

# Equitable Integration of Water and Land Use

## CALIFORNIA STATEWIDE



### DEFINING THE REGION

California's vast size – both in geography and population – greatly influence the state's governance systems. California comprises 52 counties, and 482 incorporated cities. The state also has 2,300 special districts. It is a vast and populous state with many, many overlapping layers of jurisdiction. The state's complex governance system both necessitates and inhibits collaboration. The state's unique geography influences its land use patterns – where people choose to live, work and play – as well as its water management decisions – how we protect and balance water use for both human and environmental purposes.

### Demographics

California is the nation's most populous state, with 39.5 million residents. It is also second only to Hawaii in racial/ethnic diversity. California residents represent every income bracket. The state has more billionaires (124) than any other state, and more millionaires than all but 5 states (35 per thousand households). Conversely, over half a million

Californians (about 20%) live below the poverty line. This economic disparity leads to significant equity issues with regard to both land use planning and water management.

### WATER MANAGEMENT



California has a notoriously complex and dynamic water management system. The state's physical geography and hydroclimate necessitate capturing water when and where it is available, and storing water for later use and / or transporting water to where it is most needed. California has the most complex water rights system in the nation. All the states waters are held in trust for the state's residents, but allocation and use of that water is governed by roughly 3,000 agencies working under an intricate web of regulations recognizing riparian, appropriative, pueblo, and federal and state reserved water rights. The decentralized nature of California's water management system makes statewide coordination extremely difficult.

## Watersheds

California is divided into 10 hydrologic regions, comprising 190 watersheds. The state's land use development and water management decisions do not follow watershed boundaries, causing jurisdictional boundary misalignment with natural geographic and watershed boundaries. Efforts within the past 20-30 years to approach planning and management from a watershed scale have had mixed results. The most prominent and continuous effort to this end is the state's Integrated Regional Water Management (IRWM) program.

## Integrated Regional Water Management

The IRWM program launched in 2002, empowering Regional Water Management Groups to improving water management, planning, and collaboration at the watershed scale. Ninety percent of the state is now covered by 43 separate IRWM plans. Success of IRWM efforts varies widely across the state, mostly dependent on the extent of broad stakeholder engagement and the ability of participating agencies to work well together.

## Water Supply

Seventy five percent of the state's water supply comes from the Northern part of the state – primarily falling as rain and snow in the Sierra Nevada. Major man-made infrastructure collects and transports that water to the southern 2/3s of the state, where 80 percent of the water demand lies. Major infrastructure systems include the State Water Project, the Central Valley Project, Colorado River Aqueduct, the L.A. Aqueduct, the Hetch Hetchy system, and the Mokelumne Aqueduct. Water supply from these systems is becoming less reliable as climate change shifts regional weather patterns.

## Water & Wastewater Agencies

Over 400 public water agencies across

California manage the state's drinking water. Tension arises between state agencies, local water agencies, and residents ("rate payers") when agencies have to raise water rates to cover increasing infrastructure costs or to make up revenue loss due to effective conservation efforts. Recent state legislation establishing water use efficiency targets will hopefully help local agencies better balance their water demands and costs, but implementing the new legislation is causing additional frustrations in the mean-time.

California's more than 900 wastewater treatment plants are managed by cities, counties, joint power authorities, and special districts. The State of California recognizes sanitation as a basic human right, and therefore should be accessible, reliable, and affordable for all residents. Yet hundreds of thousands of Californians lack adequate sanitation services. Water service and development patterns are inherently linked, and therefore should be closely integrated. Yet California's complex governance and management systems inhibit effective integration of these sectors.

## Groundwater

The interconnection between groundwater recharge and surface water affects the availability and reliability of water supply to California residents. Approximately 85% of California residents rely at least partially on groundwater; many communities rely solely on groundwater. The state's agricultural economy historical overreliance on groundwater has led to significant groundwater depletion. Negative impacts from groundwater mismanagement was the impetus for the Sustainable Groundwater Management Act, which requires new Groundwater Sustainability Agencies to form across the state, and adopt Groundwater Sustainability Plans with a 20-year planning horizon. The state now has 264 new GSAs governing California's 109 medium and high priority groundwater basins.

## Water Affordability

Local water agencies set rates based on the total cost to treat and deliver water to their rate payers. Setting water rates is an incredibly complex process, with many contributing factors including water source location, water quality, service area, and infrastructure. California water rates are increasing at varying rates across the state, but are inequitably impacting communities already facing disadvantages. The California Department of Health measures water affordability threshold of 1.5% of median household income. Recent legislative efforts, such as SB 623, have attempted to address drinking water affordability. Yet to date, no efforts have succeeded. The state's massive infrastructure improvement deficit is likely to further increase water rates in future years.

## LAND USE PLANNING

### Landscape Features



California's 155,000 square miles is a place of geographic extremes: from Mount Whitney - the highest mountaintop in the contiguous united states to Death Valley - the lowest and hottest point in the country. California boasts vast deserts, dense forests, 840 miles of coastline, nearly 190,000 miles of meandering rivers, expansive lakes, and rich agricultural flood plains. The many unique regions of the state have their own landscape features and geographic identifiers.

### Flooding

California is bordered to the west by the Pacific Ocean. The majority of the state's population lives along the coast, and is thus highly vulnerable to coastal flooding – especially in the face of sea level rise from climate change. Extreme precipitation events, which are increasing in frequency and severity due to climate change, threaten inland communities.

Pockets of the state recently devastated by wildfires are at heightened risk from flash flood events. Funding for improved flood management is incredibly important, yet currently limited. Improving coordination between regional planning and stormwater management will relieve some pressure from flood risk.

### Development Patterns

Each city and county in California varies in its population density and development patterns, each unique to its local and regional character. The entire state, however, is currently facing a major housing shortage — especially affordable housing. Population is shifting away from highly expensive coastal regions to more affordable inland regions. This migration adds pressure to less densely populated regions, potentially leading to unsustainable sprawl development. Communities across the state are struggling to meet current and future housing demand in a sustainable and equitable way.

### Transportation

Residential and commercial development goes hand in hand with transportation. California's proliferation of freeways in the first half of the 20th century was a major contributor to the era's resource-intensive sprawl development. In recent decades California communities have shifted toward multimodal transportation infrastructure to support more sustainable development patterns. California's roadways also serve as both an important stormwater water conveyance system and a major contributor to stormwater pollution. Better integration between transportation planning and stormwater management can reduce costs and improve outcomes for both sectors.

## EQUITY



Inequities exist at the intersect of water and land use in regard to affordability and threat of harms.

Housing and water rate affordability are impacted by the state’s overall high cost of living. Communities already facing disadvantages are less able to bear the burden of these compounding costs. Low-wage earners and those on fixed incomes are at constant risk of displacement due to rising housing costs.

Underrepresented communities are also disproportionately impacted by structural and environmental harms – such as poor water quality and sanitation service, flooding, access to adequate outdoor recreation space, urban heat relief, and poor air quality. All of these factors can be improved through better integration of water management and land use planning, especially if equity considerations are explicitly prioritized.

## INTEGRATION



California’s highly complex governance system includes thousands of water and land use agencies, each with overlapping

boundaries and misaligned jurisdiction. The past half-century of segregated planning and management efforts have led to innumerable negative impacts to our natural resources, community health, social equity, and overall resilience in the face of climate change. In recent years, though, we have seen a cultural shift towards the idea of an integrated, collaborative planning approach. In California, these ideas are gaining momentum and recognition - due in part to the heightened urgency and need as a result of climate change and the state’s growing population.

## Challenges

- California is facing a **housing crisis**, requiring more housing stock (particularly affordable housing), to meet current demand and future growth projections.
- The **number of local and regional agencies** makes coordination difficult, especially since they tend to specialize in particular sectors.
- **Local governments are not incentivized** to align with state priorities, preventing integrative efforts.
- **Collaboration is time and resource intensive**, yet many of the entities who need to collaborate are already at limited capacity.

## Strategies & Opportunities

- **Incremental steps towards integration are being made**, causing hope for the future of water and land use planning.
- Successful **models exist** for integration of water and land use planning within and outside California.
- Non-governmental entities throughout California are motivated to address these challenges by **leveraging their experience building partnerships**.

## RECOMMENDATIONS

**\$ Use collective momentum** of existing projects, programs, and models that exemplify equitable integration of water and land use.

**\$\$ Advocate for state-level policy change** in regards to water governance and finance, as well as state mandates and incentives that encourage integration.

**\$\$\$ Invest in local integration** through leadership development, community education, technical assistance, and project funding.