

Land Use Planning and Management



Photo caption. Pocket Area near Sacramento. Previous urbanization against levees is a challenge for land use planning and management.

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Chapter 24. Land Use Planning and Management

“Whether individuals and institutions restore their watersheds, champion more efficient use of land, create accessible transportation alternatives, make housing more affordable, link people with quality jobs, preserve their cultural and ecological resources, or create new environmentally sensitive businesses, they can improve the lives of today’s citizens while safeguarding their communities for future generations.” Land use planning and management is a strategy to “encourage people to work together to create healthy communities where natural and historic resources are preserved, jobs are available, sprawl is contained,” flood risk is avoided, water supply and quality are reliable, “and all citizens have opportunities to improve the quality of their lives.”

(Sustainable America, 1996)

More efficient and effective land use patterns promote integrated regional water management (IRWM). Integrating land use and water management consists of planning for the housing and economic development needs of a growing population while providing for the efficient use of water, water quality, energy, and other resources. The way in which we use land—the pattern and type of land use and transportation and the level of intensity—has a direct relationship to water supply and quality, flood management, and other water issues. For example, compact development patterns in existing urban areas can limit the amount of development in floodplains, leading to improved flood management and safety. (Acronyms in Box 24-1)

California’s projected growth and urban development increases the pressure on natural resource conservation and amplifies the need for a comprehensive land use decision-making process. This advisory resource management strategy describes how sustainable land use decisions can improve water supply and quality, increase flood protection, conserve vital natural habitat, and lead to more efficient energy use. Although many of these issues are discussed in greater detail in other resource management strategies, this section focuses on the impact land use can have on them.

The State of California has enacted policies and programs designed to meet the water management benefit potential of land use with the understanding that these policies are implemented regionally and locally.

This resource management strategy is consistent with the following: State goals for more compact sustainable development (State Assembly and Senate bills AB 857, SB 732 and SB 375); regional blueprint planning being funded by California Department of Transportation (Caltrans); strategies being developed by the California Air Resources Board (ARB) to achieve AB 32 greenhouse gas (GHG) reduction target; and SB 375 linking land use and transportation.

Box 24-1 Acronyms and Abbreviations

ARB	California Air Resources Board
AB	California State Assembly bill
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
COGs	(Regional) Councils of Government
CVFPP	Central Valley Flood Protection Plan
DWR	California Department of Water Resources
EGPR	Environmental Goals and Policy Report
EIR	Environmental Impact Report
EPA	federal Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FY	fiscal year
GHG	greenhouse gas
HCD	California Department of Housing and Community Development
IRWM	integrated regional water management
IRWMP	integrated regional water management planning
LAFCOs	local agency formation commissions
LEED -ND	Leadership in Energy and Environmental Design-Neighborhood Development
LID	low impact development
LCC	life cycle cost or costing
LUSCAT	Land Use Subcommittee of the Climate Action Team
MMTCO2E	million metric tons (of) carbon dioxide equivalent (gases)
MPO(s)	metropolitan planning organization(s)
MW	megawatts
NAHC	Native American Heritage Commission
OPR	Governor's Office of Planning and Research
Prop.	Ballot proposition
RHNA	regional housing needs allocation
RMS	resource management strategy
RTPAs	Regional Transportation Planning Authorities
SANDAG	San Diego Association of Governments
SB	California State Senate bill
SDCWA	San Diego County Water Authority
SUSMP	Standard Urban Storm Water Mitigation Plan
UWMP	urban water management plans
VMT	vehicle miles traveled

Box 24-2 Key Resource Management Strategy Cross-cutting Links

Land use planning and management share strategies and benefits with watershed planning and management, agricultural lands stewardship, water use efficiency, water quality, and climate change, to name a few. The themes of flood risk and surface water management can meet sustainability issues in land use planning – place making. These strategies benefit from participation by all levels of government relying on local knowledge and management capacity. In common with many other cross-cutting themes in local government, the quality of outcomes depends on joining services and various stakeholders effectively. These listed management strategies and others tie in with the following sustainability issues:

- climate change adaptation includes preparing for flooding
- biodiversity – sustaining existing biodiversity and its potential enhancement – by managing waterways well
- community engagement – to increase public awareness of the issue
- development and provision of green infrastructure

Land use planning and management cuts across many resource management strategies of the California Water Plan Update 2009 (see Box 24-2). More efficient and effective land use is linked to several resource management strategies including watershed, water use efficiency, and agricultural lands stewardship. Directing development away from agricultural lands permits multi-objective management of these agricultural lands for floodplain management, water quality, habitat, and sustainable development. Land use planning affects and is affected by consideration of air quality, mobility, affordable housing, and economic development. This strategy focuses on water.

Land Use Planning and Management in California

Land use planners consider water throughout the local land use planning process. The availability of water supplies; water resource features such as streams, wetlands, and groundwater recharge areas; and policies and regulations about water quality, drainage, and flooding are considered for a community's land use vision. Not only must planners consider the established policy framework but also the benefits of integrating water-related features for flood management, water supply, and water quality.

Local Planning and Land Use Regulation

Cities and counties have the primary jurisdiction over land use planning and regulation. Their authority derives from their rights under the California constitution to regulate land use to protect the public health, safety, and welfare. Also, several statutes specifically authorize the preparation of local General Plans and specific plans, regulation of land use through zoning and subdivision regulations, and urban redevelopment. The Governor's Office of Planning and Research (OPR) publishes the General Plan Guidelines and other advisory guidance to assist local governments in land use planning and management.

In addition, the California Environmental Quality Act (CEQA) is an important tool for local land use planning and regulation. Though intended as an environmental full disclosure law for discretionary local government decisions, in practice CEQA is often the main forum for local governments to make project-level land use decisions and consider the potential impacts of those decisions.

State planning law, known as SB 18 (2004) requires cities and counties to consult with California Native American Tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Places. The 2005 Supplemental State General Plan Guidelines provides advice and requirements for SB 18.

As of March 1, 2005, cities and counties must conduct consultations with California Native American Tribes that are on the Native American Heritage Commission's (NAHC) contact list and have traditional lands located within the city or county's jurisdiction prior to adopting or amending their General Plans.

Tribal communities would like to see local government extend the required consultation of SB 18 to include compatibility issues with local land use planning and water supply and quality. This consultation would provide California Native American Tribes an opportunity to participate in local land use decisions at an early planning stage for the purpose of protecting or mitigating land use impacts to watersheds and floodplains of which Tribes have an interest.

State and Regional Land Use Planning and Regulations

California State government has typically played a limited or indirect role in land use planning with the exceptions noted below, leaving the lion's share of land use authority to local governments:

- The California Coastal Commission regulates land use planning and development in the coastal zone, together with local agencies (cities and counties).
- The California Energy Commission has exclusive permitting authority for thermal power plants 50 megawatts (MW) or greater and serves as lead agency under CEQA for projects within its jurisdiction.
- There are three regional regulatory land use agencies: San Francisco Bay Conservation and Development Commission, the Coastal Commission, and the Tahoe Regional Planning Agency. The regional Delta Protection Agency does not have permitting or regulatory authority.
- Regional Councils of Government (COGs) differ from region to region in organization and regional responsibilities, but in general COGs serve as metropolitan planning organizations (MPOs) for federal transportation planning and funding purposes; COGs prepare regional growth plans to meet the regional housing needs allocation (RHNA) and transportation plans.

State law requires State policies, to the extent they exist for land use, to be expressed and "enforced" through local General Plans and land use regulations. The State's General Plan enabling law establishes a detailed process for local planning, but with

limited exceptions does not require local plans to achieve substantive State policies; the exceptions are the Housing Element requirements and recent flood management legislation (see section on Coordinating Land Use and Flood Management).

State regulatory authority for air and water pollution is increasingly affecting land use decisions. The issue of storm water runoff has led to the creation of many watershed planning efforts that operate on a regional or subregional level and may be part of an IRWM planning effort. (See Urban Runoff Management RMS.) Efforts to control storm water runoff and nonpoint source pollution are likely to affect the design, character, and even the location of local urban development by encouraging “green” storm water solutions (wetlands restoration, use of pervious surfaces) rather than more traditional engineering approaches such as channelization. (See Box 24-3 for description of other planning efforts.)

State officials prepare strategic and functional plans for issues such as air pollution, water quality, transportation, and solid waste management to guide department programs, decisions, and projects. OPR is responsible for coordination of State functional plans to be consistent with State policies. Unlike all other resources subject to State oversight and in some cases management—water, aquatic and terrestrial species and habitat, air, transportation, energy, and utilities—there is no State oversight agency for land use.

Compact and Sustainable Development

Need for Compact and Sustainable Development

Population growth projections indicate there may be as many as 50 million people in California by 2050, an increase of nearly 33 million from 2004. Local land use planning and decisions to provide housing, jobs and infrastructure for this population increase will determine the rate and level of water use.

Land use patterns are changing in many regions from a post-World War II supply of single-family homes in suburban locations relying for the most part on the automobile for transportation to more city-centered transit-dependent mixed-use development. Private and public investments have supported the traditional pattern of development, which often encourages conversion of agricultural and open space lands to urban uses. Local government and private sector decisions on the placement of offices, industrial sites, and retail centers are driven by a combination of workforce availability, and State tax policy which reinforce this traditional pattern of development. Recent investments and State policies are affecting local land use development decisions toward a more sustainable pattern. Throughout the state, projects are emerging that reflect these compact, sustainable concepts.

The draft report of the Land Use Subcommittee of the Climate Action Team (LUSCAT) to ARB on Local Government, Land Use and Transportation (May 5, 2008) recognizes that traditional land use patterns consume more water and increase surface

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Box 24-3 Other Planning Efforts

There are multiple statewide planning efforts which utilize land use planning and management strategies. The following are described in more detail but this is not an exhaustive list.

- **Integrated Regional Water Management (IRWM) Planning.** The California State government is guiding integrated regional water management (IRWM) to diversify and strengthen water management. The IRWM program provides guidance to regions for developing and implementing plans that integrate water management for water supply and quality, flood management, drought preparedness, land use, natural habitat and conservation, and reduced dependence on imported water among other objectives.
- **The IRWM Planning Act provides a general definition of an IRWM plan as well as a requirement for state guidelines that must include standards for identifying a region for the purposes of developing or modifying an IRWM plan.** This regional definition objective is to effectively integrate water management programs and projects within a hydrologic region. SBx2 1 (2008) authorized grant funding for IRWM as approved by voters for Prop. 84 and Prop. 1E.
- **Urban Water Management Plan (UWMP).** The Department of Water Resources provides urban water management planning services to local and regional urban water suppliers. In 1983, the California Legislature enacted the UWMP Act. The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act describes the contents of the UWMP as well as how urban water suppliers should adopt and implement the plans. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.
- **Best Management Practices (BMPs) are techniques used to control storm water runoff, sediment control, and soil stabilization, as well as management decisions**

to prevent or reduce nonpoint source pollution. The EPA defines a BMP as a “technique, measure or structural control that is used for a given set of conditions to manage the quantity and improve the quality of storm water runoff in the most cost-effective manner.”

Storm water management BMPs are control measures taken to mitigate changes to both quantity and quality of urban runoff caused through changes to land use. Generally, BMPs focus on water quality problems caused by increased impervious surfaces from land development. BMPs are designed to reduce storm water volume, peak flows, and/or nonpoint source pollution through evapotranspiration, infiltration, detention, and filtration or biological and chemical actions. Storm water BMPs can be classified as “structural” or “non-structural.”

- **Low Impact Development (LID) is a term to describe a land planning and engineering design approach to managing storm water runoff.** LID emphasizes conservation and use of on-site natural features to protect water quality. This approach implements engineered small-scale hydrologic controls to replicate the pre-development hydrologic regime of watersheds through infiltrating, filtering, storing, evaporating, and detaining runoff close to its source. Planners select structural LID practices for an individual site in consideration of the site’s land use, hydrology, soil type, climate, and rainfall patterns. There are many variations of LID practices, and some practices may not be suitable for a given site. Many are practical for retrofit or site renovation projects, as well as for new construction. Frequently used practices include:
 - Bioretention cells, also known as rain gardens
 - Cisterns and rain barrels
 - Green roofs
 - Pervious concrete, also called “porous pavement,” similar to permeable paving
 - Grassed swales, also known as bioswales.
- (See also Box 24-6 Low Impact Development (LID) Runoff Control Objectives)

runoff, relative to more compact and sustainable development. The LUSCAT report recommends that agricultural production be directed toward areas with good soils, mild climate, and available water. When prime and productive farmlands are converted to urban development, agriculture may be displaced to other locations, which could impact water and other resource uses.

Box 24-4 Leadership in Energy and Environmental Design (LEED)

LEED certification provides independent, third-party verification that a development's location and design meet accepted high levels of environmentally responsible, sustainable development. LEED Green Building Rating System is a nationally accepted benchmark for the design, construction, and operation of high performance green buildings. Administered by the US Green Building Council, LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Traditional large-lot urban development landscaped with non-indigenous plants creates high water demand for landscaping. As urban development occurs in hotter regions of the state, this pattern of land use and landscaping is projected to increase water use to percent of total residential water demand. More compact, mixed-use urban development reduces landscaping-related water demand by minimizing front and back yards and their associated landscape water demands. (See Urban Water Use Efficiency RMS.)

Watershed management is a broad-based method used by land use planners for resolving a specific water issue by linking land use and water resources within a drainage basin (see the Watershed Management RMS). Even land use practices on small portions of a watershed can have serious consequences. For example, impervious surfaces such as roads, buildings, and parking lots result in more rapid and larger amounts of surface runoff. This change in runoff can alter streamflow and watershed hydrology, reduce groundwater recharge, increase stream sedimentation, and increase the need for infrastructure to control storm runoff. Integrating ecosystem functions as part of the rural and urban development can avoid conflicts with water resources.

Flooding is a natural process which contributes to replenishing soils through sedimentation and recharging groundwater (among many other benefits). When urban development is located on floodplains, not only are the functions of the floodplain diminished or eliminated, but people and structures are at risk. Traditional large-lot urban development may expose larger numbers of people and structures to flood hazards. By focusing development in established urban areas and avoiding more development on the floodplains, this risk can be reduced.

Urban planners are interested in coordinating water quality and flood protection using many tools (see Box 24-4 Leadership in Energy Environmental Design—LEED). By identifying watershed, flood channels, and floodplain functions as a “green infrastructure,” two best practices goals can be addressed. One is the avoided costs of expensive flood control structures by utilizing the compact urban development approaches; the second is the use of surface and natural water courses and floodplains for storm water and floodwater which limits pollution runoff. The vegetated water courses and floodplains essentially treat the urban runoff. Other advantages of these techniques are more fully described in related resource management strategies in Volume 2.

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Discouraging traditional large-lot urban development in favor of more mixed-use projects that place jobs, schools, shopping, and other services close to housing has several benefits including water use efficiency. Using low impact development (LID) design can mitigate the potential effects of the increased impermeable surfaces associated with compact development projects. Mixed-use development will reduce vehicle mile traveled (VMT) by making walking an option to driving. Decreasing the amount of vehicular miles traveled has a direct relationship to GHG emissions and energy use and thus water quality and supply.

State Policies Encouraging Compact Sustainable Development

State policies foster higher density and mixed-use development—development that combines residential, commercial, and retail services and job centers where appropriate—and more efficient patterns of land use. Public and private investment and financing are shaping land development in some of the most densely populated regions of the state. Sacramento, San Francisco Bay Area, Los Angeles, and San Diego are making headway to grow more compactly, provide jobs closer to housing, and provide transit to connect people with community resources and centers of employment.

Key State Legislation

SB 375 (2008), which builds on AB 32, California’s law to reduce GHG emissions, will help reduce GHG emissions by linking transportation and land use planning to reduce vehicle miles traveled.

SB 375 provides emission-reduction goals around which regions can integrate planning activities and provides incentives for local governments and developers to support new sustainable growth patterns. The legislation directs ARB to develop regional GHG emissions reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035. The 18 MPOs will align their regional transportation, housing, and land-use plans and prepare a “sustainable communities strategy” to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region’s ability to attain its GHG reduction targets.

The bill allows builders to get relief from certain environmental review requirements under the CEQA if they build projects consistent with the new sustainable community strategies and alternative planning strategies that ARB has reviewed and accepted.

SB 732 (2008) provides a statutory framework to implement new programs under Prop. 84, the \$5.4 billion initiative voters passed in 2006 for safe drinking water, water quality and supply, flood control, natural resource protection, and park improvements. The bill also establishes the Strategic Growth Council which is tasked with certain actions to coordinate programs of various State agencies to improve air and water quality and natural resource protection, increase the availability of affordable housing, improve transportation, meet the goals of AB 32, encourage sustainable land use planning, and revitalize urban community centers in a sustainable manner.

AB 32, Global Warming Solutions Act of 2006, establishes a target to reduce statewide carbon emissions to 1990 levels by 2020. ARB is responsible for developing a comprehensive program of regulatory and market mechanisms to achieve quantifiable, cost-effective reductions of GHG emissions in accordance with the statutory target. ARB’s Climate Change Scoping Plan identifies the framework for implementing AB 32 and recommends modification of land use development patterns as a means of achieving the State’s emissions reduction goal.

AB 857 (2002) establishes three State planning priorities and requires that all State strategic plans and capital improvement plans—including the California Water Plan—be consistent with them. These priorities, briefly stated, are:

- Promote infill development and equity
- Protect environmental and agricultural resources
- Encourage efficient development patterns

AB 857 also requires the governor’s Environmental Goals and Policy Report (EGPR) to be consistent with these planning priorities. The EGPR is intended to provide a 20- to 30-year overview of state growth and development as well as articulate the governor’s environmental goals and policies including, but not limited to, land use, population growth and distribution, development, conservation of natural resources, and air and water quality. The EGPR serves as the basis for judgments about major State investments and capital projects, including the allocation of State resources through the budget and appropriations process.

Regional Blueprint Planning Grants

Originally established by the California Legislature as a two-year program, the 2005 California Regional Blueprint Planning Program is administered by Caltrans and OPR. According to Will Kempton, former Director of Caltrans, “The Regional Blueprint Planning Program is a critical part of meeting our Strategic Growth Plan goals to reduce congestion through smart land use.” (See Box 24-5 California Regional Blueprint Planning Program Goals.)

The Regional Blueprint Planning Program is a voluntary, competitive grant program for MPOs and their COGs and rural Regional Transportation Planning Authorities (RTPAs) to conduct comprehensive scenario planning that results in informed consent by regional leaders, local governments and stakeholders to a preferred growth scenario—or “blueprint”—to achieve the objectives delineated below for a 20-year (or longer) planning horizon. Through the blueprint planning process, regions throughout California develop preferred land use planning and transportation scenarios that encourage compact sustainable development and also meet GHG emissions reduction targets. However, local government implementation of regional blueprint plans is not required by law, and as a result, implementation of blueprint plans has been inconsistent to date. Although it may not be practical for some areas to participate, over 97 percent of Californians reside in regions covered by the blueprint plans underway.

“The Regional Blueprint Planning Program is a critical part of meeting our Strategic Growth Plan goals to reduce congestion through smart land use.”

Will Kempton, former Director of Caltrans

Box 24-5 California Regional Blueprint Planning Program Goals

Foster more efficient land use patterns and transportation systems that:

- Support improved mobility and reduced dependency on single occupant vehicle trips, and reduce congestion
- Increase transit use, walking and bicycling
- Encourage infill development
- Accommodate an adequate supply of housing for all incomes
- Reduce impacts on valuable habitat and productive farmland
- Improve air quality
- Increase efficient use of energy and other resources
- Result in safe and vibrant neighborhoods
- Provide consumers with more housing and transportation choices
- Improve California's economic competitiveness and quality of life
- Establish a process for public and stakeholder engagement that can be replicated to build awareness of and support for critical infrastructure and housing needs

The California Regional Blueprint Planning Program has made a total of \$5 million available for fiscal year (FY) 2008/09 to MPOs and rural RTPAs (those that are not located within an MPO boundary).

Coordinating Land Use and Climate Change

There is growing recognition of the relationship between land use development patterns, community form, and the GHG emissions that cause climate change. State, regional, and local governments are learning how to reduce GHG emissions through more sustainable development practices and environmental impact assessment of new development.

AB 32 and CEQA implementation provide opportunities for reducing GHG emissions from land use decisions. AB 32, the Global Warming Solutions Act, caps California's GHG emissions to 1990 levels and requires these levels be achieved by 2020. It requires CARB to establish a program for statewide GHG emissions reporting, and adopt regulations by 2012 to achieve the GHG emissions reduction target. In addition, the Act authorizes CARB to adopt market-based compliance mechanisms including emissions cap-and-trade credits, and allows a one-year extension of the emissions reductions targets under extraordinary circumstances.

In 2008, ARB adopted the Scoping Plan with strategies to achieve AB 32 emissions reduction target. As the Scoping Plan is implemented, measures that support shifts

in land use patterns are expected to emphasize compact, low impact growth in urban areas over development in Greenfields. Relying in part on the recommendations of the LUSCAT report, the Scoping Plan includes recommendations for voluntary actions by local government and regional planning agencies to reduce GHG emissions. Communities could realize benefits, such as improved access to transit, improved jobs-housing balance, preservation of open spaces and agricultural fields, and improved water quality due to decreased runoff. Local and regional strategies promoting appropriate land use patterns could encourage fewer miles traveled, lowering emissions of GHG, criteria pollutants, and particulate matter. More compact communities with improved transit service could increase mobility, allowing residents to easily access work, shopping, childcare, health care and recreational opportunities.

As mentioned, SB 375 links land use and transportation by promoting smart growth to help reduce new housing developments on cheaper land in outlying areas with compact development in city-centered and efficient transportation development. These same planning principles support water conservation.

The Scoping Plan further recommends that local governments:

- Adopt best practices for GHG emissions reduction associated with transportation, energy, waste/recycling, and water use.
- Develop Climate Action Plans to achieve 2020 emissions reduction targets.
- Incorporate GHG reduction measures and regional blueprint plans into their General Plans.

The Scoping Plan vision is that regional land use and transportation strategies would grow in importance and would reverse the trend of per-capita vehicle miles traveled. Efficiency strategies and low carbon fuels for heavy-duty and off-road vehicles, as well as for ships, rail, and aviation, would need to be greatly expanded in order to achieve additional reductions from the transportation sector in 2030.

When implemented, these recommendations will help reduce statewide GHG emissions, thereby reducing the potential adverse cumulative effects of global climate change on water supply, water quality, and flood management.

Environmental impact assessment under CEQA is another means of addressing GHG emissions from new development. Methodologies for conducting CEQA climate change analysis and thresholds of significance for GHG emissions are evolving and not yet well-established. GHG analyses and mitigation are most efficiently addressed at a plan or policy scale (for example, in a city or county General Plan) as opposed to an individual project basis because the analysis at a macro level provides the opportunity for advanced and up-front planning for GHG emissions reduction. Senate Bill 97 (2007) directs OPR to develop draft CEQA guidelines for analyzing the climate change impacts of new projects, and the Natural Resources Agency to adopt the CEQA guidelines by January 2010.

Several recently adopted and ongoing General Plan updates (e.g., Marin and Solano counties) have included local Climate Action Plans that establish local policies to both reduce GHG emissions and to adapt to the potential effects of climate change. The areas of local government influence and authority for reducing GHG emissions include community energy use, waste reduction and recycling, water and wastewater systems, transportation, and site and building design.

Compact sustainable development (as described above) that reduces energy use and VMT is consistent with the implementation strategy adopted by CARB and has the potential to be an effective CEQA mitigation strategy for reducing the climate change impacts of new development.

Coordinating Land Use and Water Supply

Local land use planning and water supply planning are coordinated through a patchwork of existing State laws and policies. Regional water wholesalers such as Metropolitan Water District and San Diego County Water Authority base their water supply plans on regional growth projections developed by regional planning agencies. The effectiveness of existing programs and regulations in steering development toward areas with existing reliable water supplies, and away from areas where new water supplies must be developed, has not been comprehensively assessed.

Urban Water Management Plans (UWMPs), as established by the Urban Water Management Planning Act, must be prepared by large water purveyors (3,000 acre-feet/year or 3,000 customers), must evaluate water supplies and demands over a 20-year period, and must be updated every five years.

Senate Bills 610 and 221 (2001) were enacted by the State legislature to improve the coordination between land use planning and development and available long-term water supplies. These laws are intended to require assessment and verification, respectively, of water supply reliability prior to approval of specified large land use projects. SB 610 applies during the CEQA process, and SB 221 applies to subdivision approvals. Both laws require a demonstration of sufficient reliable 20-year water supplies to serve both the proposed project and other water users relying on the same water supplies, during normal, single dry, and multiple dry years. They require the water agencies responsible for water resource planning to work with the local land use agencies that often have little control over water supplies. Increased coordination, particularly at a regional level, such as occurred within the SANDAG region in 2003-2004 in conjunction with the San Diego County Water Authority (SDCWA) demonstrates the advantages and benefits of proactive growth management planning and water supply planning to support projected long-term regional population growth.

Where urban development takes place affects water quality which has a direct influence on water supply. Ideally an integrated water resource management approach would

Box 24-6 LEED for Neighborhood Development

LEED for Neighborhood Development is a collaboration between the U.S. Green Building Council, the Congress for the New Urbanism, and the Natural Resources Defense Council. The LEED-ND Rating System integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design. LEED guidelines encourage site planning to consider natural water courses and to utilize the landscape for water conservation and water quality protection.

be on a watershed basis that would identify the opportunities and constraints for the appropriate land use. Absent the ideal, consideration of the watercourses in a watershed and the treatment of runoff from urban development is a best practice principle. Many jurisdictions use LEED for Neighborhood Development which extends the benefits of LEED beyond the building footprint into the neighborhoods and the watershed context. This LEED approach provides standards for sustainable site development, water quality, and efficiency. Consideration and mitigation of potential water quality impacts during land use and site planning with sustainability (LEED) approaches within the watershed as well as specific project design and location will decrease the risk of contamination of water supply sources (Box 24-6 LEED for Neighborhood Development).

Other State laws and policies play a more indirect role in coordinating land use and water supply planning. The OPR General Plan Guidelines encourages local governments to plan at a watershed level for better regional self-sufficiency and to consider adopting an optional water element in General Plans to address water supply and other water-related impacts of land use policies. Local agency formation commissions (LAFCOs) are regional agencies that approve local agency boundary changes; they perform municipal service reviews to evaluate how all services, including water, are delivered to developing areas of the state.

California voters in November 2002 approved Prop. 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002. It authorized the Legislature to appropriate \$500 million for IRWM projects. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water.

Coordinating Land Use and Flood Management

Two major events were a catalyst for public safety and flood risk legislative action. The first was the 2003 Paterno court decision which held the State responsible for the levee failure in 1986 that flooded hundreds of homes and a shopping center in the city of Linda. The Paterno decision meant that the State could potentially be held responsible

for the structural integrity of much of the Central Valley flood control system—1,600 miles of levees that protect more than half a million people, 2 million acres of cultivated land and approximately 200,000 structures with an estimated value of \$47 billion. The second catalyst was hurricane Katrina and its devastating impacts on the Gulf Coast. This focused public attention on the potential threat of widespread catastrophic flooding in California (indeed, it has been speculated that more people here are at greater risk from levee failure than in New Orleans).

For these and other longstanding reasons, several State laws were recently enacted to improve public safety by coordinating flood management and land development within floodplains, consistent with the approach in SB 221 and SB 610 to coordinate the actions of water supply agencies and local land use authorities.

SB 5 (2008) Flood Management

SB 5 requires the Department of Water Resources (DWR) and the Central Valley Flood Protection Board (the new name for the State Reclamation Board) to prepare and adopt a Central Valley Flood Protection Plan (CVFPP) by 2012. The bill also requires cities and counties within the valley to amend their General Plans and zoning ordinances within a specified time frame following adoption of the CVFPP. By 2015 cities or counties in the valley are prohibited from entering into a development agreement, approving any permit, entitlement, or subdivision map unless the city or county makes one of the certain findings, including an urban level of flood protection. SB 5 defines “urban level of flood protection” as the level of protection necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year. The Sacramento-San Joaquin Valley includes the area subject to flooding by the Sacramento or San Joaquin rivers or their tributaries. The bill requires DWR to prepare by July 1, 2008, preliminary maps for 100-year and 200-year floodplains protected by project levees, and to provide such maps or notice of availability of other flood risk information to cities and counties in the valley.

AB 5 (2007) Flood Management

AB 5 includes technical clean up amendments to SB 5, SB 17 (2007), and AB 162 (2007).

AB 156 (2007) Flood Control

AB 156 provides DWR and the Central Valley Flood Protection Board with specific authorizations that would enhance information regarding the status of flood protection in the Central Valley. The bill specifically directs DWR to map areas at risk of flooding, prepare a status report on the Central Valley’s State Plan of Flood Control, identify

levee flood protection zones, and notify property owners in levee flood protection zones of flood risk and flood insurance. AB 156 also requires DWR to specify how a State flood project facility needs to be fixed (including a cost estimate) if DWR determines that the facility is not being maintained adequately or the local agency responsible for maintenance requests should be relieved of its responsibility. Components of this bill apply statewide.

AB 70 (2007) Flood Liability

AB 70 provides that a city or county may be responsible for its reasonable share of property damage caused by a flood, if that city or county has increased the State's exposure to liability for property damage by approving new development. It applies only to decisions made by local governments after January 1, 2008.

AB 162 (2007) General Plans

AB 162 was signed by the Governor on October 10. AB 162 requires all cities and counties – through a COG or, for cities and counties without a COG, the Department of Housing and Community Development (HCD)—to address, in a more comprehensive manner, flood management in their General Plans. The bill includes language which authorizes local authorities to exclude from development urban land for which existing flood management infrastructure is not adequate to avoid the risk of flooding as determined by the Federal Emergency Management Agency (FEMA) or DWR.

Coordinating Land Use and Water Quality

Urban development and the paving of large areas of the landscape can have significant negative impacts on water resources. Although growth and land use change may be inevitable in many communities, the way in which growth takes place affects its impact on water quality. With careful planning and a commitment to protect streams, rivers, and groundwater, watershed-based land use practices can be implemented that balance the need for jobs and economic development with protection of the natural environment. Sustainable planning should include appropriate groundwater and surface water protection measures. This may be implemented through the zoning process where certain activities would be prohibited near sensitive areas, such as production wells, water bodies, and recharge areas. Likewise, improved coordination of flood management and land development within floodplains could provide public safety and ecosystem improvements. Development that takes place without such considerations, however, can lead to significant degradation of streams and groundwater, and the water supply due to pollution.

Box 24-7 Low Impact Development Runoff Control Objectives

Low Impact Development is a different approach to storm water management using site design and storm water management to maintain the site's pre-development runoff rates and volumes. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID is seen as an alternative to conventional storm water management. The State Water Boards are advancing LID in California through the following:

- Regulating through site-specific and general permits
- Providing advocacy and outreach to local governments through the State Water Board's Training Academy and regional workshops
- Seeking ways to incorporate LID language into a Standard Urban Storm Water Mitigation Plan (SUSMP)
- Funding LID-related projects through the consolidated grants program

Potential Benefits of Compact and Sustainable Development

Land use planning and management that promotes compact and sustainable development has at least four main benefits directly tied to the California Water Plan:

- **Water supply.** Reducing municipal and industrial water demand through water use efficiency, recycling, capturing and reusing storm water, recharging and protecting groundwater, protecting ground and surface water from failed septic systems, and encouraging growth in areas with sufficient reliable water supplies
- **Flood management.** Keeping people and structures out of flood hazard zones, reducing runoff volumes and intensity, and preserving ecological resources
- **Water quality.** Reducing runoff volumes and improving runoff water quality
- **Climate change.** Reducing GHG emissions

Compact development can result in numerous water- and energy-related benefits. Specifically, compact development can reduce landscaped areas and, therefore, reduce landscape-related water use. Although higher density development may actually increase impervious surfaces and increase traffic congestion in urban areas, it may reduce the total development footprint in the State and reduce urbanization impacts to farmlands, habitat, watershed functions, and groundwater recharge areas. In addition, LID approaches incorporated in the more dense development further reduce the impact of runoff and water pollution (see Box 24-7 LID Runoff Control Objectives and Urban Runoff Management RMS).

Compact, mixed-use development can reduce water and energy demand, even with moderate increases in density. Providing water supply for urban uses consumes a significant amount of energy for capturing, storing, conveying, and treating water. Thus, efficient water use is also an energy conservation (and GHG emissions reduction) strategy. As a rule of thumb, landscaping irrigation accounts for almost half of

residential water use. An increase in residential density from four units per acre to five units per acre reduces the landscaping area by 20 percent, which should cut water usage by roughly 10 percent. A smaller urban footprint reduces impervious surfaces. This generates less surface runoff and minimizes intrusion into watersheds and groundwater recharge areas, which receive the runoff.

Potential Costs of Compact and Sustainable Development

The costs of compact and sustainable development are spread across State, regional, local, and site-specific land use planning. Because land use planning includes a broad array of resources including water, energy, and soil, there are hidden costs and assets that are difficult to tease out for the “costs” associated with comprehensive planning.

Transportation Planning

Transportation planning to achieve compact and sustainable development is a major cost to regional and local governments. In addition to planning costs, there are implementation costs for capital projects, roads, maintenance yards, bus stops, and intermodal stations. Maintenance and operations are often a separate budget cost, and most funding sources are restricted from being used for sustained operations.

The three tiers of federal, State, and local transportation planning and transit programs are supported at various levels of funding. Federal funds support regional transportation, which must be aligned with State and regional programs and policies.

Many California cities and counties lack sufficient funds to build and operate transit facilities. The current funding programs are inadequate for reliable and stable transit programs due in part to the distribution of limited funds: Highways typically receive up to 80 percent federal fund contributions (and 90 percent for improvements and maintenance), but new transit projects often receive less than half federal contributions for the project costs.

Implementation of compact and sustainable development goals will incur increased transit costs. Adjustment may be required including new Regional Transportation Plans based on the Sustainable Communities Strategies’ (SB 375) call for substantial increases in transit funding to allow more projects to qualify as Transit Planning Programs, which may lead to decreases in funding for traditional highway projects.

Water Supply Planning

The federal, State, and local government (often water districts) prepare water supply planning programs. The federal and State planning is in the larger context of state hydrology and operations. Local government must prepare the UWMP, and water

districts likewise prepare plans, sometimes coordinating these local plans region-wide. State law (see Land Use Planning and Management in California section) provides for local land use jurisdictions to identify water supply sources. The cost of water supply planning can be high due to the technical nature of the data.

Comprehensive Land Use Planning

Local government has the primary responsibility for comprehensive and project-specific planning. State law requires each land use jurisdiction (cities and counties) to adopt a General Plan. The current average cost for updating a General Plan ranges from under to over \$1 million (depending on the size of the community and the degree of updating required).

Sustainable Communities Strategy or Alternative Planning Strategy planning are required to meet the recently signed SB 375 (2008) and SB 732 (2008). Land use allocations for the MPOs are provided to prepare these plans to achieve the regional GHG emissions reduction targets. This recent legislation provides incentives to meet emissions reduction. AB 32 provides for the development of a financing mechanism.

State agencies and others are developing cost estimates to implement energy and water conservation strategies that will affect land use. ARB's 2008 adopted Scoping Plan puts climate change mitigation costs for everything from low-carbon fuel technologies to building improvement. Many of these measures are in developmental stages and the estimated costs, emission reductions, applicable technologies, and other factors will likely change as they move through the regulatory process.

In terms of local and regional governments, economic costs will result from “policies to reduce (GHG) emissions by changing how we grow and build our communities.” ARB estimates the cost to implement this land use strategy within the constraints noted above as well as part of a cap and trade program. The potential State, local, and private costs for promoting higher density and more compact development may offset the costs of implementing the recommendations of this land use planning and management resource management strategy.

Although there may be significant new costs associated with changing the way local, regional, and State agencies plan urban areas, there are expected savings from avoided costs, especially in terms of future energy and long-term maintenance of infrastructure and other life cycle costs. However, immediate costs are projected for increased planning, communication, coordination, and information sharing among land use agencies, water suppliers, and agencies which regulate water quality. SB 375 will require regional planning agencies to incur increased planning costs to develop new land use allocations supporting Regional Transportation Plans. The new Regional Transportation Plans' EIRs will increase in cost and complexity. Local governments will incur significant planning costs in preparing revised General Plans and associated EIRs that integrate water resources concerns and reduce GHG emissions.

By reducing per capita water use by 20 percent, increasing water reuse and recycling, and instituting a public goods charge on water, the Draft Scoping Plan would reduce 2020 GHG emissions by 4.8 million metric tons of carbon dioxide equivalent (gases) below business-as-usual emissions. Other avoided costs include implementing comprehensive floodplain management and several of the Water Plan resource management strategies.

There will be additional on-the-ground costs associated with developing more efficient and effective land use patterns. Property values in outlying open space and agricultural areas may be reduced to the extent they reflect development potential that can no longer be realized; however, property values of urban infill sites would tend to increase. To achieve urban infill, there are also substantial costs associated with upgrading urban infrastructure needed to support higher density development (Box 24-8).

Major Issues

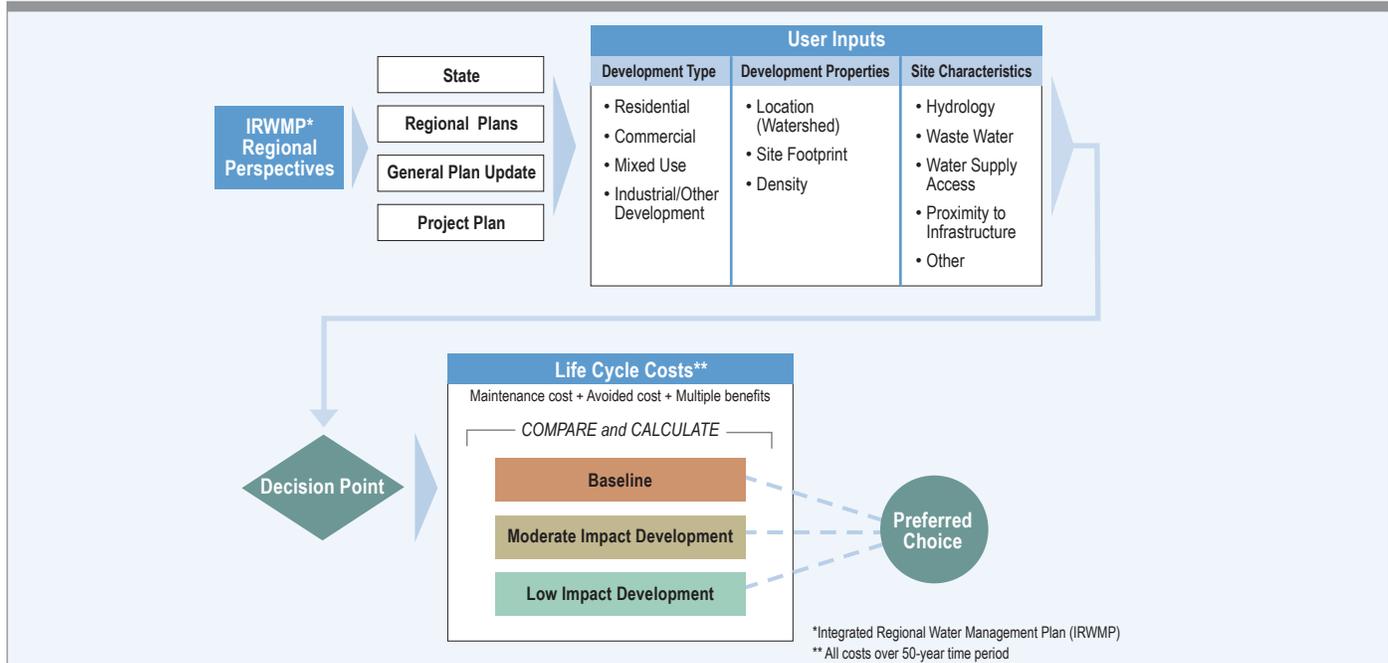
Disincentives for Change

Local governments make most of the land use decisions in California. Local governments may not promote or implement resource-efficient development patterns for many legitimate reasons. Their decisions are guided by one or more of the following reasons:

- Landownership
- Marketing of perceived consumer preferences for single-family homes with yards
- Community resistance to infill projects and/or higher density development
- Traditional and antiquated local zoning ordinances that, for instance, segregate retail uses from residential uses
- The added cost to conduct coordinated regional planning efforts
- The cost and potential liability associated with pursuing infill projects (Brownfields)
- Environmental mitigation strategies that encourage lower density development
- Landscape
- Soils
- Environmental hazards
- And infrastructure limitations

Given all of these factors in the equation of local land use planning and development, changing standards statewide would be a significant and expensive public policy undertaking with as yet unknown water use savings compared to more direct and traditional methods of and approaches to water conservation. Access to revenues for cities and counties shapes California's development patterns as local governments seek to balance revenues and expenditures by way of land use decisions, including balancing commercial and residential land uses in their jurisdictions. The passage of Prop. 13 and Prop. 218, which reduced the role of property-based taxation as a local government revenue source, and the decline of federal and State financing for funding of infrastructure, have forced local governments to be increasingly focused on the potential

Box 24-8 Water Supply Benefits Decision Tree



An approach comparing life cycle costs of development, maintenance and operations for traditional urban land use siting, site planning and associated infrastructure to low impact development and Leadership in Energy and Environmental Design for Neighborhood Development approaches.

Whether infrastructure is viewed through a holistic economic or a holistic environmental lens, the result is the same: an integrated sustainability vision. Asset management includes maintenance and may include extracting value from “waste,” like methane and heat from sewage. Most fundamentally, it involves reducing financial liability with less intensive infrastructure and more compact development that can be sustained through existing revenue streams.

While an economically efficient project is likely to have one or more of these attributes, it is impossible to summarize cost-effectiveness by a single parameter. Determining true cost-effectiveness requires a life-cycle perspective where all costs and benefits of a given project are evaluated and compared over its economic life. The challenge is often how to determine the true costs and the true benefits of alternative decisions.

Complete, compact communities help protect watersheds and floodplains that support long-term human and ecosystem health. Less impervious surfaces protect ground water sources and reduce surface runoff, in turn reducing flooding, supporting fish habitat, and safeguarding drinking water. In the face of growing climate change and population growth, protecting agricultural lands, watersheds and floodplains is important for increasing ecosystem resilience and human health.

Life cycle costing (LCC) helps local governments look beyond initial capital costs and assess infrastructure strategically

over its entire life. LCC can significantly strengthen fiscal performance as well as contribute to large greenhouse gas reductions. Rather than evaluating projects on first cost, LCC considers the total cost of owning, operating and maintaining infrastructure over its useful life (including fuel, energy, labor, and replacement components).

- LCC is especially useful for evaluating premium efficiency infrastructure and renewable energy opportunities since their initial costs are often higher, but they tend to have lower operating and maintenance costs over the life of the project.
- More compact development costs local governments 30 percent less than low-density development, according to a study of the vast Greater Toronto Area¹
- Envision Utah scenario planning process resulted in a compact growth plan that will save the region about \$4.5 billion in infrastructure spending, leave 171 square miles of additional open space, and reduce per capita water use by more than 10 percent.²

In low-density, single-use developments, local governments often generate less in development fees and property tax than they spend in services like emergency and waste removal, and infrastructure costs such as roads, water mains and sewers. A Southwestern Ontario analysis found for every \$1 raised in development fees and property taxes, \$1.40 needs to be spent on servicing.

1 Business Case for Climate Action
2 Ibid.

fiscal effects of land use decisions. Additional federal fiscal policies, such as capital gains taxes, make property ownership an attractive investment, adding to the urban development expansion in recent years. These fiscal policies combine to encourage local governments to seek and approve development that increases sales tax revenue, such as regional retail and commercial uses. Some local governments seek higher priced housing over moderately priced housing because housing development only produces property tax at a fixed rate, which is less than the rate of inflation for providing city-based services such as road repair, infrastructure maintenance, parks, libraries, fire protection, and public safety. Focusing on higher end housing has the potential to establish a higher tax base to support the provision of ongoing municipal services. Overall, simple economics dictates that counties and cities will, as a practical matter, favor development that generates higher property and sales tax, which is referred to as the “fiscalization of land use.”

Financially strapped cities and counties are more inclined to favor tax-generating land uses such as retail and commercial over housing. For residential projects, communities have adopted “development pays its way” policies to cover infrastructure improvements. Developers are assessed a variety of development impact fees to cover the cost of such services and amenities as roads, parks, water, public safety, and other social infrastructure costs. The net result of these fiscal constraints is that the short-term need for revenue generated by this type of land use is pursued without budgeting for the long-term costs. As a result of these property tax policies, local communities compete with one another for businesses that generate sales tax. Community needs for jobs and housing are often outweighed by the competition for revenue-driven development.

Need for Coordination

Recent changes to the California Government Code and the Water Code require local governments to determine whether there will be enough water to supply a proposed development project before it can be approved. This will require land use agencies and water agencies to improve their communication and coordination on project-level development decisions that have been made independently in the past. Water supply coordination issues for new development are now addressed in the California Water Code through existing requirements for the preparation and approval of UWMPs every five years and the implementation of SB 610 and SB 221 enacted in 2001. Increased coordination will also be necessary among all levels of government to coordinate inter-agency planning, to develop reliable and complete data and information which can form the basis for consistent government decision-making, and to interpret and share data and information to optimize the relationship of land use planning and water supply planning.

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Recommendations

Cross-cutting Funding and Planning Programs

1. The State could provide incentives to developers and local governments to plan and build using more resource-efficient development patterns. This can be done through CEQA exemptions for infill development and associated infrastructure, reductions in Brownfields¹ liability for innocent land purchasers, prioritizing planning grants, and other incentives to increase consumer interest in urban living and to encourage infill and compact development forms.
2. The State should promote performance-based planning with metrics including establishing a baseline for each watershed for impervious surfaces, vehicle miles traveled per capita, comprehensive flood management using floodplain planning, and land coverage. These metrics should be the basis for evaluating projects that request discretionary State funding, grants, and other financial assistance.

Integrate Regional Water Management and Local Land Use Plans

3. Regional planning agencies should continue or begin to participate in the blueprint planning process and SB 375 sustainable communities plans. Regional plans should be required to address water supply planning issues, and should also set targets for GHG emissions reduction as recommended by the AB 32 Scoping Plan. Further incentives should be provided for local governments to voluntarily implement blueprint plans and SB 375 sustainable communities plans through General Plan revisions, including IRWM as an optional element or combined with a water element.
4. Local agency formation commissions (LAFCOs) should consider water supply issues in the context of their charge to encourage logical and efficient development patterns that minimize impacts on agricultural land and maximize meeting housing needs and affordability.
5. The state should adopt programs in furtherance and support of the above policies and foster greater involvement of land use planning agencies and water purveyors in regional partnerships to develop and implement integrated regional growth and water management plans by:
 - reviewing the Urban Water Management Plans adopted by water agencies within their jurisdiction,
 - working with these water agencies to show compliance with Water Code sections that require local governments to consider water supply availability when making land use decisions for significant (500 homes or more) new development projects, and
 - preparing a water resource section of their General Plans as recommended in OPR's General Plan Guidelines.

¹ <http://www.epa.gov/swerosps/bf/laws/liability/index.htm>

6. Enhance and fund the State programs and policies promoting compact, sustainable development, implement regional blueprint plans, respond to climate change risks, encourage reuse of land such as Brownfields and Greenfields (out-of-date shopping centers), provide affordable housing, and provide incentives for projects consistent with these policies.
 - Use the CEQA process to mitigate the significant impacts of new development on resources including, but not only, prime agricultural land, wildlife habitat, open space, floodplains, recharge areas, wetlands, and water supply.
 - Require General Plans to include either a separate Water Element, or to otherwise address water supply, water quality, flood management, and the AB 32's Scoping Plan land use recommendations.
 - Update landscape irrigation ordinances to promote consumer choices for more water-efficient landscaping and water conservation systems in existing and new developments including the use of native species and drought-tolerant species.
 - Adopt green building codes with LID principles that include water conservation and reduction of impervious surfaces.

Provide Funding Incentives and Technical Assistance

7. State grant and funding decisions should give priority to projects that are consistent with:
 - Regional integrated water management plans and blueprint plans
 - State planning priorities guided by AB 857
 - Green building codes that incorporate LID principles and reduce impervious surfaces (especially near waterways) and design standards (LEED-ND) and community land use patterns that implement compact sustainable development principles
 - Conservation of prime soils and agricultural easements to further water and energy conservation, and floodplain management
 - The rehabilitation of aging or inadequate infrastructure to promote infill development
8. The State should increase funding for maximum effectiveness for the above State policies and programs, such as preparation and implementation of regional blueprint, and SB 375 sustainable communities plans, addressing water supply, water quality, flood management, and GHG reduction.
9. The State should provide technical and financial assistance to local governments to incorporate resource efficient development into their local General Plan, related zoning ordinances, and specific plans and to prepare required water supply assessments before approving major new development projects.

Enhance Research and Data Gathering

10. The State should provide funding, technical information, and best practices and publicize accurate and relevant data on water supply and water quality for local government to address water issues when updating their General Plans. Such information would provide comprehensive water resources information and policies to land use project applicants during pre-application meetings.
11. Regional planning agencies in conjunction with water purveyors and agencies should address regional planning water issues and provide technical assistance and financial incentives to local governments to support and implement plans. The State could serve as an information clearinghouse for regional water supply, water quality, flood management, and climate change vulnerability information that local governments can use in preparing General Plans.
12. The State should encourage and support more scientific, engineering, planning, social, and economic research on the benefits and impacts of resources efficient development patterns, and develop an inventory of best practices by local governments and land management agencies and provide a user friendly portal for information access.
13. The State should monitor and evaluate the effectiveness of the package of flood management laws that were enacted in 2007 (see Coordinating Land Use and Flood Management in this chapter). Prepare a report documenting the study's conclusions and potential recommendations for changes to existing laws.
14. The State should fund a research study to evaluate the effectiveness of SB 610 and SB 221 in coordinating land use and water supply planning, and recommend changes to these laws or their implementation as appropriate. The State should develop guidance on how SB 610 and SB 221 water supply assessments and verifications should address the effects of climate change and Delta export uncertainties on supply reliability.

Promote Interagency Coordination

15. Use performance metrics to improve communication, coordination, and information-sharing among local agencies, regional planning agencies, and local water agencies and watershed managers.
16. Improve coordination between local housing plans and LAFCO policies on boundary changes.

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