# REPORT

**DATE:** January 3, 2008

**TO:** Energy and Environment Committee
Regional Council

**FROM:** Daniel E. Griset, Program Manager, 213.236.1895, griset@scag.ca.gov

**SUBJECT:** Comprehensive Regional Infrastructure and Growth Planning Policy and Strategy

**EXECUTIVE DIRECTOR'S APPROVAL:**

## RECOMMENDED ACTION:

Approve the distribution the draft policy/strategy paper for public comment and input.

## BACKGROUND:

At the Energy and Environment Committee meeting on August 30, 2007 staff briefed the Committee on a "Proposed Program to Promote Comprehensive and Integrated Water Resources Planning in the Region" to obtain member feedback. Since then staff has, in coordination with preparation of the Water Chapter in the Regional Comprehensive Plan, prepared a draft policy paper that further develops the concepts presented in August. (The policy paper is attached with its special focus on the water aspects of natural resources management.)

The Water Policy Task Force considered this draft at its meeting on November 29, 2007 and endorsed its distribution for further public comment and for policy collaboration with other councils of government in California. The Task Force recognized the value of building policy consensus around the following themes:

- Integration of infrastructure and resource management planning within a performance-based regional *Blueprint* planning framework
- Dedication of state and federal funding to advance regional *Blueprint* and related local planning efforts that advance system-wide environmental sustainability
- Prioritization of state and federal funding for projects that coordinate with comprehensive regional *Blueprint* and related local planning and that are financially constrained, performance-based and leverage local and private sector investments.

The key idea driving this effort is the need for a policy framework that provides California regions with the tools and resources to do the kind of comprehensive, integrated planning that can be used to better guide continuing regional and local growth towards more sustainable futures and community success. Though some infrastructure efforts recognize the need for greater integration of planning and implementation within watershed and other larger-scale areas, these advances do

community success. Though some infrastructure efforts recognize the need for greater integration of planning and implementation within watershed and other larger-scale areas, these advances do not address the overall growth challenges and the need for new approaches to achieve needed project financing and implementation.

The climate change challenge with its new requirement to reduce the "carbon footprint" of human activities everywhere in California is another compelling reason for more comprehensive regional *Blueprint* planning (for additional background see www.calblueprint.dot.ca.gov). Without a wide-ranging consideration of the interrelationship between the activities of living, work, mobility, recreation and other realities of urban life, the prospects for reducing greenhouse gasses are very limited.

Current funding practices typically evaluate competing projects by comparing the cost-benefit ratios for each project, measuring the outputs as a way of setting priorities. By contrast, the comprehensive approach we are now recommending measures outcomes as a new way of setting priorities. Outcomes consider a broad range of inputs, not simply the outputs of one project. Accordingly, investments within a comprehensive *Blueprint* framework can be directed to regional and local projects that go farther to reach the overall goals of a watershed or larger-scale planning and management area. The shift is from a piecemeal approach to one much more holistic.

A more holistic approach recognizes a mix of the elements that must be aligned for better regional outcomes. The elements include transportation infrastructure, air quality resources, land use planning, economic development, open space protection, and solid waste and water resources management. Some of these elements are planned within political jurisdictions while others are defined by basins or watersheds. These variations suggest the need for a new framework in which comprehensive regional and local planning and implementation can be done.

As with SCAG's other mandated planning efforts, performance-based outcomes are an important tool to ensure effective implementation. Performance outcomes can avoid the one-project-at-a-time syndrome that has characterized growth and resources management in the past. A performance-based plan requires that certain system-wide goals be achieved, and within that framework projects can be selected based on their contribution toward those goals. Performance outcomes also allow flexibility in project criteria and management, as progress toward the goals is monitored and program requirements are adjusted as necessary.

**FISCAL IMPACT:**

Implementing the recommended action will require staff time and miscellaneous travel expenses associated with meetings in various regions. These expenses would be funded through the 08-120 and related government affairs work elements in the OWP.

Attachment: "Water and California's Future: Getting into the Bigger Picture of Growth, Resources and Sustainability"

DOC#141777 v2 Energy and Environment Committee and Regional Council
January 3, 2008
Daniel E. Griset, December 20, 2007

**Reviewed by:**

*Division Manager*

**Reviewed by:**

*Department Director*

**Reviewed by:**

*Chief Financial Officer*

DOC#141793 v1 Energy and Environment Committee
December 6, 2007
Daniel E. Griset, November 14, 2007

# WATER AND CALIFORNIA'S FUTURE: GETTING INTO THE BIGGER PICTURE OF GROWTH, RESOURCES, SUSTAINABILITY

## A Draft Policy Paper for Integrating Local and Regional Planning to Leverage Smart Public and Private Infrastructure Investments

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**Abstract:**
*The challenges presented by looming growth, piecemeal management of land and natural resources, emerging changes in climate, limited advances in environmental protection, shortages in public funding and pervasive institutional fragmentation require a new holistic approach to regional planning. This planning must be more comprehensive and more integrated. Without this new approach to planning, public and private fiscal capacities cannot be leveraged for better project selection and investment outcomes. Without this wider understanding of regional limits and opportunities, institutional capacities will remain disconnected and conflicted. Without this higher level of planning, it is doubtful that steadily growing regions will be environmentally sustainable. Without an appreciation for the interrelationships of land use, mobility, air quality, housing, water and natural resources and waste management, conventional planning efforts will fail to successfully meet the daunting challenges each urban region and watershed face.*

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**Actions Recommended in this Paper:**

- Integration of infrastructure and resource management planning within a performance-based regional *Blueprint* planning framework
- Dedication of state and federal funding to advance regional *Blueprint* and related local planning efforts that advance system-wide environmental sustainability
- Priority state and federal funding for projects that coordinate with comprehensive regional *Blueprint* and related local planning and that are financially constrained, performance-based and leverage local and private sector investments

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Without thoughtful and committed guardians, California's future is now endangered, much like the Delta's smelt. The danger is fueled by demographics that project a 2050 population in California of nearly 60 million residents, people who will make their claims on water and other increasingly scarce resources. Notwithstanding these challenging realities, elected and other leaders have relied on decision systems that produce piecemeal efforts with stop gap measures rather than find new policy systems that are guided by comprehensive, long-term planning. Without new system thinking we can only expect that California's future will remain unguarded and endangered.

It is noteworthy that California's water future is now front and center in Sacramento with the Governor's call of the Legislature into a special session to update our state's water infrastructure and to complete missing elements of a state water plan that was not fully implemented some 50 years ago.

The Governor has proposed a $9 billion water bond measure for consideration and other legislators will be offering alternative proposals. These measures will range from water storage with dams and reservoirs to cleaning up groundwater basins and recycling and reusing infiltrated water supplies. There will be calls for environmental investments in the Bay Delta ecosystem and flood control measures to prevent hydrological risks to communities that continue to grow on the Central Valley's flood plain. These proposals come soon after voter approvals last year of $9.5 billion in state bonds with Propositions 84 and 1E, two measures with substantial water and environmental elements.

While new funding will eventually result in new water projects, guarding our future requires more than simply funding a hodge-podge of projects that survive intense short-range political bargaining. We need a better, more comprehensive context for investing our tax dollars wisely for the long-term. We need a context that brings together not only our future water needs but also transportation, housing, open space and habitat, air quality, solid waste, and emergency preparedness needs. We need thinking and planning and investing that goes beyond the challenge of getting competitive water agencies to collaborate, to one of multi-disciplinary planning and shaping of the regional growth in metropolitan areas. This means taking a leap to a new level in order to maximize the value our investments yield and to address our inevitable growth. That new level is something now emerging as *"Regional Blueprint"* planning.

The *Blueprint* concept represents a natural evolution towards holistic planning and implementation. The Clean Water Act gave rise to "areawide planning"; this was later supplanted by "continuous comprehensive planning" that is rarely continuous or comprehensive. The *Blueprint* concept brings forward a full menu of issues, along with stakeholders who can forge planning and implementation partnerships. The long-term payoff for this path is a much higher return on our public and private investments in the form of creative projects with multiple public benefits.

In 2006 voters approved some $43 billion in bond funding across six areas: parks, water resources, transportation, housing, education and flood protection. With a *Blueprint* strategy we have a framework in which all the bond measures could be considered as <u>one resource with six inter-related elements</u>. These resources can be leveraged for multiple benefit outcomes because of coordinated regional planning strategies, avoided costs and the long-term economies of innovative implementation. With the water and flood protection elements this planning framework can align funding with land use and other regional objectives that are consistent with safety and environmental sustainability and prevent greater infrastructure losses and mitigation expenses later.

Other examples of integrated planning could be the smart investment in an education facility that brings energy and water conservation, along with better learning environments for training our work force to better compete in the global economy; or the innovative housing development that contributes open spaces to a community and saves stormwater for infiltration and reuse; or the coordinated land use and transportation investments that lower the demand for the vehicle usage that requires very expensive infrastructure and often brings harmful health impairments. Indeed, this kind of planning extends the usefulness of limited resources by anticipating collateral impacts and avoiding many of the costs caused by piecemeal planning that requires later mitigation and retrofitting.

With these considerations in mind, this paper now turns to more intensive discussion of future water and other resources in a region and world challenged with climate change and growth. Water management

is one area where resource consumption, flood protection, growth, land use, and climate change all interact within a comprehensive planning process that seeks to produce environmentally sustainable outcomes.

**Resource Implications of Climate Change**

There is widespread scientific agreement that the planet is warming at a historically unprecedented rate, and that human activity is contributing to this warming. The regional impacts of climate change remain uncertain and difficult to predict. Adding to the uncertainty is the non-linear behavior of climatic patterns where large changes can occur suddenly and dramatically in response to small changes in system conditions. One recent study shows that drought, in particular, can begin suddenly in response to only small reductions in precipitation. The impacts of both drought and significantly increased rainfall can be catastrophic to agriculture, water supply, and flood-prone areas.

Climate change is expected to strongly impact the hydrological cycles of California, resulting in too much rain or not enough. These conditions would exacerbate patterns of flooding and drought. Among the uncertain results of climate change, there are several highly probable impacts:

- Warmer annual temperatures will cause more precipitation to fall as rain instead of snow, resulting in reduced annual snow pack and earlier seasonal melt times. This has two significant implications:
    - Reduced snow pack in the Sierras means that less water will be available in late spring and early summer, effectively shortening wet winters and lengthening dry summers.
    - Increased rain and an earlier seasonal snowmelt will combine to elevate flood risks, as significantly more water flows into mountain streams and rivers in the winter and early spring.

- Weather extremes in wet and dry areas will occur with greater frequency. This means that while areas prone to flooding are at elevated risk levels, so are areas prone to drought. Recent drought in the American southwest and historically unprecedented flooding in Asia are graphic examples of what might be expected. Inland southern California, northern Mexico, and parts of the Colorado basin – already in a long drought cycle – may see no relief from low precipitation, even as heavy rains fall on coastal California.

- Sea level rise threatens low-lying coastal communities, including much of the San Francisco bay area, with permanent flooding and massive loss of property and available land.

- Sea level rise, in addition to its land use and economic impacts, threatens coastal aquifers with saltwater intrusion, rendering freshwater undrinkable and much more expensive to purify. Many of the aquifers of the California Coastal Basin are threatened in this manner.

- Increased runoff and elevated water temperatures both negatively impact water quality. Increases in runoff usually correspond with increases in pollution levels. Higher water temperatures deplete oxygen but disperse metals and chemicals more widely with significant effect on aquatic habitat and dependent biota.

- Higher volumes of water can overwhelm ecosystem capacities to hold, filter, cool, and slow water moving through the hydrologic system with the result that water quality is degraded, flood risks increase, and groundwater recharge is reduced.

Decreases in inland precipitation, a shorter precipitation cycle in the winter, and less snow in the Sierras and the Rockies would combine to not only reduce the amount of water available to California but also shorten the 'window' of time in which water is available. Changes in the winter precipitation and runoff cycles would also present an enormous challenge to the state's flood control and conveyance systems.

**Flood Implications**

Increased annual alpine precipitation, falling as rain instead of snow –combined with earlier annual snow melt – is certain to raise the risk of flooding in the winter and early spring. If current development patterns and practices continue in flood prone areas, ever increasing numbers of people and their property will be threatened with major losses. These risks will be especially acute in areas such as the Sacramento Delta, where extensive development continues to occur in the flood plain. These risks also appear in alluvial fan areas at the foot of mountains where storm flooding can be precipitous and devastating.

Significant additional strain will be placed on the existing flood control system to cope with higher stream and river levels and increasingly chaotic weather patterns. These dangers will be compounded by the projected rising sea levels triggered by climate change. The extent of sea level rise will depend in part on how much the planet warms, but current projections are for at least a one meter rise within the next 90 years. This would significantly impact the San Francisco bay area, including – again – the Bay Delta.

Saltwater intrusion, sea level rise, heavy rains and flooding, dangers of levee failure, wetland ecosystem destruction, and constrained imported water supplies: all of these predicted potentials call for regional planning frameworks in which orderly steps can be taken to protect and maximize natural resources and to create investment strategies that build sustainable communities with improved qualities of life. This creative approach will bring forward the kinds of investments and actions that not only have multiple benefits—public and private—but also prevent large-scale regional calamities that will endanger California's future.

Such approach must include all of the factors that influence water supply, quality, and flood risk, including land use, growth patterns, transportation, residential density, on-site water management, open space, and housing affordability. As such, success will require more than just water planning and engineering. It will require the kind of comprehensive, integrated watershed planning and management that uses new governance approaches. These governance approaches, if they are to be effective, must be sized to match the scale of challenges across the adjacent watersheds that form our emerging socio-economic and geophysical "Megaregions".

The statewide imperatives for this creative regional leadership, planning and implementation are critical. Since the resource futures of northern and southern California are linked and inseparable they will call for even greater levels of cooperation in large-scale resource planning. Only with this statewide frame of reference can we attain possible sustainability of the state's major metropolitan areas.

**Resource Implications of Growth**

Though growth and development are not forces which can be stopped, they are forces that can yield many benefits when managed effectively. Global urbanization is impacting every metropolitan area in the world. With people flowing into cities by the tens of millions we are seeing the greatest migration in human history. The structure of urban form itself is changing as a result, with individual cities merging into vast, integrated metro regions. In many parts of the world, these mega-regions are beginning to supplant nations as the main drivers of the global economy. This concentration of people in urbanized areas can have positive or negative effects on the use of resources, depending on how growth and open lands are managed and protected.

California's projected growth raises many of these same concerns about the forms this growth takes and implications of these forms on use of resources. Will our growth be concentrated in areas served by essential, existing infrastructure, or will it sprawl out into rural and natural areas, such as farms, forests, and deserts? Both southern and northern California have seen the rate of land development far outpace the rate of population growth. This trend has resulted in huge losses of prime farmland, valuable habitat, recreation areas, and the ecosystem services these lands provide.

California has recognized the need for its fast growing regions to plan for and manage growth in ways that utilize land and resources efficiently. The state created the regional *Blueprint* Program to promote new approaches that can better guide the preparations for this growth future. Metropolitan Planning Organizations and other entities around the state have responded to this call for comprehensive planning by launching new regional planning initiatives that broadly consider the key inter-relationships of air, land, housing, transportation, water, solid waste, open space and habitat, the economy, and emergency preparedness. For example, SCAG's Compass *Blueprint* strategy, a companion effort to development of an updated Regional Comprehensive Plan, presents a vision where the region's future growth can be accommodated in less than 2% of the total land area by focusing it in existing centers and transit corridors. Thirteen other regions around the state have undertaken similar efforts within the *Blueprint* framework.

This planning framework is guiding the update of SCAG's Regional Transportation Plan and other planning efforts that serve to reduce greenhouse gas emissions and protect natural resources as growth occurs. SCAG already uses this preferred growth strategy to guide transportation investments, focus housing needs, and plan for air quality attainment. Using this growth strategy also addresses the region's ability to successfully meet its obligations under AB32 and PM 2.5 attainment. All of these investment and resources areas are subject to Program Environmental Impact Reviews.

With climate change and persistent environmental challenges impacting water resources in every region of the state, it is clear that water resource planning is an essential piece of the large-scale planning in the *Blueprint* Program. How growth is directed and managed has enormous implications for the state's water future. Concentrated growth, in transit-oriented and "walkable" (pedestrian friendly) communities, utilizes resources more effectively. Growth dispersal requires development of extensive and costly new infrastructure, increases landscaping demands, increases impervious surface in every watershed, and separates water treatment facilities from consumers, making recycling and reuse more

difficult. Dispersed development also consumes valuable open space, which has significant consequences for water supply, as groundwater recharge areas are covered with impervious surface.

Unmanaged and dispersed growth also contributes to degraded water quality. As stormwater runoff collects pollutants from developed land, it flows into creeks and streams and rivers, eventually contaminating our harbors, bays, and oceans. Watershed planning studies show that water quality is impaired when more than 10 percent of a watershed is covered with impervious surfaces; at 30 percent of impervious cover, water quality in that watershed will be severely impaired.

Concentrated growth patterns also have a salutary effect on the interrelationships between transportation, greenhouse gasses, and water supply. Reducing automobile trips, with attendant reductions in greenhouse gasses and climate change impacts, will result in less severe pressure on the state's water supplies and infrastructure in the future. Concentrating development also improves energy efficiencies, further reducing greenhouse gas emissions and associated water resource impacts.

**Water Resources Management**

It is important that the *Blueprint* growth management principles now be integrated with regional resource planning and implementation. This represents a higher level of integration than mere agency cooperation in competition for project funding within water management areas. This integration requires a state-endorsed, locally driven and regionally comprehensive planning framework that brings various actors and interests out of their silos and into large-scale collaboration.

Some guidance for developing this kind of framework is in the findings of two recent studies done by the National Academy of Public Administration (NAPA), one focused on new ways to set budget and project priorities for the Army Corps of Engineers and the other on the need for a "systems" approach with USEPA actions if environmental protection is going to be achieved in water quality. Both studies developed their findings within the context of comprehensive watershed planning and management and the importance of minimizing conflicts and encouraging collaborations.

The systems approach means a shift in philosophy and measurements of success from achieving project goals to achieving system-wide goals, from measuring project outputs to system outcomes. The focus of investment and planning decisions needs to be overall performance outcomes, not simply project completion. This approach results in both better projects and in a ranking system for prioritizing projects, based on their benefit in furthering system-wide goals and making more effective use of economic and natural resources.

In the absence of such a planning framework, competing interests battle for control of projects, while the health of the larger system is ignored. In a systems approach, competing interests are balanced by an objective priority development process focused on consensus-derived goals.

Such a planning framework begins with the formation of those system-wide goals, created through a multi-stakeholder engagement process that identifies the key issues, goals, and performance measures that will be used in creating a resource management plan. The effectiveness of resource plans that are linked with performance outcomes is seen in their ability to meet both short-term and long-term goals. Without this linkage, short-term and long-term goals are often in head-to-head competition for attention

and investment. Conversely, with this linkage, a project prioritization strategy (short-term goals) aids in identifying and implementing projects that further the system-wide outcomes (long-term goals).

In order to deal with the uncertainty inherent in the long-range planning, in addition to the added complications of growth and climate change, this planning framework needs a management tool that provides a measure of stability and improves the plan's efficacy. That tool, as described in the NAPA findings, is adaptive management: an ongoing, iterative technique that allows the planning and implementation processes to be improved and corrected on an ongoing basis. Adaptive management eliminates the need to create an entirely new plan when shifts in conditions or direction occur.

It is essential that a large-scale process like this be implemented at the regional level. Water and natural resource issues are at the watershed and multi-watershed scale. Usually this scale is quite indifferent to political boundaries, particularly when growth impacts occur across these boundaries. Accordingly, effective watershed-scale planning has several characteristics:

- It has a geographic scope sufficiently large to address all impacts
- It focuses on addressing multiple objectives
- It is based on the health of the entire system
- It is a participatory and inclusive process, involving the full range of watershed stakeholders and the public
- It utilizes the best available science in setting goals and outcomes, and in monitoring efforts
- It is feasible, flexible and adaptive, and is driven by performance outcomes within financial constraints

**Getting Real About Cooperative and Continuous Comprehensive Planning**

In order for this scale of regional watershed planning to succeed, the state must link state and other funding and approvals to a proposed project's consistency with its regional *Blueprint* planning process. Since this scale of planning is only now emerging, these efforts will need coordination between the ongoing efforts of state water planning and *Regional Blueprint* planning. Support will be needed to assist with this integration as a more comprehensive program is established. This support, at least in the near term, will be the most effective way for the state to exert constructive leadership in areas of policy and planning related to growth and resources, smart infrastructure, and environmental sustainability.

This new kind of planning process will require a new level of creative interchange between public and private interests and other institutions. It will depend on broad participation in policy development and plan priorities that are unprecedented within most regions. Without this extensive degree of participation any plans or policies will fail to develop the depth of "ownership" that are indispensable to a *Blueprint's* credibility and capacity to guide public and private investments.

Creative interchange across such a wide landscape of interests and institutions will certainly face very real complexities and difficulties: it will challenge deeply rooted patterns and inertias that now operate in a dispersed planning environment where individual projects face funding rivalries and the potentials for local partisanship-pro and con.

These difficulties can be best addressed by the presentation to all regional stakeholders of thorough assessments of current trends, along with alternative future scenarios within each region, much as is now done in Regional Transportation Plans with alternatives analysis. With these assessments, regional decision makers would have information needed for holistic thinking and planning in a more expansive (regional) jurisdictional context.

Essential to the success of these efforts, however, is the collaborative nature of the process. Conflicts that frequently occur between "regulators" and "the regulated" are examples of existing dysfunctional patterns that divert energy and effort from problem solving and constructive progress. Larger scale problem assessments and resolution, considering serious fiscal and other constraints, put a high premium on collaboration rather than conflict.

Regional growth trends, transportation investments, and air quality conformity are already integrated into the Regional Transportation Plan policy framework, since the goals of all three areas are interrelated. Resource planning is also interrelated, but has, until now, been left out of this mix. Water planning is also integrated, insofar as water and other agencies are beginning to work together to forge common goals for watershed management and related projects. The California Resources Agency has been making efforts to combine resource planning with growth and transportation objectives, just as water resource planning should now be integrated into the *Blueprint* planning process.

The water community of California will require state guidance and support to integrate its planning efforts into this larger framework. Supplemental grant money should be made available to water planning agencies to integrate their planning efforts with the *Blueprint* process. Furthermore, the state needs to support this expanded *Blueprint* process by requiring the inclusion of integrated water resource planning in the larger *Blueprint* policy strategy.

In order to create a realistic framework for planning and implementation, it is essential that these efforts operate within a context of financial constraints, much as transportation infrastructure planning operates within a financially constrained model. Separate funding streams currently exist for water planning and regional *Blueprint* planning. Integrating these processes would increase the overall funding stream and likely create some external economies of scale for stretching planning dollars further.

Part of the funding model for Metropolitan Planning Organizations (MPOs) is a cross-governmental funding stream, combining federal, state, and local monies and professional resources. This is another source of funding for integrated planning efforts that uses a financially constrained model that favors realism and can leverage local and federal funds with state investments. Combining existing funding streams and using them to leverage additional matching funding from local and federal government can go that much further to close the fiscal funding gaps noted in the NAPA paper and infrastructure budgets everywhere.

**Characteristics of Cooperative and Continuous Comprehensive Planning**

The regional *Blueprint* planning horizon needs to be 20 years or longer. A Plan must of course account for the unique characteristics of each region, highlighting areas with specific needs, such as the Bay Delta estuary in the Central Valley. Goals, targets, and performance outcomes would be developed

among the regional stakeholders that target those regional needs and create strategies and alternatives to accomplish the regional goals.

A more comprehensive *Blueprint* Plan and strategy would be a broad policy document that defines the region's goals for the system, recognizes its challenges, and identifies agencies and inter-agency groups responsible for addressing those challenges and achieving the goals. Those agencies and other appropriate entities can then develop projects that best achieve the system goals. When done successfully, agencies are clear about the goals, what the performance outcomes are, and which agency (or agencies) is responsible for implementation and monitoring. As results from projects are evaluated against long-term goals and emerging scientific knowledge, project selection criteria and prioritization can be shifted as needed, within the larger, flexible, strategic *Blueprint* Plan.