Fresno for groundwater recharge during dry months. The City has budgeted more than \$850,000 to construct the connections and make necessary improvements such as flow monitoring to allow for efficient recharge.

The City has had ongoing projects with the neighboring city of Clovis, the Fresno Irrigation District and the Fresno Metro Flood Control District for groundwater recharge. This partnership is delivering an average of about 60,000 acre-feet of water to underground storage every year.



According to its Urban Water Management Plan, an ever-increasing volume of rain water can no longer soak through the soil to the groundwater aquifer as urbanization covers once open land with pavement, roads and buildings. There is enough storage capacity in the aquifer to serve the city's needs and natural recharge is not able to keep up with pumping. More active recharge facilities – such as Managed Aquifer Recharge – are needed to replace the loss of natural recharge capacity.

The City's 2014 General Plan supports the use of a natural-drainage system in new development to capture and infiltrate water on-site. This may be paid for by the City alone or in partnership with the Fresno irrigation and flood-control districts.

Most importantly, the new General Plan and development code, for the first time, limit the expansion of growth on undeveloped areas and redirects it to existing areas. This is

accomplished through policies that support infill development and that establish minimum rather than maximum densities. These policies are projected to slow the urbanization of the city's sphere of influence and protect lands currently available for natural recharge for an additional 25 years.

Because current groundwater recharge efforts are not keeping up with the current drinking-water needs and are seriously depleted, the City is preparing to augment existing groundwater and surface-water supplies by bringing water from the Kings River to a newly constructed southeast surface-water treatment facility. The new water treatment plant will soon supply 53% of Fresno residents' needs from treated water drawn from the San Joaquin and Kings rivers. It is expected that this measure will allow Fresno to meet its Sustainable Groundwater Management Act requirements.

Culver City

Connecting Cities to Nature, Ballona Wetlands

Numerous studies of the hydrology of wetlands have shown that they are a central focus of groundwater recharge. The Ballona Wetlands sit on land owned by the State of California, just south of Marina del Rey. They were once a 2,000-acre area overflowing with fish and waterfowl. Almost 100 years ago, Ballona Creek was transformed into a nine-mile concrete flood protection channel, which blocked the flow of saltwater, and reduced the amount of freshwater in the wetlands. Today, the topography is mostly cement, leaving only a very small percentage of wetlands in this watershed. Cemented streets have led to increased runoff and pollutant infiltration, which ultimately makes its way to the Ballona Creek, and eventually to the Pacific Ocean.

Today, more than 95% of Southern California's wetlands have been lost due to human development – the largest loss of any region in

the nation. Wetlands are important for many reasons - they are a rest stop for birds, shelter for young fish, a water filtration system, a source of groundwater recharge, air purifier, and great source of local pride and beauty.

After the State acquired the land, they released a study that explored a range of potential infrastructure improvement projects, new structures and more access and activities for the public. Partnership were formed in order to investigate the feasibility of features such as bike trails, community centers, outdoor classroom and walking paths.



Stakeholders have witnessed progress being made since then, such as the Milton Street Park project (a \$3MM linear park) adjacent the bike trail, which has added aesthetic appeal and a much needed rest stop for users of Ballona Creek trail. Significant bike path improvements in recent years include native landscaping, artist-designed gates, benches, drinking fountains, murals and other projects by public agencies and local non-profit organizations. Other opportunities include the integration of an educational component to the creek, i.e., using the creek as an outdoor classroom. This is the sort of necessary measures which must be pursued, in order

to ensure that the younger generation better understands and appreciates what the creek has to offer to their neighborhood, but even more importantly to the region at large.

For more information on the Ballona Creek Revitalization Plan, see:

www.ballonarestoration.org

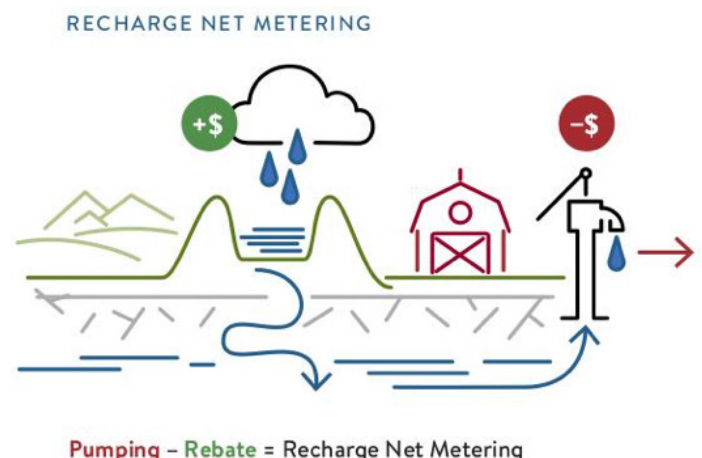
Funding Strategies

Uc Santa Cruz

Recharge Net-Metering Pilot Program

In 2016, the University of California-Santa Cruz, the Pajaro Valley Water Management Agency (PV Water) and the Resource Conservation District of Santa Cruz County partnered to test a program that would help address the economic challenges of groundwater recharge projects. The result of that partnership is a five-year pilot program to incentivize local landowners to build a managed aquifer recharge (MAR) system on their property – where it can recharge underground water aquifers.

PV Water agreed to issue said landowners rebates to help offset the costs of installing and operating such a system. Initiated in 2016, the first year of the recharge net-metering program was tested on a five-acre parcel of farmland. It was highly successful, and has since been replicated on other properties.



The strategy was well-received, as Pajaro Valley relies heavily on groundwater, and is currently experiencing high levels of overpumping and saltwater intrusion. The pilot program could serve as a model for other regions experiencing similar groundwater challenges.

This innovative program has occurred through the agency's partnership with the Resource Conservation District of Santa Cruz County and UC Santa Cruz Professor Andrew Fisher.

Fisher's team has mapped the lands in the district that have the hydrologic and geologic conditions needed to absorb stormwater and recharge the aquifer.

Some property owners in these areas are being offered a reduction in the Water District's groundwater pumping fees proportional to the volume of water that they have captured and percolated into the aquifer. This program is called "Recharge Net Metering (ReNeM)."

The Resource Conservation District has contracted for the management of the program with UC Santa Cruz providing the technical information needed to perform the recharge net-metering calculations.

Infrastructure

Los Angeles Department Of Public Works

East Los Angeles Sustainable Median Stormwater Capture

The East Los Angeles Sustainable Median Stormwater Capture Project is located in the unincorporated area of East Los Angeles. This project will capture and treat approximately 232 acre-feet (AF) of stormwater in an average rainfall year from a 3,000-acre tributary area. The water will be captured, then infiltrated to remove pollutants such as metals and various bacteria from reaching the Los Angeles River. Updates to the medians will include drought tolerant landscaping, and other amenities

such as jogging paths and benches – providing benefit to the nearby residential community. A portion of the funding comes from the State's Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1), and the project partners are Los Angeles County Supervisor Hilda Solis, California the Natural Resource Agency – Urban Greening Grant Program, the State Water Resources Control Board – Proposition 1 Stormwater Implementation Grant Program, and the Los Angeles County Flood Control District. As part of meeting the Proposition 1 requirements, the Proposed Project would include educational signage at the project site. Construction is expected to begin in Fall 2018 and last for approximately 12 months.



This multi-benefit project will improve water quality, increase water supply and enhance recreation and the community. Infiltration wells and low impact development, such as bioswales, will divert and infiltrate stormwater runoff to help improve the water quality of our rivers, channels, and ocean. Wells will also divert stormwater runoff into underground aquifers, replenishing our local groundwater supply. Over 300 trees will be planted and drought tolerant landscaping will enhance the community space and reduce the effects of greenhouse gases. Furthermore, passive recreation and educational signage will enhance the community space and increase public awareness on sustainable development.

Multi-benefit projects can help to identify project partners as projects with multiple benefits can help to leverage funding. There are opportunities for collaboration and partnering between the County of Los Angeles and other cities within the watershed area.

For more information on the East LA Sustainable Median project, see: www.dpw.lacounty.gov

City Of San Diego

Kellogg Park Green Lot Infiltration Project

Green infrastructure and other low impact development techniques help manage stormwater runoff and provide important co-benefits to communities that can align with climate-action planning priorities.

La Jolla hosts two Areas of Special Biological Significance (ASBS), as designated by the California State Water Resources Control Board, to prevent pollution of biologically diverse and pristine sections of the California Coast. These two areas include large portions of the La Jolla Shores, and prohibit waste discharge and other pollution under the regulation of the California Ocean Plan.

Kellogg Park in La Jolla Shores was identified by the City of San Diego as an opportunity site

for a project to address runoff in the ASBS. The Kellogg Park Green Lot project was designed to remove 18,000 square feet of asphalt concrete – replacing it with permeable pavement that will allow the city to capture large amounts of surface water. They also included elements that allowed them to capture runoff from the parking lot and nearby public right-of-way. The captured water was then filtered to minimize pollutants. A “vegetated bioswale” and filter bed were also added to further capture and infiltrate runoff.

Other project benefits include a reduction in the volume of storm water and water-borne pollutants that could potentially reach the adjacent beach, enhanced aesthetics through new landscaping features and trash enclosures, new curb ramps for improved accessibility and improved drainage near current storm-drain inlets.

The \$982,000 project was funded with City of San Diego Storm Waste Capital Improvement Plan Funds. Construction was completed in 2011.

For more information on the Kellogg Park Green Lot Project, see: www.sandiegocounty.gov