

Building California's Future: Current Conditions in Infrastructure Planning, Budgeting, and Financing

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Foreword

The last two decades of the 20th century have brought substantial change to California. The population increased by over 10 million people, with over 40 percent of that increase coming from other states and countries. An aggressive use of the initiative process slowly but steadily reduced the per capita tax burden. The state experienced its deepest recession since the 1930s and then finished off the century with an economic rebound that still defies a full explanation. The Silicon Valley has produced firms that have created and led the “new economy.” Los Angeles, where no ethnic or racial group now constitutes a majority, has come to symbolize the city of the new century. At the same time, fiscal conservatism, rapid growth, and public disinterest have combined to put California’s public schools near the bottom of the national distribution in spending per pupil. Even so, sober projections place the state’s population in 2020 near the 50 million mark—an increase of some 15 million residents searching for the golden dream. Given these changes and projections, it is no wonder that policy analysts, government officials, and political leaders have called for a major surge in infrastructure investment to keep up with the ever-increasing demands.

Along with the rest of the nation, California faced a similar infrastructure challenge in the post-war period. The relentless demand for streets, parks, schools, recreation areas, hospitals, and roads was sustained through the 1960s and into the 1970s. During that time, California’s master plans for highways, water systems, and higher education were admired around the world for their ambition and foresight. In *Building California’s Future: Current Conditions in Infrastructure Planning, Budgeting, and Financing*, Michael Neuman and Jan Whittington paint a rather different picture from the one California presented to the world in the 1960s. Today’s infrastructure needs, which include computer and communications technologies, outstrip available resources; decisionmaking is fragmented and biased toward individual

projects rather than overarching objectives; the budgetary process does not provide for substantive policy tradeoffs; and a greater number of bureaucracies with no vision of the big picture compete for limited funding.

Offsetting this gray portrait is the 1999 passage of AB 1473, which requires the governor to submit annual five-year capital improvement plans. Beginning in 2002, these plans will include information on specific projects, how they fit together, and how they are to be financed. Thus, the first steps toward a more thoughtful and public decisionmaking process have been taken. But we still have a long way to go. This report lays out the challenges the Department of Finance will face as it takes on the daunting task of improving the capital planning process.

This report and its companion, David E. Dowall's *California's Infrastructure Policy for the 21st Century: Issues and Opportunities*, are PPIC's first contributions to the infrastructure policy discussion. Future PPIC analyses will focus on ways to close the gap between California's infrastructure needs and available funding. There is no more important challenge facing the state as it copes with continued population growth and widespread resistance to increased taxation. We hope that these PPIC reports help the state meet that challenge.

David W. Lyon
President and CEO
Public Policy Institute of California

Summary

California's history, landscape, and identity have been marked indelibly by its large and sometimes controversial infrastructure. Consisting of 20,000 owned and leased structures, 200 million square feet of built space, and 2.5 million acres of property, that infrastructure is worth an estimated \$1 trillion. Over the last decade, California has replenished and repaired these assets at an annual rate of less than 1 percent. As a result, identified infrastructure needs now exceed available resources. In response to this problem, the governor has charged the Commission on Building for the 21st Century with investigating financial options for narrowing the gap between identified needs and available resources.

Although that charge is as complex as it is important, it is supported by the widespread view that infrastructure plays a critical role in maintaining California's place at the leading edge of contemporary society. Yet in Sacramento and elsewhere, the current policy debate has focused almost exclusively on finances: in particular, on how much money the state can borrow and spend to build and maintain its infrastructure. This focus neglects another important policy consideration: the way infrastructure decisions are made in the first place. A review of that process indicates that the state's decisionmaking apparatus is as complex in its own way as the infrastructure systems themselves.

In examining this apparatus, this study seeks to understand how California plans, budgets, and finances infrastructure at the state level. Based on interviews conducted with policymakers between July and September 1999, as well as a thorough review of the myriad of laws, rules, and budgets, this report examines how departments, agencies, interest groups, legislators, and the governor interact to produce and prioritize infrastructure projects. It also explores the links between state

policy on the one hand and agency plans, programs, and projects on the other.

From the Golden Years to e-Gov

Infrastructure decisionmaking in California has undergone a noticeable change since the 1960s. The prosperity of the post-war period emboldened Californians to envision and build three grand systems: aqueducts, highways, and universities. Each of these systems was planned and built by a single state agency with substantial federal aid. Now this simplicity is unimaginable. Whereas state government in 1960 consisted of 22 departments, today it includes 64 departments and eight agencies. Also, many more local and special interest groups now participate in deciding what and where infrastructure should (and should not) be built.

The definition of infrastructure has also changed. The term originally referred to facilities built below the earth's surface: water, sewer, steam, and drainage systems installed under streets. Over time it came to include public lands and buildings such as hospitals, schools, firehouses, military bases, and courthouses. Now infrastructure also encompasses hardware and software systems that enable electronic communication and commerce. In addition to expanding over time, the term has become more ambiguous with each statute, regulation, and bill that offers a different and legally binding definition. This ambiguity is such that no two people interviewed for this study agreed on what is meant by infrastructure. Its ever-broadening scope and manifold legal definitions have contributed to the difficulty of managing it effectively.

However infrastructure is defined, its planning is the province of the executive branch. As it stands today, however, the California Code provides for almost no statewide planning. Instead, most planning occurs at the agency or department level. Each department intuits its own vision of the state's future from various administration edicts, executive orders, the State of the State Address, and the overall climate of political opinion. It then prepares a capital budget based on individual construction projects. These projects are described in Capital Outlay Budget Change Proposals (COBCPs), which form the core of the capital budget process. Over the years, the departments and agencies

responsible for the State Water Project, state highways, higher education systems, and corrections facilities have earned varying degrees of freedom from this process. In general, however, budget proposals for individual projects are sent two or more times through the annual budget process, an 18-month stop-and-start affair in which the Department of Finance, governed by the *State Administrative Manual* (SAM), pieces together the departments' capital budgets to form the state's overall capital budget.

More than any other agency, the Department of Finance (DOF) oversees infrastructure development from cradle to grave. Although the DOF is not technically responsible for prioritizing projects, its analysts are the first to review COBCPs and work with departments and agencies to determine program needs. In doing so, DOF analysts have the authority to reject or request changes to any aspect of the department's proposal. The DOF also serves as the main point of contact between proposing departments, offers project-by-project recommendations to the governor before and after legislative review, and provides testimony on infrastructure projects during the legislature's budget hearings. After funding has been allocated, the DOF oversees the various stages of project development through construction on behalf of the Public Works Board.

In the absence of a unified administrative strategy, the annual budget process prioritizes infrastructure projects by default. Because identified needs far exceed available funding, agencies and departments compete fiercely for priority. Toward that end, each agency and department uses its own methods to plan and justify its budget. The quality of the information provided to the DOF varies according to the size, resources, and expertise of a particular agency or department. It also reflects the degree to which that agency or department is committed to capital management. Management information systems for infrastructure are scattered among central agencies, and the systems in use are at varying stages of development and integration. As a result of these and other disparities, certain agencies are consistently rewarded while others wait for much needed funds.

Key Characteristics of Infrastructure Decisionmaking

Three features characterize the state's infrastructure decisionmaking process. The first is its project-orientation. The state's capital planning, budgeting, and financing are conducted mostly project by project. Each department or agency prepares plans for specific capital projects such as prisons, schools, bridges, or hospitals. It then aggregates these proposals and presents the list as its overall plan. As a result of this approach, California is relatively strong on project planning by individual agencies and weak on statewide planning and strategy. Indeed, the administration lacks both an infrastructure planning culture and a legal structure to enable it. Instead, each agency has its own planning practices. As state government becomes more complex, the disparities across agencies carry with them the costs of fragmentation. In particular, coordination becomes more expensive as departments, agencies, and other interest groups proliferate.

The influence of the annual budget process is another feature of the state's approach to infrastructure decisionmaking. Insofar as the system is project-oriented, it is guided by the details of the budget process rather than by broad policy goals. Indeed, that process provides no formal mechanism for evaluating projects against one another or matching them to overarching state priorities. Consequently, it rewards short-term budget balancing rather than long-term asset management. Because the budget process is an annual snapshot, it does not anticipate or respond well to changes in the business cycle. As a result, the state loses the ability to control construction costs and offset economic downturns with public works spending.

The third major characteristic of infrastructure decisionmaking is the overriding importance of financing. Over and above the DOF's role in the annual budget process, finances tend to drive the system at every stage. Indeed, the availability of funds determines program needs rather than vice versa. This approach to infrastructure decisionmaking is simple, easy to follow, and deceptive. It tells the story backward by defining social needs according to the state's current budget. It also tends to neglect assessment and regular maintenance in favor of crisis

management. Finally, it emphasizes a single financial instrument, long-term debt, and ignores other financial options that could help close the gap between identified needs and available funds. By focusing on a small set of financial factors, the current approach avoids looking at California's infrastructure system as a whole.

Specific Findings

In addition to identifying the three key characteristics, our research generated the following specific findings.

1. **Identified infrastructure needs outstrip available resources.** The current policy debate proceeds from this consensus view.
2. **Infrastructure decisionmaking occurs in complex networks.** These networks, which have developed incrementally, do not always serve the state well. Unraveling the whole that these interlocking networks form—a kind of institutional surgery—is a painstaking process. Recent and current attempts at reform have cut open parts but not the whole. This piecemeal approach has been a direct outcome of the bias of the system toward projects and the lack of a statewide strategy.
3. **The definition of infrastructure is changing.** Infrastructure used to be pipes, wires, and roads provided by the government. Now it includes land and buildings, information systems and satellites, and a spectrum of public and private services. Ownership and responsibility are less clear; partnerships and problems are more common.
4. **Competition for infrastructure resources is the inevitable by-product of project-based financing and budgeting.** In the absence of big-picture planning, the legislature has become involved in details rather than long-term leadership and oversight.
5. **A complicated formal system shapes the budget, but that system lacks a mechanism for dealing with substantive tradeoffs.** The current system relies on departmental planning, DOF oversight, and legislative control over the budget. The governor and legislature lack the information necessary to easily compare needs across

departments outside of the current budget year, or address issues beyond financial feasibility, such as social, regional, or income equality.

6. **There is no life-cycle framework for infrastructure.** The current approach favors financing and budgeting over planning and assessing. As a result, it overvalues short-term planning and new projects and undervalues maintenance. Systematic, cradle-to-grave planning is missing.
7. **The current system ignores the effects of the business cycle.** As a result, the state cannot offset economic downswings or use fluctuations strategically to control construction costs.
8. **Information for capital decisions is limited.** The *State Administrative Manual* specifies the content of Capital Outlay Budget Change Proposals, the core data in the budget process. The *Capital Outlay and Infrastructure Report* and the *Debt Affordability Report* (typically) have provided a debt capacity orientation to policymakers. Departments' five-year capital plans and strategic plans are not part of legislative review of the budget, with the exception of the Legislative Analyst's Office.
9. **Information is erratic and biased in unpredictable ways.** Each agency uses its own methods for planning and justifying its own budget. The quality of that information depends on the size, expertise, and resources of the agency.
10. **Resources dedicated to infrastructure management vary widely among agencies.** There is no centralized source for training and no centralized sources for the professional development of infrastructure managers and staff. Retaining expert staff, especially project managers, is difficult in the face of private sector competition in a strong economy.

Conclusions

We found that the state's capital management system, like the infrastructure system itself, manages to work but needs repair and updating. The collectivity of organizations that manage infrastructure in

California is not seamless. For the most part, agencies plan and operate independently. Networks are fragmented, coordination is limited, and evidence of decentralization and devolution is mounting. Some parts of the system are sound but would benefit from a clearer policy framework. Others parts need a major overhaul. We conclude that the transaction costs associated with the current institutional deficiencies are unsustainably high. These costs are measured in the time, staff, resources, information, and coordination required to manage programs. A responsive institutional methodology would answer these challenges with an open-systems architecture that values flow and coordination over checkpoints and control. This approach points to a new sort of coordination agency, one that serves as a central information processor. Although AB 1473 positions the DOF for just such a role, at the moment there is no central processing, strategic thinking, or information management system. Instead, these functions are diffused among several entities: Finance, General Services, Treasury, and the governor's office. A responsive institutional design would incorporate the principles outlined here by considering the roles and responsibilities of each player, especially the structural and procedural links among them.

Keeping a loose and dispersed set of networks working together is partly a matter of institutional design. It is also a matter of having an adaptable, accessible management information system that cuts across organizational lines. The passage of AB 1473 may mark a step in the right direction, but its success hinges on the design of new implementing regulations. A framework with strong principles and a process that is both iterative and interactive are better suited to California's governance than a standard, universal, detailed prescription that applies uniformly to all.

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1. Introduction

California's large and sometimes controversial infrastructure projects are an indelible part of its history, landscape, and identity. The Golden Gate Bridge is an emblem of the Golden State. Irrigation networks feed a \$29 billion food and agriculture breadbasket to America. Huge water canals quench the thirst of 20 million Southern Californians living in two metropolitan areas in the desert. With its extensive freeway system, Los Angeles is growing into one of the largest urban areas on the planet. Even before those freeways were built, the Red Car transit system paved the way for the city's development. California has been the state where "if you build it, they will come." Yet many Californians wonder, as they have in previous years, whether the state can sustain its current level of growth and also conserve its abundant natural resources, majestic scenic beauty, and storied quality of life.

The answer depends in part on the state's willingness to expand and maintain its infrastructure, which consists of 20,000 owned and leased structures, 200 million square feet of built space, and 2.5 million acres of property (California Department of General Services, 1999a). Although a good portion of this year's projected budget surplus has been allocated to infrastructure expenditures, that allocation is a small fraction of the total value of state-owned infrastructure, which probably exceeds \$1 trillion.¹ Over the last decade, the state has added to its massive inventory by spending an average of \$2.83 billion annually—not all from state revenues—on capital facilities (California Department of Finance, 1999a, p. 42). Accounting categories prevent the calculation of an exact figure, but the state has also spent several billion dollars annually

¹The total value of the state's capital assets has never been quantified. Such a calculation would require an appraisal of every property in state ownership. The cost and time to obtain this type of valuation is considered prohibitive by the Department of General Services.

to maintain its infrastructure.² Thus, California has been replenishing its stock of public works at an average annual rate of less than 1 percent.

Political and economic leaders have taken notice of current infrastructure failings and future challenges. In his State of the State Address for 1999, the governor noted that “inadequate planning and overburdened systems” define the state of affairs today. He charged the Commission on Building for the 21st Century to use infrastructure to “enhance the quality of life . . . and grow the economy,” while noting that we must “live within our means” to accomplish these goals. In its interim report of August 1999, the commission itself recognized that it “will take a sustained financial commitment to reverse the effects of past inaction.” Other reports have advanced a similar view. In its December 1998 report, *Overhauling the State’s Infrastructure Planning and Financing Processes*, the Legislative Analyst’s Office both highlights major shortcomings in the decisionmaking process and offers corrective proposals. The California Business Roundtable’s 1998 report, *Building a Legacy for the Next Generation*, also recognizes that “investments in the quality of our public facilities are a key determinant of the state’s economic growth . . . and are essential elements in the quality of life.” These and other noteworthy players have recognized both the varied and critical roles that infrastructure plays today and the need to reform its planning and financing. They also recognize the dangers of continuing existing trends in infrastructure planning and financing.

The Purpose of This Study

The current infrastructure debate in Sacramento proceeds from the shared view that the state’s needs far outstrip available funding. To date, discussions on how to close that gap have focused almost exclusively on how much money the state can borrow and spend to build and maintain its infrastructure. This approach is simple, easy to follow, and deceptive. It tells the story backward by allowing the availability of funds to determine “need,” especially in the case of transportation. It emphasizes a single financial instrument, long-term debt, and closes the door on

²From the State of California (1999), and the California Department of Finance (1999a).

other financial options that could help eliminate the deficit. By focusing on a small set of factors, it also avoids looking at California's infrastructure system as a whole. In short, the debate itself reflects deep-seated problems with infrastructure decisionmaking.

This study addresses some of these problems by providing an overview of how California plans, budgets, and finances its infrastructure investments. It begins by acknowledging the difficulty and complexity of providing infrastructure to the seventh largest economy in the world. That complexity can be detected in the images policymakers use to describe the infrastructure system and the institutions that govern it. Some of the policymakers we interviewed compared the system to a black box; others preferred the classic metaphor of the blindfolded person and the elephant. Many conceived of it as a wheel, with the rim as the framework, the hub as the control center, and the spokes as the line agencies. Some imagined the wheel as having a flimsy hub or rims, or none at all. Of those who described the state's infrastructure system as a puzzle, most admitted that they had no overall idea of how the pieces fit together. (In fact, no one we interviewed claimed to fully understand the entire infrastructure process.) Taken together, these descriptions, comparisons, and metaphors highlight the complexity and opacity of infrastructure decisionmaking at the state level.

With this complexity in mind, this report seeks to answer the following questions:

- Is there an integrated, comprehensive, statewide system for infrastructure planning, budgeting, and financing? If so, how is it structured, how does it work, and who is in charge? Is there sufficient accountability in the system to ensure that mandates are executed properly and that money is spent wisely? Does the system respond adequately to changing demands and conditions? Are the usual checks and balances between the executive and legislative branches in effect? Are all appropriate interests and players at the table? Are the rules explicit, fair, and well understood? Are agencies and departments given the right amount of authority to carry out their responsibilities?

- How much of the state's resources are devoted to infrastructure planning, budgeting, and financing? How well is the state managing those processes? Are its decisions based on accurate, complete, and timely information? Is it retaining the requisite talent and expertise to see California into the 21st century?
- How is infrastructure prioritized within and among agencies? Are there trends in infrastructure prioritization or decisionmaking that cut across many agencies? If so, what are they, and how might they affect overall state governance? Do these trends enhance or diminish returns on infrastructure investments?
- What is the overall growth strategy of the state, and how are infrastructure investments used to support that strategy? What are the links between this strategy on the one hand and agency plans, programs, and projects on the other?

Although ambitious in their scope, our questions leave aside a number of important issues. The report does not evaluate the condition of existing infrastructure in California, the methods used for calculating the need or demand for new infrastructure, or the dollar amounts quoted as needs or demands. Nor does it study infrastructure institutions at the local and regional levels. Rather, it focuses squarely on infrastructure decisionmaking and governance at the state level.

How This Research Was Conducted

Our method was direct and straightforward. We talked in depth with experienced actors. We added to their knowledge by reviewing statutes, regulations, and administrative procedures that govern infrastructure. We examined agency plans, strategies, program documents, and budgets. We downloaded and analyzed gigabytes of data from the web. We reviewed past reports and studies on California's infrastructure, and supplemented this vast store of information with professional and theoretical readings from leading infrastructure scholars and practitioners. Finally, we tempered this information with our own experiences as infrastructure researchers and practitioners. Gaps in our knowledge exist—an obvious one is the omission of legal materials and

court rulings—yet we hope such shortcomings will be balanced by the report’s unique perspective.

The Structure of This Report

This study has five remaining chapters. In addition to reviewing the previous literature on California’s infrastructure, Chapter 2 explores the changing nature of infrastructure: what it is today, what it was in the past, how its definition has evolved over time, and what those changes have meant for state governance. Chapter 3 examines the big picture of infrastructure decisionmaking in Sacramento, focusing on the capital outlay budget process. Chapter 4 reviews and analyzes infrastructure planning as it is done by state agencies and the central administration. Chapter 5 explores capital budgeting in the context of planning and policy. Chapter 6 presents our conclusions and their policy implications as well as ideas for future research and institutional reform.

2. Definitions and Past Studies

The Evolution of the Term

Consider the origins of the term infrastructure. Synonymous with the word base, it first referred to facilities built below the earth's surface: water, sewer, steam, and drainage systems installed under streets. Large capital-intensive monopolies, such as highways, other transportation facilities, water and sewer lines, and communications systems, are readily apparent examples of infrastructure. For this reason, the World Bank's definition of infrastructure includes utilities (gas and electricity, water supply, telecommunications, sewerage, and waste collection and disposal), public works (roads and major dam and canal works for irrigation and drainage), and other transport sectors (railways, ports, waterways, and airports). Over the past century, the increasing complexity of the built world has both expanded and blurred the meaning of the term. Broader definitions often include facilities for safety, health, and welfare, such as military bases, prisons, schools, hospitals, recreational facilities, and research laboratories. The interpretation most commonly applied, however, is the narrowest and easiest to measure: systems owned by the public sector (Gramlich, 1994; World Bank, 1994, 1999).¹

¹The World Bank is an institution designed, by and large, for the effective delivery of infrastructure finance. The World Bank's definition of infrastructure draws on the work of development economists, who have used the term as an umbrella for social overhead capital. "Capital" is the money or property that is owned or used in the course of doing business. "Overhead" refers to costs that are not directly used in the production or sale of goods or services. "Social" applies to money and property that serves the life and welfare of the community or society, as opposed to individual interests (Merriam-Webster, 1978; World Bank, 1994; Downes, 1991; Random House, 1996).

In California, even this narrow definition leaves ample room for interpretation. The State of California (along with its regional and local government jurisdictions) owns, operates, or helps finance a wide range of facilities in many sectors. All these sectors show varying degrees of private involvement, and almost all of them are in a state of flux. For example, the Department of Transportation constructed and managed all highways until recently, when private toll road projects were approved. The state's ports and airports have grown through significant private sector contributions from ocean carriers and airlines, but they are managed by quasi-public agencies with reporting requirements to regional and state agencies. The state maintains three vast systems of public higher education (the University of California, the California State University, and California Community Colleges) but also provides financing for the development of private colleges through the state treasurer's California Education Facilities Authority.

According to the most exact specification available, § 3.00 of the Budget Act defines capital outlay as "acquisitions of land or other real property, major construction, improvements, equipment, designs, working plans, specifications, and repairs necessary in connection with a construction or improvement project." This nominally relegates some aspects of capital construction—namely, repair and maintenance—to the support budget, though in practice repair and maintenance are funded by all three appropriation channels: capital outlay, support, and local assistance.

In addition to these sorts of capital outlays, infrastructure has come to include systems or services that the state provides for its operations, such as radio frequencies used by the California Highway Patrol and maintained by the Department of General Services, that fall under broader definitions of infrastructure. Another example is the Stephen Teale Data Center's management of servers on the Internet for government agencies. Such services have led to the development of new terms such as virtual infrastructure, wireless infrastructure, and portable infrastructure, which refer to cellular phones, wireless modems, the Internet, and other new technologies. Although "wireless infrastructure" sounds like an oxymoron, these services also require developed facilities such as satellites, receiving and transmitting towers, and switching

systems. One of the only sectors that the state does not occupy, maintain, or support is cellular telephone service, but even this service is a subject of note for the Commission on Building for the 21st Century.

The state's Government Code does not simplify the terminology. The phrases public works, capital facilities, capital improvements, public facilities, utilities, public utilities, community facilities, public development facilities, and infrastructure are all qualified in various ways, with each statute providing its own legally binding definition. As a result, nearly every person interviewed for this study offered a different definition of infrastructure. Some were guided by their department's administrative regulations, such as the Department of Finance's use of the term capital outlay, but most allowed for broader interpretations and considered the term to be in a state of flux.

The Golden Years

However infrastructure is defined, discussions of its history in California tend to stress the "post-war boom" or the "Brown years." Reverence for this period is understandable, as many state policymakers grew up in that time of plenty (Strauss and Howe, 1991). Between 1940 and 1970, California's population more than doubled, and government officials focused on providing infrastructure to serve this new population. As our interviewees have noted, California was still viewed as a great frontier during this time, when a small number of leaders decided on projects of extraordinary scope. The most obvious examples of such projects were the aqueducts, highways, and state college systems.

Water supply investments from the turn of the century, such as Colorado River water delivery to Southern California, construction of the Los Angeles Aqueduct, and delivery of the Hetch Hetchy Valley water to San Francisco, were the first of many investments to move water to the cities and farms. By 1951, most of the 20 reservoirs and 11 power plants of the federally managed Central Valley Project were completed. In 1957, the California Department of Water Resources published the California Water Plan, the first in a series of five-year plans continued to this day. It called for the immediate construction of the Feather River Project, later renamed the State Water Project. Supported by the voters through the Burns-Porter Act of 1960, the State Water Project has since

grown to include 22 dams and reservoirs. The 444-mile long California Aqueduct now holds the title of “Edmund G. Brown California Aqueduct” (Water Education Foundation, 1997).

Between 1947 and 1963, the California gasoline tax was raised six times and the federal tax three times. Meanwhile, the number of cars on the road increased dramatically, providing an ample revenue stream to fund the Federal Highway Administration’s Interstate System and the California Highway Commission’s State Freeway System. The California Division of Highways (Caltrans’s predecessor) was first and foremost a highway building organization. Framed by the 1959 California Freeway System Plan, its narrow mission and steady revenue stream allowed it to create a vast web of thousands of miles of freeway across the state. California’s freeways expanded quickly during this period and peaked in 1966, the year of Ronald Reagan’s election as governor (Taylor, 1995, p. 45).

The University of California is another crowning achievement, with 32 Nobel Prizes awarded to faculty, academic study areas in more than 150 disciplines, and more research leading to patented inventions than any other public or private research institution. The University of California was founded in 1868 as a public, state-supported land grant institution, written into the State Constitution as a public trust under the authority of an independent governing board, the Regents of the University of California. The Berkeley, San Francisco, Los Angeles, and Davis campuses were all founded by the turn of the century, and the remaining five campuses, in San Diego, Santa Barbara, Irvine, Riverside, and Santa Cruz, were founded before 1965 in anticipation of the post-war baby boom.

Although editorials invoke the memory of these “golden years,” long-term government insiders are quick to point to changes in circumstances that make such projects practically impossible to realize now. Inflation, design standards, rising labor costs, and new programs competing for the same funds had not yet taken their toll. The National Environmental Policy Act and the California Environmental Quality Act had yet to include the public in project deliberations. A host of new laws, from the Wild and Scenic Rivers Act to the Endangered Species Act, remained to be written. And no one in the golden years had to contend with the

effects of Proposition 13, much less Proposition 98, which squeezed funding for local governments and school districts, pushing them toward state assistance and submitting them to state control. As the history of the water, highway, and state college systems has shown, these and other factors caused the state to spend more money for fewer results.

After the Golden Years

The Department of Water Resources, secured by continuous appropriations and contracts with local water districts for the State Water Project, can spend tens of millions of dollars to plan a project that may never be built. Since the establishment of the Endangered Species Act, the Department of Water Resources has yet to receive a biological opinion of no jeopardy for a protected species, a hurdle in project approval. The department faces similar problems with urban voters and the agricultural lobby, which played a part in the defeat of the 1982 ballot initiative for the Peripheral Canal, a project identified in the State Water Plan.

Still obligated to meet growing water demands for an increasingly participative public, the Department of Water Resources now seeks to establish what some call state-of-the-art water planning. In 1994, after nearly half a decade of preliminary work, federal and state officials signed an accord that called for a cooperative and coordinated process to solve long-standing water quality and supply and ecosystem problems in the San Francisco Bay-San Joaquin Delta estuary. A collection of state and federal agencies known as CALFED manages the effort, which is still in the planning stages. CALFED represents a stage in institutional development where the web of agencies and interests engaged is beginning to resemble the network of water facilities itself, reaching as it does into all corners of California. Subject to multiple forces that were absent decades ago, it still must gain the legislature's assent and face up to the complex and competing political interests that surround major water issues in California. CALFED itself has spent \$50 million in planning studies and coordination since 1995, including \$25 million for the Los Baños Grande Reservoir alone.

In 1976, the California Division of Highways, once part of the Department of Public Works, was organized into its own department

and renamed Caltrans. This reorganization occurred one year after Governor Jerry Brown announced a shift in priorities from new highway construction to operational improvements of the existing system and the expansion of public transit. In retrospect, this policy shift was probably late in coming. In the 10 years leading up to 1976, a myriad of factors had almost decimated new highway funding. These factors include inflation, increased vehicle fuel efficiency, labor unionization, higher uniform design standards, skyrocketing right-of-way costs, competitive construction markets, strong demand for construction materials, increased maintenance loads, new environmental planning costs, relatively decreasing federal revenues, and a lack of state legislative support for fuel tax increases. The funding required to expand highway construction simply did not exist. New funds, such as the 1/4¢ state sales tax in 1971, were dedicated to the transit sector (Taylor, 1995). The continuous budget appropriations afforded for highways through the 1950s and 1960s ended in the mid-1970s.

Relatively low funding for highways continued for nearly 15 years. In 1982, a 2¢ per gallon tax increase passed; 1¢ was for local roads and 1¢ was for matching federal interstate funds, leaving little for state projects. In 1989, the gas tax doubled to 18¢ per gallon, but the era of massive highway building was over. More transportation funds went to transit and other modes than before. Also, more state and federal dollars were passed through to the regions and localities, and local governments began raising their own funds. To date, 18 counties have authorized sales taxes for transportation.

The campuses of the University of California received dramatic reductions to their state budget in the late 1970s and early 1980s. Maintenance was deferred, fees were raised, and private sources were pressed for contributions. For some campuses, such as Berkeley or Los Angeles, the age and intensive use of many buildings and infrastructures made the need for maintenance evident. For all, the need to continually update research laboratories to meet cutting-edge standards remained a priority, but funds could not keep up with an enrollment expansion of over 30,000 new students in the 1980s.

After a brief period of recovery in the 1980s, state allocations to the university were reduced severely in the 1990s. It was hard to anticipate,

much less absorb, the extra construction, maintenance, and rehabilitation costs that arose from damage and changing design standards due to the Loma Prieta, Northridge, and Kobe earthquakes. Even with Federal Emergency Management Agency funds and donor support, this challenge is still stretching campuses to their limits. Added to these needs are two capital-intensive endeavors: enrolling 45,000 new students by the year 2010 and raising the number of engineering and science graduates by 40 percent (University of California, Office of the President, 1998a).

Rising costs, limited revenues, and broader services are only part of the picture for the Department of Water Resources, Caltrans, and the University of California. Proposition 13 and related initiatives, such as caps on developer fees and exactions, have weakened local revenues and prompted local officials to press the legislature for more support. At the same time, new programs at the state level are competing for the same General Fund resources. The Department of Corrections engaged in a flurry of new prison construction, the war on poverty devoted significant funds to welfare, and K-12 educational facilities received funding guarantees.

Attempts to Mend the Gap

Over the last two decades, published reports have called for more attention to facility maintenance, rehabilitation, and expansion. Virtually all such studies use the same rhetoric and methodology. Deferred maintenance has created numerous “crises” for the state, leaving an enormous “gap” between “needs” and “available funds.” Although a comprehensive review of previous research is not within the scope of this study, a glimpse of the findings of some should prove helpful to those participating in today’s infrastructure debate.

In October 1982, Karsten Vieg and Diane Thomas of the Assembly Office of Research published *Public Improvements in California: Preparation for Legislative Action*, which noted several recent national studies on “the decline of America’s public works.” It also noted concern for the difficulties in city and county financing since Proposition 13. Vieg and Thomas’s proposal announced the office’s intention to complete an inventory of California’s “capital replacement, repair and rehabilitation needs” for “public facilities,” with an eye toward certain

“administrative, management, or statutory reforms,” alternative methods of financing, short- and long-term needs, and the merits of more systematic policies for “public improvement” programs.

This proposal resulted in a report published in three volumes over the next two years. In 1983, Diane Thomas and Deborah Agata published Volume Two, *California’s Infrastructure: An Analysis of Selected Trends* (California Legislature Assembly, Office of Research, 1984c), which presented the results of a survey of 766 public works officials across the state on the current condition of facilities, dollar needs, and revenues received since the passage of Proposition 13 (1976–1977). True to their concern for local government, the researchers created their own category of infrastructure, “intrinsic infrastructure,” to which they included flood control, local water distribution, sewage systems, solid waste management facilities, county roads and streets, and public transit. Few if any of these categories were considered to be the focus of state government at that time.

In what is probably a related turn, Governor Deukmejian suggested the formation of a task force to review California’s infrastructure needs and to suggest ways to meet present and future deficiencies. This rather large task force (38 members) consisted of the state treasurer, senators and members of the assembly, directors of various state departments, utility and private industry representatives, local officials, an organized labor representative, a California State University chancellor, a school principal, a professor, and an attorney. They were charged with producing their report by April 1984.

In the meantime, the Assembly Office of Research’s Karsten Vieg and Frank Trinkl published Volume One and the Executive Summary of their aforementioned study, which they entitled *Rusty Hinges on the Golden Gate*. Released on January 23, 1984, these publications extrapolated the 438 completed surveys of the state’s needs for “intrinsic infrastructure” (from Volume Two) to cover the whole state. Curiously, in the short amount of time between publishing Volumes Two and One, the office saw fit to include state highways in their definition of “intrinsic infrastructure,” for which they received one completed survey.

Although limited to the infrastructure concerns of local governments, Vieg and Trinkl’s analysis was detailed. They noted that

county roads, city streets, and the sewage systems of several large cities deserved attention, and that the life expectancy of other facilities could be prolonged with routine maintenance. They also concluded, however, that a considerable amount of investment in wastewater treatment and solid waste facilities would be necessary to serve expected population growth. Their findings suggested that infrastructure has “low visibility” in the political arena, relies excessively on the “year to year caprice of the federal government,” creates excessive burdens for new home buyers, and suffers from organizational constraints in planning and management as well as a severe lack of reliable data.

In the end, Vieg and Trinkl quantified the gap between needs and available funds and pointed to the state for solutions. They also suggested several instruments for lending funds to local governments, such as the “Public Improvements” fund and authority and the two new bond programs (General Obligation and “CalWorks” Bonds). The administrative reforms they recommended included the clarification of local versus state responsibilities, the elimination of costly administrative regulations and engineering standards, the balancing of expenditure patterns across sectors, protection against personal injury claims for public works, and spending incentives for maintenance during times of general economic duress. Citing the complex nature of infrastructure decisionmaking, they proposed a two-year infrastructure review process for the governor (California Legislature Assembly, Office of Research, 1984a, 1984b).

Governor Deukmejian’s Infrastructure Review Task Force published its report on April 15, 1984. Its definition of infrastructure was vast, covering public and private sector interests as well as several sectors that are not under consideration today, such as low-level radioactive waste disposal and the provision of petroleum fuel. Its recommendations were also extensive, covering financial, regulatory, and administrative options for each sector under consideration. Highways and wastewater treatment plants were its most highly recommended public investments. The task force also considered various forms of private participation in what were traditionally considered public services, including the privatization of certain sectors of infrastructure (California State Infrastructure Review

Task Force, 1984). Its estimated shortfall for infrastructure maintenance and new investment was \$51 billion.

These studies may have been the impetus for successful legislation and administrative reform, such as the statutory framework for the recently capitalized Infrastructure Bank (a recommendation from the California Legislature Assembly, Office of Research), or the expansion of Caltrans planning to include freight movement and other private sector activities (a Deukmejian Infrastructure Review Task Force recommendation). They may also be related to more recent reports and suggestions for reform from the Legislative Analyst's Office, the California Business Roundtable, and Governor Davis's Commission on Building for the 21st Century. In any case, many of the same considerations aired in these reports from the early 1980s are once again on the table.

3. Making Decisions About Infrastructure

Has anything shaped California's built landscape more than large-scale infrastructure projects? Post-war prosperity emboldened Californians to envision and build three grand systems: aqueducts, highways, and universities. The systems were, and still are, the cornerstones of the state's economy and society. It is difficult to imagine any one of them, let alone all three at once, being attempted today. Such building is now rarer, more modest, and more incremental. The University of California, Merced, is scheduled to open its doors in 2005, 40 years after the establishment of the Irvine and Santa Cruz campuses. This is the longest period between new campus openings in the 125-year history of the UC system. This fact is all the more remarkable given that California's population grew more in those 40 years than it did in its entire history before that period. Large water and highway projects suffered a similar fate. After the construction of the Central Valley Project and State Water Project—mega-projects that enabled the rapid growth of both Southern California and the state's farm economy—voters nixed the Peripheral Canal. After paving 3,924 centerline miles in the post-war years, freeway construction has ground nearly to a complete halt since 1980, with only 214 centerline miles of new freeways built since then. Changes in social and environmental sensibilities, along with public distaste for grand government schemes, have shifted the climate of opinion regarding infrastructure toward smaller, more incremental improvements. Renovating, modernizing, and optimizing the use of existing stocks has replaced providing new capacity as the overarching goal of capital investment management.

In the post-war golden era, the state's schools, roads, and aqueducts were planned and built by three state agencies with substantial federal aid. Now this simplicity is unimaginable. In 1960, there were 22 state

departments; now there are 64 departments and eight state agencies.¹ Nearly a dozen state and federal agencies have participated in the CALFED water planning process for the Bay Delta alone, and scores of secondary entities have labored alongside them. After nearly a decade of work, however, they have produced only a draft plan. This proliferation of agencies has come about partly because the state performs more functions than it used to. Another reason is that more agencies and interest groups participate in the process of deciding how, what, and where infrastructure should or should not be built.

In the mid-1990s, state departments were directed to prepare and use strategic plans to guide their infrastructure investments. These strategic plans, however, often do not exist, are not current, or are not used. If a department lacks a strategic plan, or if the plan's capital investment component is not current, it may rely instead on state and federal mandates, court settlements, and other policies. In any case, there is no overall state context for developing strategic plans. Taken collectively, they have questionable value in steering the world's seventh largest economy into the new millennium.

In the absence of a unified strategic vision, the budget process paints a large part of the "big picture" for infrastructure by default. Each department intuits its own vision of the state's future from various administration edicts, executive orders, the State of the State Address, and the overall climate of opinion. It then colors that "vision" with its own mission statement and policies as it prepares a capital budget. The department builds its capital budget from individual construction project proposals. The Department of Finance builds the state's Capital Outlay budget by piecing together the departments' capital budgets. It then subjects these projects to the budget process. Thus, the project-based budget, an annual snapshot, attempts to replace the big picture, leaving a wide and empty border.

The Big Picture

There are four pieces to the infrastructure decisionmaking puzzle in California's Capital: planning, budgeting, financing, and project

¹State of California Budget for the Fiscal Year July 1, 1960, to June 30, 1961.

management. One piece, budgeting, stands far above the rest. Line departments prepare plans for horizons of five, 10, or even 20 years. Projects are conceived by departments, reviewed and prioritized by the Department of Finance, scrutinized by the governor's office and legislature, and placed in the Budget Act. Nearly every state project travels through the labyrinth known as the state's budgeting process for capital outlay as documented by the Department of Finance in the *State Administrative Manual* (SAM). In the absence of a central vision, or of an administration plan or strategy, the SAM guides infrastructure decisionmaking for the State of California. Once approved by the legislature, financing is arranged, often with the assistance of the treasurer's office. Financing involves identifying the money to pay for infrastructure projects and programs, drawing upon sources ranging from long-term bonds, user fees, and dedicated taxes to federal grants and loans. Because it is very political, financing engages the legislature, governor, treasurer, and the Department of Finance closely.

Project management begins after the project has been approved in the budget cycle or at the ballot box. Projects make their way through design and construction, where most are managed by the Department of General Services with oversight from the Public Works Board. This process is designed around three phases of appropriation: preliminary plans, working drawings, and construction. Projects generally pass through twice (first design, then construction) in typical design-bid-build fashion, but some go through three or more times for re-appropriations (if progress is lacking) or augmentations (if the project is over budget). Much like planning, project management is compartmentalized. Line departments typically manage projects in conjunction with the Departments of General Services and Finance with little engagement from the governor's office or the legislature.

Certain departments have been given the authority to develop, approve, fund, and manage their projects outside the state's capital outlay process. These include the Department of Water Resources for the State Water Project and the Department of Transportation and California Transportation Commission for state highway projects. These agencies were granted their authority through special legislation in attempts to depoliticize decisionmaking for these critical, statewide forms of

infrastructure. They rely on dedicated funding sources, such as local user fees and the gas tax, instead of the General Fund.

Other departments participate in the capital outlay process but have attained varying degrees of decisionmaking autonomy. The University of California (UC) and the California State University (CSU) systems have certain types of projects that are not subject to legislative appropriation, such as housing and student union programs. In addition, some UC and CSU projects go through only one approval cycle for preliminary plans, working drawings, and construction appropriations. They also can manage their own contractors and use savings from one project to fund another. In doing so, however, they assume the risk of cost overruns.

Some politically sensitive projects, such as new prisons, are given more detailed guidance on the part of the legislature and governor. Others are introduced directly by legislators. The latter often have the support of a particular line department, but they may be carried through the legislature to avoid comparative scrutiny against other budgetary needs by the Department of Finance. This method of introducing projects treats the legislature as an escape valve, but it can also be used to test new processes for project delivery, such as the current program for “design-build,” which includes the Capitol Area East End Project in Sacramento.²

Private projects are given approval for state financing through the treasurer’s office. Examples include funding for private higher education from the California Education Facilities Authority and funding for private and nonprofit hospitals from the California Health Facilities Financing Authority. The state also oversees the development of other forms of private infrastructure, such as telecommunications, gas, and electricity, with state agencies such as the California Public Utilities Commission serving in a regulatory capacity.

Together, these processes constitute California’s system for developing infrastructure. What follows is a closer look at each of them.

²Design-build is a form of contracting that lowers the cost and decreases the time to develop a project by eliminating bidding processes between design and construction. It typically awards both design and construction to one contractor or one consortium of contractors.

The State Administrative Manual: Playbook for the State

“What the Department of Finance does is act as the fiscal advisor to the Governor . . . it identifies the needs.”

*James Tilton
Assistant Program Budget Manager
California Department of Finance*

More than any other central agency, the Department of Finance (DOF) follows infrastructure development from cradle to grave. Its statutory responsibility is to guide departments through the budgeting and implementation of projects. It is also the main point of contact for the governor and prime representative of projects to the legislature.

The playbook used by the DOF and others in this process is the *State Administrative Manual* (SAM). The sections of the SAM pertaining to infrastructure development refer to policies and procedures for budgeting and financial administration of “capital outlay projects” or “programs for capitalized asset financing,” including the “acquisition, new construction, alteration and renovation or betterment of real assets” (California DOF, 1998, § 6800–6899).

Careful examination of the SAM reveals a complicated network of decisions, support, and responsibilities among departments, the DOF, the Department of General Services (DGS), the governor’s office, and the legislature. This network eventually generates the annual Budget Act. One section of each Budget Act covers capital outlay, where individual infrastructure projects and their estimated costs are itemized. Figure 3.1 shows the voyage of infrastructure projects as they work their way into or out of the capital outlay section of the Budget Act. Three phases are shown for this 18-month process. The first focuses on the DOF and departments, the second on the governor, and the third on the legislature. The process ends with the signing of the Budget Act by the governor.

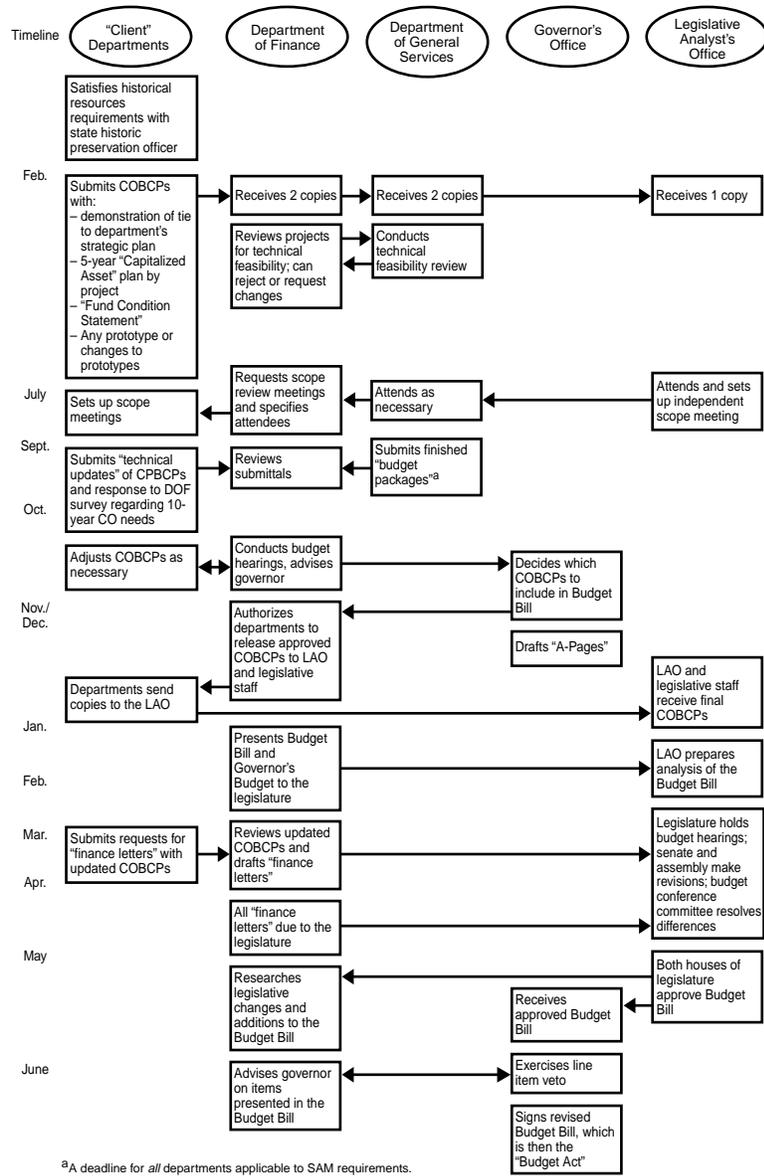


Figure 3.1—Sketch of the Budgetary Process

Departments and the DOF in Dialogue

Departments (or “client” departments as they are referred to in the SAM) begin the process of determining capital outlay for each budget year. Each determines infrastructure needs on a one-year and five-year basis. A project for the coming year is submitted in the form of a Capital Outlay Budget Change Proposal (COBCP). Five-year lists of projects are known as Capitalized Asset Plans.³ All are submitted to the DOF by February 1 of each year to be included in the following year’s state budget. COBCPs and Capitalized Asset Plans are prepared in stovepipe fashion. Departments look to their own mission statements—and, where available, strategic plans—for guidance, along with recent executive and court orders or other mandates. They also may look at factors that affect service delivery such as population projections or fluctuations in land use.

Each department uses a different methodology for determining the scale, scope, and function of its projects. Higher education systems, such as the California Community Colleges, rely on population and demographic projections to estimate future enrollment. Those enrollment projections are placed against existing capacity to determine future needs. The Department of Forestry and Fire Protection, in contrast, moves its fire station locations in response to changing spatial patterns of urban development. Although all departments defer to the DOF for population projections, there is little else in common between departments’ estimations of infrastructure demands or needs. Departments often try to revive projects that have been rejected by the DOF in past years. Some submit the same projects over several years. Departments waiting for appropriations easily lose staff with development expertise, as those people shift with the economic tide. Constant rejection has led staff of one department to submit COBCPs that simply referred the reader to last year’s submittals. Departments rarely, if ever, consult with one another. They each see themselves as

³Generally, capital outlay refers to state-owned infrastructure property acquisition, construction, or improvement projects costing over \$35,000 for design or \$250,000 in total cost, including lease agreements that build equity for the state. They are distinguished from minor projects, routine maintenance costs, and grants to local governments for infrastructure development, each of which require less elaborate processes of state approval and oversight (California DOF, 1998, p. 6805).

delivering distinct infrastructure services or competing for the same funds. Only those agencies that act as control points in the budget process, such as the DOF, provide linkages across departments.

In broad terms, the purpose of the COBCP is to justify funding requests to the DOF. COBCPs are at once problem statements, explorations of alternatives, proposals of solutions, and collections of details about those solutions. According to the SAM, “The DOF will consider only those proposals which *convincingly* meet all four of these requirements” (California DOF, 1998, p. 6818). Although departments and agencies review their policies and budgets internally to justify new projects or renovations, the DOF stands between those departments and the governor. The DOF’s statutory responsibility is to ensure the state’s “long term financing needs in a manner which will protect the financial integrity of the state” (Government Code § 13104). This responsibility, which allows the DOF to project the state’s 10-year capital outlay and infrastructure needs, pervades its work. As one DOF manager noted in an interview, “I try to instill in my analysts that you have got to understand the program, and you have got to understand the project. [The department has to] convince you, and then you turn around and convince me, . . . because the program is not going to testify on the project. We are going to testify on the project.”

Upon receipt of COBCPs in February, the DOF has nearly eight months to study these programs and projects by holding scoping meetings and site visits with the proposing department. Because each DOF analyst must review approximately 100 projects during that time, the DOF often enlists the DGS for technical and cost advice. The DOF has the authority to reject or request changes to any aspect of a department’s COBCP. For a project to survive eight months of scrutiny, it must be the right answer to a particular programmatic problem and its ongoing expenses must be noted in out years of the department’s five-year plan.⁴ The odds of being included in the Budget Bill remain low, however, as departmental needs inevitably outstrip available budget funds (as estimated by the DOF) and debt capacity (as estimated by the

⁴Beginning with the 2000/2001 budget year, the project must also be tied to a Strategic Plan.

treasurer). Thus, it helps to have experienced personnel championing the project through the process, or even better, another potential source of funding.

Insiders say that today's system is more finance-driven than ever. Thirty to 40 years ago, infrastructure projects could rely more on pay-as-you-go bills or federal funds. In the 1970s and early 1980s, those sources were often augmented by earmarked funds, such as tideland oil revenues. Earmarked funds have dwindled from a high of \$400 million to a low today of only a few million dollars per year, and federal funds for capital outlay have dramatically declined as a percentage of state revenues (interview and State of California, Governor Gray Davis, 1999, p. 22). Scarcity of resources has intensified competition among a growing variety of state needs—from education, water, and highways to health, natural resource management, and corrections, among others. Moreover, departments tend to defer maintenance during recessions and scramble to cover lost ground in growth years.

The state uses various forms of debt financing, such as general obligation bonds, that require various forms of approval. Accordingly, the political climate and voter receptiveness have also become factors in capital outlay decisions. Indeed, the DOF must consider such factors in the evaluation of COBCPs. Although the DOF is not technically responsible for prioritizing projects, it is the first to discuss the necessity of each project with the proposing department. Inevitably, the DOF influences choices made within and among departments to match needs against available dollars. In effect, the DOF helps winnow the list of projects until the needs can be met within the budget. Exceptions to this pattern include projects with dedicated funding by virtue of existing law. Existing capital is also excluded from the equation, as the budget for California is zero-based.

Department of Finance staff called this eight-month dialogue with departments an exercise in “problem solving.” All projects are supposed to solve problems faced by each department in delivering services to California's citizens. The dialogue therefore gravitates toward certain questions. What are the problems? What are the options for solving the problem? Is this the most logical solution to the problem? Are the proposed design and cost estimates adequate? What are the potential

sources of funding? Are there options that do not require additional funding? This line of inquiry could easily result in the consistent reduction of projects to their lowest possible scope. Indeed, proposals for renovations and deferred maintenance are commonplace. However, the DOF is often concerned that the proposal would address only a symptom of a problem and not its cause. Such was the case with leaking pipes and deteriorating walls in the shower room of a state prison. Inmates had to walk through a maze of walls difficult for guards to police, where flooding often occurred. The department was concerned about the immediate problem of flooding. The DOF felt that the layout of the building posed more of a safety hazard to guards and inmates than the incidental flooding and urged the department to design and build a new facility instead of renovating the old one.

Often COBCPs are rejected because the bricks and mortar proposed are not explicitly aligned with the department's staffing plans, policies, or operating budgets. The DOF's logic is that changes to staffing have to be approved before changes in facilities because it is the staffing that determines how the facility will look and function. A new Alzheimer's treatment unit for a veterans' home was denied because approvals for the program and staffing had not yet been obtained. Similarly, the Department of Food and Agriculture proposed to install a separate station at the Nevada state line allowing pre-approved trucks to pass through an infrared identification system without inspection. Regardless of technological merit, the program for determining pre-approval for trucks was not yet documented, and the proposal was rejected. These links will be tightened further as departments have to demonstrate how each project supports its strategic plan.

If a COBCP presents the right solution to the right problem, the proposing departments' five-year plans must also show the anticipated needs for that project over time. Capitalized Asset Plans prioritize and justify all the projects anticipated over the next five years, delineating requests for preliminary plans, working drawings, and construction. In terms of justification, departments are asked to present the five and 10-year trends that are driving the expansion or reduction of demand for facilities. Because of its limited resources, the DOF spends more time reviewing the five-year plans of agencies known for previous inaccuracies,

or of those with complex leasing options. One case is a recent five-year plan for Caltrans, which showed requests for funding that would arrive after existing leases had expired, potentially jeopardizing the budget and schedule for a new project on those properties.

Departments with a recent history of project development are most likely to have maintained enough staffing and expertise to undergo careful determinations of need and to prepare adequate documentation. But there is yet another aspect to this process. Beyond the written page, departments prefer to have someone who can explain to the DOF how each project supports that department's overall program. In this era of scarce resources, departments need people with the confidence and credibility to negotiate effectively with the DOF. Those who cannot make their case persuasively present the DOF with three options: working closer with the department to fill in the blanks, reducing the scope of the project, or rejecting the department's capital budget altogether. Such demands partially explain why certain departments struggle to acquire the funding to retain necessary licenses or to meet basic health and safety requirements.

This eight-month dialogue between the DOF and departments ends in September of each year. At that time, departments respond to the DOF's comments by submitting "technical updates" to their COBCPs, along with estimates of 10-year needs by program and funding source. These updates and estimates are compiled in the annual *Capital Outlay and Infrastructure Report*. Of the COBCPs that are not accepted, some wait at least another year for appropriations, and others are proposed in the spring process. Some that require new designs or cost estimates may wait an additional two years for appropriations. Accepted COBCPs are taken by the DOF into budget hearings with the governor in October and November.

The Governor, the Legislature, and the Budget Bill

The budget process thus far has projects moving from specialists in departments and agencies through infrastructure generalists in the capital outlay division of the DOF and into the hands of the governor. Informed by the DOF and a multitude of other sources, the governor decides which COBCPs to include as items in the Budget Bill. The one

publication that comes closest to describing the governor's priorities for state investment is the Governor's Budget Summary, also known as the "A-pages." California's governors are free to determine the level of detail provided in the A-pages.

Both Pete Wilson and Gray Davis have supported the use of surplus revenue for infrastructure investment, but their A-pages have differed markedly. Wilson's Budget Summary for the year 1998/1999 contained an Infrastructure Initiative calling for \$961 million in funding for capital outlay, plus a bond program totaling \$7 billion for education, the infrastructure bank, correctional facilities, water, parks, and other forms of infrastructure (State of California, 1998, p. 34).⁵ Governor Davis's Budget Summary for the year 1999/2000 cited the DOF, the California Business Roundtable, and the Legislative Analyst's Office in a section devoted to building for the 21st century. That section called for the creation of a commission under the same name. Except for education (noted separately as Davis's primary commitment), the A-pages suggest that dollar amounts and priorities for infrastructure may be determined by the commission between January 1999 and December 2000, informing bond programs and budget analyses in the interim (State of California, 1999, pp. 22–24).

The governor's budget is released in the wake of budget hearings with the DOF in early January. Departments are authorized to release the final COBCPs to the legislative staff and the LAO, and a whole new phase of the budget process begins.

Legislative Debate over the Budget Bill

Like the governor, legislators are generalists, responsible for evaluating all three components of the Budget Bill at once: capital outlay, local assistance, and the operations of state government. With the assistance of the LAO and other organizations such as the Senate Office of Research (SOR), they provide the checks and balances against the governor and DOF. They receive the governor's budget on January 10 of each year. Between early January and the end of February, departments submit last minute changes to their COBCPs to the DOF

⁵In the end, one bond for \$9.2 billion was approved, dedicated to education.

in the form of requests for Finance Letters. The LAO prepares and submits its annual Analysis of the Budget Bill to the legislature. This report is one of the few that raise capital outlay issues cutting across functional departments.

In what may be the political core of the process, the contents of the Budget Bill become the subject of negotiations between houses of the legislature. These negotiations are tempered by a general understanding of what the governor is likely to approve or strike down with his line item veto power. Having begun in March, these debates continue through approximately June of each year. As the legislature holds budget hearings in the senate and assembly chambers, it hears testimony from the DOF (and others as necessary) on each COBCP included in the Budget Bill. In the course of its debates, the legislature makes use of the A-pages, the Budget Bill, the Analysis of the Budget Bill from the LAO, and Finance Letters from the DOF.

According to our interviews with legislative staffers, they do not use (and in general lack access to), the five-year Capitalized Asset Plans produced by each department. The LAO summarizes five-year Capitalized Asset Plans into a table format, showing five-year estimates for each area of state government, the budget year requests by department, and the amount proposed by the governor. According to the LAO, the governor's budget used to include a separate document for capital outlay, which included all five-year plans, but this practice ended in the early 1970s (Beavers, 1999). The absence of five-year plans in the LAO's analyses and the legislature's deliberations is the subject of a number of active bills. This single point, when coupled with the relatively open playing field of the annual budget, can easily leave the state's budget process unaware of looming, long-term investment issues for infrastructure. The restricted flow of information is one reason the budget provides only an annual snapshot.

Term limits may exacerbate the issue. Legislators today tend to be new to the budget process, serving a maximum of six years in the assembly and eight years in the senate. Moreover, they may serve as chairs of various subcommittees for only two to four years at a time. Influenced both by term limits and the overall environment of scarcity wrought by Proposition 13 (and others since), many legislators enter

debates fresh from positions in local government and wish to garner support for specific projects. As a result, it is frequently difficult to raise interest in basic infrastructure concerns such as renovations and deferred maintenance. Furthermore, many projects go through the budget process at least two times: one for preliminary plans and working drawings, and another for construction appropriations. Of those that are approved, many return to committees for further approvals and augmentations. Given the time horizons for such projects, turnover among committee members can hinder continuity. In most cases today, the lives of projects are much longer than the terms of legislators.

According to the DOF, legislative committees review infrastructure projects inconsistently. Once they have approved the first phase of a project, some committees spend little time reviewing proposals for subsequent phases and focus instead on new projects. Other committees subject each phase of appropriation to the same detailed review, regardless of previous appropriations. Many insiders suspect that term limits will result in more committees conducting painstaking reviews while inevitably losing significant monitoring capabilities. Before term limits, legislators served as subcommittee chairs for a number of years in a row. When capital outlay projects were presented a second or third time, they remembered the project and even knew the person responsible. This arrangement provided an added sense of accountability for the legislators and project managers (especially from DGS and other large departments). It was also a factor in the monthly project monitoring by the Public Works Board, an entity chaired by the director of the DOF and attended by the directors of Transportation and General Services as well as the controller and treasurer for revenue bond matters. In past years, personal relationships based on credibility, trust, and reciprocity played a key role in infrastructure decisionmaking. For those who now face the legislature for appropriations each year, the future is less certain.

Closing the Process: The Governor and the Line-Item Veto

After the legislature has provided its two-thirds vote to approve the Budget Bill, the governor, advised again by the DOF, reviews the bill.

Line item veto power allows the governor to deny appropriations for individual projects. When exercising this power, the governor usually provides some explanation for doing so. Over the past two decades, the Budget Bill has been replete with vetoes of capital outlay appropriations accompanied by references to the scarcity of funds. Whether in times of plenty or scarcity, many see the annual budget process as cumbersome, overly driven by finance, and weak on planning. Some departments have been afforded varying degrees of freedom from its multiple reviews, inconsistent oversight, and 18-month duration. These departments are important pieces of the infrastructure puzzle.

Autonomy for Water Resources and Highways

Built almost entirely before 1970, the vast networks of dams, aqueducts, and highways that spread across the state today are part of its history. The autonomy afforded to their keepers, the DWR and Caltrans, is equally a part of history.

California has more than 1,800 water districts. Large and small, agricultural and urban, they use an unspecified mixture of groundwater and surface water to service about 70 percent of the state's water consumption needs. Each is vested with its own authority to collect revenues, such as user fees or assessment district mechanisms. Some of the larger ones have bonding authority, which they use to invest in large infrastructure projects. Other districts have formed joint powers agreements to gain similar standing. In general, however, the state's debt capacity dwarfs that of the districts.

In a state where two-thirds of the water supply sits in the north and two-thirds of demand is created in the south, enormous bond capacity is required to finance water projects. For decades, the Department of Water Resources has built dams and aqueducts (known today as the State Water Project) and billed those projects to an amalgam of 29 water districts with which it has a contract. Politicians granted the Department of Water Resources this authority at a time when the scale, scope, and timing of these water projects were thought to be critical to the overall economic growth of the state. In particular, they wanted the State Water Project to be free from the uncertainty created by political wrangling in

the legislature. With the passage of the Burns-Porter Act in 1960, the Department of Water Resources was awarded a continuous annual appropriation through the state budget that covers planning and administrative costs among others. In contrast, the primary funding source of other infrastructure development has been contractor-supported revenue bonds (California DWR, 1997, p. 18).

The Strategic Business Plan, a product of the Wilson administration, now guides the department's responsibilities, including the State Water Project. The department uses the Strategic Business Plan to set priorities for development options outlined every five years in the State Water Plan, which has been mandated since 1956. That plan uses demand projections from local agencies, DOF population projections, and other tools to evaluate these options. The department advances its preferred options to feasibility studies, which it then presents to the legislature. With the exception of the State Water Project, all of the department's responsibilities (such as flood control) are subject to the SAM and require regular COBCPs.

The Department of Water Resources has undergone cultural change in recent years. A State Water Project manager summarized the attitude of the director in the 1960s and 1970s as follows: "If we want it, we can build it. Here's our decision. If you don't like it, tough." The new attitude is about fitting into a larger environmental framework in an atmosphere of cooperation.

Although Caltrans's history, decisionmaking processes, and financial mechanisms evolved quite differently from those of the Department of Water Resources, both were granted autonomy from the SAM at about the same time. In a series of laws and constitutional amendments dating back to 1923, the Department of Highways was granted continuous annual appropriations until the mid-1970s. These appropriations were for planning, designing, developing, and maintaining the state's highways. Like the State Water Project, this task was monumental in scope and considered by politicians of the time to be of critical importance to the overall economic health of the state. In the 1950s and 1960s, Caltrans was known as the California Division of Highways, and the California Transportation Commission (CTC) was known as the State Highway Commission. Caltrans and the CTC do not participate

in California's budgeting process for capital outlay, as they use the State Transportation Improvement Plan (STIP) and the State Highway Operations and Programming Plan (SHOPP) instead. Since the 1970s, however, all funding has been subject to the annual appropriations process.

A total of 43 regional transportation agencies participate in the state's highway planning process. The CTC works with these regional agencies and Caltrans to prepare long-range, multi-modal assessments of transportation needs. These include the 1999 10-year assessment, four-year cycles of funding estimates, and two-year cycles of actual building and maintenance programs (STIP, SHOPP, and RTIP—the Regional Transportation Improvement Plans). Caltrans uses these various projections to prepare its part of the governor's budget. The state senate and assembly each have transportation committees. The legislature has developed a standing rule to appropriate transportation projects by program categories rather than at the line item level. In this sense, Caltrans is unique among state agencies in terms of capital budgeting.

Like the Department of Water Resources, Caltrans is undergoing a shift in organizational culture. Along with the CTC, it is now required to plan for other transportation modes, including those traditionally left to the private sector, such as freight transport. Regional and local entities are also playing a larger role. Seventy-five percent of the State Transportation Improvement Plan funding now goes to regional transportation agencies. It would take considerable political momentum to grant the same autonomy today to any other agency for any other purpose.

UC and CSU Streamline Their Processes

The University of California and California State University systems have also obtained some autonomy from the state's capital outlay process. Like the Department of Water Resources and Caltrans, both systems have alternative sources of funding, such as grants and enrollment fees, which pay for the design and construction of many types of facilities. The most interesting aspect of UC and CSU's distance from the SAM, however, involves the extent to which those systems handle certain elements of the budgeting and project development processes in-house.

In the late 1960s and early 1970s, the UC system experienced budget reductions of about 20 percent in real dollars. The process was repeated in the late 1970s and early 1980s. In the early 1990s, state funding decreased so much that cost-of-living increases were curtailed, salaries were temporarily cut, and student fees were raised as much as 125 percent. During these times of low funding, enrollment in the UC system did not decrease.

In response to these trying times, the UC system has chosen to shift much of the decisionmaking and financial risk from the Office of the President to the nine campuses. Equipped with planning and funding guidelines from the Office of the President, each campus prepares an annual five-year plan and defines its capital outlay requests. The Office of the President then integrates these requests and presents the result to the state through the SAM. The larger CSU system operates in a more centralized fashion but produces similar documentation. The 22 campuses write their own proposals and five-year plans but the funding priorities are set and administered centrally. CSU also experienced budget cuts between the 1970s and the early 1990s. Its enrollment decreased significantly, however, leaving campuses with excess capacity. The research demands and academic programs also created a different set of infrastructure needs. For example, the buildings are typically but not always less complex. In general, their situation was not as challenging as the one faced by the UC system.

Although their internal processes differ remarkably, both UC and CSU have enjoyed a reputation for completing projects as designed, on time, and within budget. Participants in this study praised both systems above all other departments for their approach to infrastructure planning and development. Some observers estimate that the two organizations cut years off the time needed to complete buildings, including more than 10 months in the design phase alone. As a result of this record, both have received permission to handle certain elements of the budgeting and project development processes in-house. Unlike other state departments, they may apply any cost savings they realize to augment other projects. They also have permission to select projects for streamlined processing through the SAM in lump-sum fashion, collecting appropriations for preliminary plans, working drawings, and construction drawings all at

once. They also have the authority to handle project cost increases up to 10 percent internally without any augmentation from the legislature. They return to the legislature only in the rare case that they need an augmentation of more than 20 percent of the total project cost. When these requests do occur, representatives of both systems present their own case to the legislature without the backing of the Department of Finance. Because permission to streamline projects is a powerful incentive to complete them on time and within budget, both organizations work diligently to cover costs and adjust their design and construction to avoid returning to the legislature for additional funds.

New Prisons and Other Exceptions from the Legislature

The Department of Corrections owns approximately 20 percent of the state's building space. One of the largest prison systems in the world, it depends entirely on capital outlay funding from the state. About 300 staff members work in the capital planning and construction division alone.

Prisons are typically located in small rural communities that benefit from the economic stability brought by state employment. They are self-sufficient to the point of including wastewater supply and treatment facilities. Politically, they are easier to repair than to plan, finance, and construct, as each prison takes care of its own maintenance. To one planner, capital planning for the Department of Corrections involves, "talking to a lot of others." The department prepares two facilities master plans each year. One is submitted to the Department of Finance as required by the SAM. This plan includes all capital outlay projects except new prisons. In 1983, the Department of Corrections was granted the authority to replace the role of the Department of General Services in the capital outlay process for new prisons. After the prison bond fund was created in 1990, the department began to prepare separate master plans specifically for new prisons. Most of the planning done in the department today grew with this program.

New prisons do not have to go through the normal capital budgeting process. The master plan for new prisons reflects policy guidance from

the governor and elaborate projections for anticipated populations to service. Such projects often enter the appropriations process via the legislature and receive detailed scrutiny from the Department of Finance and the governor.

In fact, all kinds of projects may be introduced through the legislature with comparatively little participation from the DOF. In this way, the legislature acts as an escape valve from the annual budgeting process. Legislators can craft statutes that call for appropriations for developments of practically any type, to be designed or delivered with as much guidance or control in the process as the legislature and governor see fit. Often the administration or line departments suggest these projects, but they may also emerge directly from the legislators themselves. This method can be used by anyone who does not want to go through the budget process where the project may receive more review and be considered along with other competing projects. It may also be used to test new processes for project delivery or other types of policy shifts, such as the current program for “design-build” contracting, which includes the high-profile Capitol Area East End Project in Sacramento.

The Pieces as They Fit Together

The Department of Finance administers a project-by-project budgeting process for capital outlay as prescribed in the SAM. Financing drives the system. The availability of funds constrains decisions regarding infrastructure priorities and even determines needs assessments. The capital outlay budget gives us a picture of the state’s infrastructure, even if only an annual snapshot. Together, these elements constitute the “big picture” of infrastructure decisionmaking in California.

The process prescribed by the SAM is detailed and rigorous, complicated, and time-consuming. Not everyone is required to play by its rules, however. Certain players with financial muscle opt out, such as the DWR, Caltrans, UC, and CSU. The Department of Corrections is now attached to heightened political concerns and has also found ways to opt out. These players and their actions define the boundaries of the “big picture” for infrastructure decisionmaking in California. By operating outside the box, they define its boundaries.

Many call the budget process for capital outlay a “stop and start” process. Projects adhering to the SAM can easily take 30 to 40 months to go through the design phase. Those that would normally take two to three years to implement can take five to seven years or more. Design firms under contract with various departments engaged with the SAM have to go through many iterations of design, periodically stopping for months to wait for legislative review. If changes are made and deadlines missed for COBCP submittal, the waiting period before appropriations could be as long as two years.

In reality, however, the private sector cannot afford to wait. Key personnel move on to other work, and it becomes harder to track changes and retain consistent institutional memory for important project details. This is a classic case of procedural inefficiency. In terms of time, contracting fees, and staff resources, the transaction costs for a building or any other single piece of infrastructure are extraordinarily high, though not always easy to quantify. The public sector should also be concerned. As one capital manager noted, “Inflation waits for no one.”

The Department of Water Resources and Caltrans work around the SAM because they have continuous appropriations or outside sources of revenue. UC and CSU still work through the SAM, but they have negotiated the fastest possible way to do so, leveraging their own user fees and political reputation in the process. Because projects deemed overly sensitive are held tightly by the legislature, their association with the SAM is truncated. Financing through the state treasurer’s office to assist private and nonprofit infrastructure developers has neither a practical relation to the SAM nor explicit systems for prioritization.

The more sophisticated and effective long-term planning and development efforts occur at the margins of the SAM or completely outside it. Caltrans looks 10 years ahead and the Department of Water Resources provides detailed analyses and project ranking five years into the future. UC takes a more organic and decentralized approach, but like CSU, plans with long-term programmatic goals in mind. Each of these departments was granted its degree of autonomy from the budget process in a significantly different way. Freedom from formal controls,

however, is never complete freedom from the political process. Ultimately the governor and legislature have the constitutional responsibility to ensure that the public interest is upheld.

4. Planning

Over the next 20 years, California's population is expected to grow by 12 million, or more than 35 percent.¹ To serve that population, the sum of various estimates indicates that the state will need to spend \$200 billion on infrastructure at the state level.² This figure does not account for inflation, disasters, new technologies, and other inevitable contingencies. Nor does it reflect the historical fact that California's actual population has always exceeded forecasts and projections. Managing these massive investments will require exceptional foresight and planning. In particular, such planning must take a long-term and comprehensive view of future needs and demands; analyze options to provide for them; assess the impacts, costs, and benefits of the options; suggest preferred alternatives; and array mechanisms to implement them. The ideal process also accounts for the varied interests in a political process, constant changes in conditions, and numerous other constraints that shape options and outcomes. How does California's infrastructure planning stand up to this ideal?

Agencies Plan, Not the Administration

In California, infrastructure planning is the province of the executive branch generally, and of state agencies and departments specifically. Before the recent passage of AB 1473, the legislative branch enacted statutes that require infrastructure planning by the agencies but not by the administration itself.³ The legislature oversees the executive branch

¹Angelides (1999).

²California Department of Finance (1999a); California Transportation Commission (1999); and the preliminary estimates for health facilities, court systems, high-speed rail, and large-scale water projects.

³As of this writing, there were two competing bills in the legislature to redress this void: SB 915 (Peace et al.) and AB 636 (Migden et al.) plus a proposed constitutional amendment: SCA 9 (Peace and McPherson).

and adopts the administration's budget. The judiciary also provides planning mandates in its rulings and interpretations of statutory law. For example, the *Racanelli* decision stated that the State Water Resources Control Board needed to provide reasonable protection of beneficial uses of Delta and San Francisco Bay waters, and that it needed to separate water quality planning from water rights activities (*United States v. State Water Resources Control Board*, 182 Cal. App. 3rd 82, 1986).

Statutes governing capital planning provide for department-wide plans and plans for specific program areas. Most functional areas in state government, such as transportation, corrections, water, and others, have specific statutes guiding their planning. With the exception of provisions that require a statewide *Environmental Goals and Policy Report*—unused for over 20 years—statewide planning is not provided for in the California Code. Thus, infrastructure planning is done by the agencies and departments through broad strategic plans, such as the Department of Water Resources 1997 Strategic Business Plan, and specific program or functional plans, such as the Department of Water Resources 1998 State Water Plan. Most larger and mid-size agencies do their own facilities planning, with the Department of General Services providing project management assistance and the Department of Finance providing capital budgeting assistance. The Department of General Services performs facilities planning for smaller departments that have limited staff and expertise. Overall, our investigation has revealed that the level of sophistication and detail regarding infrastructure planning varies widely from department to department.

Infrastructure planning for programs by individual departments contrasts with infrastructure budgeting, which is done across-the-board by the Department of Finance for the administration. The executive branch submits a unified budget to the legislature for adoption. Individual program planning by departments also contrasts with across-the-board financing activities, such as bond funds administered by the treasurer, the Pooled Money Investment Board, and the Public Works Board.

Until AB 1473, no California statute provided for a statewide infrastructure plan or strategy. This fact has been noted in every major report on the status of California's infrastructure released in the last two

decades. California Code sections 65025 et seq. establish the Governor's Office of Planning and Research and direct it to develop "state land use policies, *coordinating planning of all state agencies*, and assisting and monitoring local and regional planning" (§ 65035, emphasis added). The prime vehicle for these activities is the state *Environmental Goals and Policy Report*. Its purpose is to "serve as a basis for judgments about the design, location, and priority of major public programs, capital projects, and other actions, including the allocation of state resources . . . through the budget process" (§ 65047). This report, which was required to be revised and submitted to the legislature every four years, was prepared and adopted only once, in 1978, with the title *An Urban Strategy for California* (Executive Order B-41-78).

The state planning statute makes two links to the Department of Finance and the state budget. It states "the necessity of allocating fiscal and other resources of the state among competing programs and needs *requires integration of the planning and executive budget functions within state government*" (§ 65032, emphasis added). The law also states that the Office of Planning and Research shall "assist the Department of Finance in preparing, as part of the annual state budget, an integrated program of priority actions to implement state functional plans" (§ 65040). Yet the law stops short of specifying that the *Environmental Goals and Policy Report* be used to make these links.

These provisions for state planning have not been used since the first and only *Goals Report* of 1978. Tellingly, recent reports on California's infrastructure have not mentioned the Office of Planning and Research's statutory roles or the *Environmental Goals and Policy Report* (California Business Roundtable, 1998; Legislative Analyst's Office, 1998a; Angelides, 1999; Commission on Building for the 21st Century, 1999a, 1999b). The Constitution Revision Commission mentioned a four-year strategic plan prepared by the administration for statewide policy (California Constitution Revision Commission, 1996). Its strategy included a capital facilities and financing plan.

In contrast, state law applicable to the Department of Finance regarding infrastructure is more explicit and revealing. The article governing "Capital and Infrastructure *Project Planning*" stipulates that the Director of Finance shall prepare a report for the "*financing* of major

capital outlay *projects* and infrastructure *projects*” (§ 13100, emphasis added). The stipulation is satisfied by the annual *Capital Outlay and Infrastructure Report*, which is required to “be used to plan for the state’s long term financing needs in a manner which will protect the financial integrity of the state.” The law does not mention any links to land use, the economy, or the growth of the state. Nor does it specify performance criteria that measure the effectiveness of capital investments. The *Capital Outlay and Infrastructure Report* is used in conjunction with the treasurer’s annual *Debt Affordability Report* for the state’s investment financing, not planning. As the titles of these two reports suggest, the state’s eye is on its credit rating, not the purposes for which infrastructure investments are made. Neither report guides the provision of infrastructure or its location, amount, type, design, construction, use, or cost. Likewise, neither guides agency and departmental infrastructure planning except to articulate resource constraints on capital programs.

In response to the state’s planning processes, many official publications and commissions, not to mention nearly all of those interviewed for this research, have stated that California is relatively strong on project planning by individual state agencies and weak on statewide planning and strategy by the administration.

Types of Plans

Within the array of infrastructure planning activities in the state, we identify below five major categories.

Capital Outlay and Infrastructure Report

Author:	Department of Finance
Time horizon:	One-year capital budget Five-year capital program
Basis:	State departments submit list of capital projects and Capital Outlay Budget Change Proposals
Period:	Prepared annually

Capitalized Assets Plan

Author:	State departments
Time horizon:	Five years

Basis: Capital projects
Period: Prepared annually, compiled by the Department of Finance into the Capital Outlay and Infrastructure Report

Capital Outlay Survey Responses

Author: State departments, tabulated by the Department of Finance, included as part of the *Capital Outlay and Infrastructure Report*
Time horizon: Ten years
Basis: Programs and fund sources
Period: Prepared annually

Department Plans

Author: State departments
Time horizon: Varies from five to 20 years⁴
Basis: Varies, depending on governing statutes and state and federal policies and procedures
Period: Varies from annual to unspecified

Strategic (Business) Plans

Author: State departments
Time horizon: Varies, three or more years⁵
Basis: Sound business practices
Period: Prepared every three to five years, upon the expiration of the prior strategic plan

⁴Time horizons vary among and within departments, depending on the governing statutes. For example, the California Transportation Commission was required by law to prepare a 10-year comprehensive needs assessment. The federal Clean Water Act mandates that a 20-year Needs Survey for wastewater, combined sewer overflow, storm water, and other water quality treatment infrastructure be prepared every two years.

⁵Strategic plans are medium-term, action-oriented business plans instituted in the Wilson administration. For example, the Department of Water Resources published its first Strategic Business Plan in 1994, and its second in 1997. The University of California's "strategic plan" is in the form of a governor-legislature-board of regents compact, the first of which was enacted in 1995 for a four-year period.

Note that the first and third documents listed are more properly reports, not plans.

Two types of plans are used in capital planning. One is a short-term, project-based, budgetary plan used by departments, the administration, and the legislature in the capital outlay budget process. The other is a medium- to long-term, program-based plan used by departments to guide their operations. According to evidence gathered during our research, departmental planning is more common, sophisticated, and frequently used than ever before.

Short-term budgetary plans are established according to the detailed SAM requirements issued by the Department of Finance. Longer-term plans are prepared according to attending professional traditions and in compliance with state and federal laws. Some agencies prepare only five-year Capitalized Assets Plans and Strategic Plans. Each year, departments and agencies prepare and submit a five-year capital plan as part of their capital outlay budget package. Most departments also prepare strategic plans. Introduced by a Wilson administration Executive Order in the mid-1990s, strategic business plans are new to state government and still in an experimental phase. Departments that prepare them are experiencing a steep learning curve.

Despite requirements to prepare five-year plans and 10-year surveys, the overwhelming emphasis is on the annual capital outlay budget, particularly the COBCPs, which are planning and budgetary documents that detail particulars for capital projects. COBCPs must support a department's strategic plan, and "all departments within the Administration (which excludes constitutional officers, constitutionally created boards and commissions, and the higher education segment) must have a strategic plan approved by the Governor's Office before the DOF will consider a COBCP" (California Department of Finance, 1999b, §§ 6812, 6816). Although departments may use their strategic plans for their own purposes, in practice the use of strategic plans in the budget process appears to be a perfunctory check. As one budget staff member commented, "It's been so long since I've looked at them. I can't even remember."

The five-year Capitalized Assets Plan is designed to identify projects, set priorities among them, and relate the department's annual capital

outlay program to its strategic plan. Departments are to base these plans on “statistics and projections, and changes in statute driving program needs,” and to “discuss . . . growth trends, changing methods or locations of service delivery, and new service requirements” (California Department of Finance, 1999b, § 6820). Many agencies with less-developed capital planning programs provide few data beyond the budget year. This is partly because of the SAM, which prescribes a constrained set of factors to consider in the out-years. Some agencies that have well-developed planning programs, such as Caltrans, Corrections, Water Resources, and higher education, provide more robust data.

We found that the strength of the linkages among agencies’ policies, plans, programs, needs, and budgets varied widely. A high degree of accountability, and therefore attention, is placed on budget-year capital expenditures at the expense of medium- and long-term plans. No link is required between a department’s five-year Capitalized Assets Plan and its strategic plan. No link is required between a department’s 10-year capital survey responses and its strategic plan. Moreover, the strategic plan is not required to be submitted to the Department of Finance in the capital budget process. This state of affairs also could be inferred from the pages in the SAM’s sections on capitalized assets. Only six pages are devoted to planning, whereas 87 are dedicated to budgeting, project administration, and financing. According to one long-time public executive, the system favors “short-term budget balancing, not long-term asset management.”

Project Orientation

“To define infrastructure as projects tends to limit what is infrastructure.”

*Dale Claypoole, Deputy Director,
State Water Resources Control Board*

Another feature of California’s infrastructure planning is its project orientation. For the most part, agencies prepare plans for individual capital projects, such as prisons, schools, bridges, hospitals, or buildings. Department-wide plans tend to aggregate individual capital project proposals into an overall “plan.” Rarely do state agencies prepare

infrastructure plans for functional programs, such as wastewater treatment. Instead, the Departments of Water Resources and Health Services calculate the number of projects that can be built based on the allocation of federal Clean Water Act funds to the State Safe Drinking Water Revolving Fund. Caltrans explicitly operates in this fashion, basing its building program on gas tax revenues and federal grants. This formula of back-calculating the number of projects that can be built from available funds typifies the “needs” assessment process. Delimiting need by identified funding forms the foundation of infrastructure planning in California.

An exception to project-based planning is K–12 public school planning by the Department of Education. The department’s enrollment projections are based on Department of Finance demographic projections. Future enrollments are allocated to classroom space based on the state’s policy for teacher-student ratio and the district’s policy for multi-track year-round teaching. The Department of Education uses as close to a needs-driven assessment formula as any state agency. Even so, school facilities managers acknowledge that it is not a pure needs-driven system. The very definition of need changes over time, depending on local demand for new technologies, or more emphasis on science and math, or more emphasis on arts and sports, or magnet and charter schools, and so on. As with other types of infrastructure, older algorithms for determining facilities needs in education no longer apply. Greater parent, student, and community involvement; more partnerships with private and nonprofit entities; and shifting demands placed on schools and their graduates have changed public attitudes about what kinds of educational facilities are necessary.

The emphasis on projects is due to four main factors. One is the nature of the state’s capital budgeting process, which is controlled by the Department of Finance. Focusing on the current budget year, it funds projects under construction or scheduled to begin construction. Another is the decentralized structure of state agencies, which solicit capital project requests from subordinate divisions, branches, field offices, and other non-headquarters units. Small units tend to think in terms of individual projects rather than statewide programs. A third factor explaining the project basis for infrastructure planning is inherent in the

structure and operations of state government. In the absence of any broad growth or infrastructure policy, strategy, or plan, and in the absence of programmatic categories driving infrastructure planning, the legislature often gets involved in the minutiae of project financing and approval. Thus, the legislature also falls into the project trap. Finally, the political nature of the current capital budget process favors specific projects that legislators can win for their constituents. The political opportunity to champion a specific project in a legislator's district leads to earmarked funds: classic pork barrel, according to one long-time participant. Capital Outlay Budget Change Proposals have state senatorial, assembly, and congressional districts listed at the top of the first page. The project system is in stark contrast to a programmatic approach. One example of a program-based bond was the \$2 billion Seismic Retrofit Bond of 1996, which is widely regarded as a successful capital program. It gave the legislature a chance to engage in its classic oversight (as opposed to pork barrel) capacity.

Project-based infrastructure planning has its strengths and weaknesses. Three weaknesses were mentioned in virtually every interview we conducted. First, the project system is "too political." Here we note that politics is not limited to the legislature. Second, it takes too long for a project to get built. Costs increase unnecessarily and needs change before the project is up and running. Third, individual projects are isolated from a larger strategic vision for the state. A state strategy would guide investments to where they are needed most, ensuring a better return per dollar invested. Another weakness is that project planning has, in some cases, favored large or rich local jurisdictions. In the competition for projects, jurisdictions that can afford to prepare persuasive applications and conduct persuasive lobbying are more likely to succeed.

The project basis for capital planning also has its benefits. The COBCP process is elaborate, with a high degree of accountability for funding new projects. Projects are coordinated and reviewed by project management and budgeting agencies, notably Finance, General Services, the Public Works Board, the Legislative Analyst's Office, and legislative committees. The process also promotes a high degree of specificity, so the state knows exactly what it is paying for. Finally, it provides tight

cost control as a result of close, multi-phase review of project development. Cost control is somewhat illusory, however, as apparent savings gained in the bid process are lost in the augmentation process. (Projects are augmented up to 20 percent without reauthorization by the legislature.) Some agencies, such as higher education, make an effort not to augment and make augmentation the exception rather than the rule.

A defining characteristic of capital planning and budgeting in California is that detailed project review and budgeting substitute almost completely for capital planning at the administration level. Large agencies with huge capital budgets plan, but they do so with little formal guidance from the administration.

Decentralization and Devolution, Fragmentation, and Coordination

Infrastructure planning mirrors two related trends in California government. The first is decentralization and devolution, the other coordination. By decentralization, we mean a dispersal of authority at the same level of government; by devolution, we mean a shift to a lower, smaller level of government. Here we analyze how these trends have been playing out in the administration, particularly the Department of Finance and in the state agencies.

Among state agencies, the evidence for decentralization and devolution includes the following:

- Senate Bill 45 of 1998, which allocated 75 percent of transportation funds for new capital projects to Regional Transportation Planning Agencies after overhead and SHOPP (maintenance) funds have been deducted.
- The Lanterman Act of 1969, which authorized the transfer of \$1.1 billion annually (in current dollars) to nonprofit Regional Centers for developmental services.
- The Coffelt Settlement, which directed the Department of Developmental Services to provide substantially increased support for community services.
- The Department of Water Resources, which passes federal flood control funds to over 2,000 local flood control districts.

- The California State University partly decentralized its capital planning to the campuses, each of which prepares a campus master plan. The CSU system sets capital priorities for the current (in-year) capital budget.
- The University of California, which decentralized its capital planning to the campuses, each of which prepares a Long Range Development Plan.
- The Department of Health Services and the Department of Water Resources, which administer the federally funded State Safe Drinking Water Revolving Fund, providing capital funds to approximately 1,800 municipal water districts.
- The Department of Education and the State Allocation Board, which administer funds for the capital programs for 1,000 local school districts.
- The Department of General Services, which prepares Area Plans for 12 regions, and combines them into the Statewide Facilities Plan.

The case of flood control shows not only decentralization but devolution and fragmentation as well. The remedy to these combined centrifugal institutional forces is coordination. Yet coordination has its costs, as amply demonstrated by the management of flood control facilities. Flood control in California involves 9 federal agencies, 10 state agencies, and 2,000 local flood control agencies.⁶ The federal government passes capital funds for flood control through the Department of Water Resources to local districts. Federal devolution of power (money to build facilities) and authority (program criteria) to the states is repeated by the State of California, which devolves power and some authority directly to local districts without a regional intermediary.

⁶Federal agencies are Army Corps of Engineers, Federal Emergency Management Administration, Bureau of Reclamation, Fish and Wildlife Service, National Marine Fisheries Service, Geological Survey, Environmental Protection Agency, Small Business Administration, and the Department of Housing and Urban Development. State agencies are Reclamation Board, Department of Water Resources, California Water Commission, State Water Resources Control Board, Department of Fish and Game, State Lands Commission, CALFED, Office of Emergency Services, Department of Housing and Community Development, and the Department of Real Estate.

Fragmentation occurs throughout the system, a by-product of institutional design as well as limitations in oversight. The staff available to review local programs limits oversight. Fragmentation is particularly in evidence among the local flood control districts. There are 14 types of local districts, spanning public, private, and quasi-public forms of incorporation. Each has its own style and constitution, which contributes to system fragmentation.⁷ Flood control makes clear how highly articulated the institutional structure of public works can be. In the case of flood control, decentralization and devolution carried with them the costs of fragmentation, mainly in the form of increased transaction costs, as more coordination became paramount.

As capital facilities planning has become more open to participation by the public, special interests, and other jurisdictions, planning has taken more time and money. The advantage, at least in theory, is that plans have become more informed, more balanced, and less politically burdensome for politicians to the extent that they adjudicate interests in the planning process. In practice, recalcitrant interests have taken the proceedings to court or steered the process behind closed doors. An example of this new reality has been planning in the San Francisco Bay and San Joaquin Delta, which has evolved in the 1990s to be known as CALFED. Like other complex, multi-year collaborations, CALFED has coordinated planning, pooled knowledge and resources, and shared risk. There has been a profound change in the way water business is done since the heyday of the State Water Project. “If we want it, we can build it” summed up the attitude in the 1960s and 1970s. Even though the Department of Water Resources enjoys the same bonding authority and legislative framework now as then, it has become more cautious and collaborative. In effect, the state realized it could not go it alone.

Flood control and CALFED bring to light institutional intricacies that constrain the planning and building of infrastructure throughout the

⁷The 14 types of local flood control districts authorized by legislation are Water Replenishment Districts, Water Storage Districts, Community Service Districts, Resource Conservation Districts, Municipal Water Districts, Water Conservation Districts, Water Districts, Irrigation Districts, County Drainage Districts, Reclamation Districts, Levee Districts, Special Acts County Districts, Cities, and Counties (California Department of Finance, 1997).

state. Local agencies are gaining more power and more freedom to set their own agendas. State agencies build less but gain more oversight. In the face of decentralization, devolution, and fragmentation, local and state agencies require more information, more planning, and more coordination to execute capital programs. This shift has led to skyrocketing transaction costs and costly dysfunctions as the multitude of jurisdictions adapt to a more complex institutional scenario. Mounting needs coupled with scarce resources compound this complexity.

These new realities are readily apparent, but other less evident changes may be more insidious. Local agencies tend to have fewer resources than the state to reduce the growing gap between the rich and the poor. In particular, localities are less likely to absorb the soft costs of increased planning, coordination, and local resistance unless supported by state or other assistance. As a result, state goals have begun to take a back seat to local wishes unless accompanied by incentives or sanctions. These trends signal serious shifts in the power landscapes of California's infrastructure. As localities have more money to build, they will continue to gain power.

The general response to decentralization, devolution, and fragmentation has been to coordinate processes, information, institutional arrangements, and resources. Coordination is a new mantra and trades under names such as partnership and collaboration. It has been going on for generations between state prisons and county jails and between the federal Bureau of Reclamation and the Department of Water Resources. New initiatives often require it as well. For example, the sexually violent predator programs involve a good deal of coordination between the Departments of Corrections and Health Services, the courts, legislature, and local entities. Our interviews for this study indicated that coordination has become indispensable, as lines of authority, responsibility, and accountability are redrawn regularly.

The best-documented lack of coordination in infrastructure planning is between the administration and the state's agencies. There have been no instruments to codify an overall state policy and no institutional structures to effectuate it. The only coordination among agencies at the state level has been for state capital budgeting and capital facilities project management. These are important but limited. Capital budgeting is

short-term, and project management is a micro-management tool compared to the breadth of state policy. Even in these two areas, the state struggles to cope with the vast amount of information needed to perform its mandates.

Project Planning Coordination

The Department of General Services manages the state's real property and maintains the Statewide Property Inventory, a centralized real estate management information system. The system includes a comprehensive inventory of all leased facilities managed by the department and all state property except for Caltrans's roadways and rights of way as well as the State Lands Commission's listings for school lands. The Statewide Property Inventory is used by the Department of General Services to help manage the state's real estate assets and to respond to queries by others. It is not used by the Department of Finance to manage capital facilities or to coordinate information or processes.

The Department of General Services controls capital project management with the exception of facilities exempt by legislation, which include highways, prisons, airports, water projects, and universities. Thus, the department manages buildings rather than public works. Its project management software was developed over the years through use and refinement. Another project management system is being developed by the Department of Finance to track the scope, cost, and schedule of capital projects. It is tentatively called the Capital Outlay Project Tracking System (COPTS) and is supposed to be linked to the state capital budget. Preliminary discussions with the Department of General Services regarding coordination have begun. It is premature to assess what degree of integration, if any, there will be between their project management database systems. For now, agencies have their own project management methods. For example, Caltrans uses the State Transportation Improvement Plan and the State Highway Operations and Protection Plan to manage its assets.

Efforts to link all the statewide capital assets database management systems (including the Statewide Property Inventory, the Statewide

Facilities Plans, the General Services Project Management System, the Capital Outlay Project Tracking System, Capital Outlay Budget Change Requests, and the *Capital Outlay and Infrastructure Report*) are at the discussion stage only. Some of these components are organized in databases; others are disparate data, to be assembled as required. The extensive overlap and duplication among these databases leave ample opportunities for streamlining. Participants believe that full integration will take years. An example of a database coordination effort in progress for decades is the consolidation of demographic forecasting in the Department of Finance. State agencies that use the DOF's projections in their own capital planning indicate that they are better overall than what existed before the centralization of demographic forecasting. They further indicate that having uniform projections enhances state capital budgeting efforts and agencies' capital planning processes.

We found that the need for increased coordination has risen markedly because of the increasing complexity, decentralization, devolution, and fragmentation within the institutions that manage infrastructure. That need is most apparent in the weak ties between long-term policy and planning and short-term budgets and projects. Current coordination efforts at the state level are mostly spearheaded by the Department of General Services (for project management) and the Department of Finance (for project budgeting).

Needs Assessments

“There is always more need than funding, by far.”

*Diane van Maren
Associate Secretary,
Health and Human Services*

The above quote is considered a truism within state government. Nearly every person interviewed gave a variation on Secretary van Maren's response. Our historical review indicates that needs-funding gaps have been identified in times of economic bust as well as boom. Yet recent reports seem to bear out the anecdotal evidence. Depending on

the assessor and the relevant time frame, these reports show gaps in funding amounting to billions of dollars.⁸

This section does not include a new calculation of need or an exhaustive analysis of other such calculations. Rather, it asks the broader questions of how need numbers are derived: Who conducts the assessment? For what purpose? How are needs calculated? What motivates the methodology? We examined a range of factors that shape need determinations: policy, headlines, and politics along with professional standards, growth projections, and service deficits. We also analyzed how tradeoffs were made in needs assessments, including decisions to build new facilities or repair existing ones; to predict needs based on actual user demand or future growth multiplied by needs standards per capita; and to react to current problems or to anticipate new ones. Our results indicate that needs assessments were based on a wide range of disparate factors; that needs data were biased in unpredictable ways; and that assessment methods were inconsistent across agencies. The resulting inconsistency and unpredictability have led to what some have called “beauty contest” prioritization.

Sketchy Data

Needs data tend to be aggregated from individual project data as they move up the bureaucratic chain. Examples include data gathered by the Department of Corrections, the Department of Water Resources, and the State Water Resources Control Board for sewage treatment. For the most part, errors accumulate and are not excised as they go up the ladder. Capital Outlay Budget Change Proposals, the most common documents used to specify needs, are used to prepare the annual *Capital Outlay and Infrastructure Report*. These proposals are sometimes based on old information or assessment criteria. The *Capital Outlay and*

⁸California Department of Finance (1999a) estimated an unfunded balance of \$6.4 billion over 10 years. The California Business Roundtable (1998) calculated an unfunded balance of \$6.6 billion over the next 10 years. The California Transportation Commission (1999) estimated needs ranging between \$62 billion and \$73 billion over the next 10 years, depending on level of service, not including interregional improvements in urban areas. These reports did not include big ticket items such as the Peripheral Canal, CALFED, the State Water Project, high-speed rail, or a ferry system for the Bay area.

Infrastructure Report is itself incomplete, as it excludes possible projects (such as high-speed rail) and recurring needs from the State Water Project, the State Transportation Improvement Plan, and the CALFED water process.

Needs assessments are inconsistent and incomplete for a variety of reasons:

- Different time horizons: five, 10, or 20 years
- Lack of sufficient resources and staff to prepare assessments
- Lack of adequate data and documentation
- Lack of attention to a documented problem, such as non-point source pollution and combined sewer overflows before the 1990s
- Lack of a method to calculate needs, such as life-cycle rehabilitation schedules
- New findings that change what we know, such as seismic stress models for structural safety
- Low levels of awareness that a problem exists, such as lead paint, asbestos, and other health and environmental concerns before the 1960s
- No auditing of departmental data submitted for the *Capital Outlay and Infrastructure Report* by the Department of Finance

We found that the most common denominator of the state's needs assessment information is its inconsistency. This inconsistency is compounded by the fact that the Department of Finance does not audit departmental infrastructure data submitted to it in annual reports. Faulty data have their price: in this case, less than optimal judgments and decisions. Lack of consistent and enforced guidance in this area has led some agencies to see how much they can squeeze from the budget and appropriations processes.

Dollars Drive Needs

Some agencies, including Caltrans, the Department of Water Resources, the State Water Resources Control Board, and the Department of Health Services, base needs on the amount of money available to build facilities. Each of these agencies has a dedicated and stable source of funding. Other programs with predictable income, such

as revenue and lease revenue bond payments, also let available funding drive the “need.” Only when foreseeable funding is lacking do agencies project needs based on other factors. In some instances, program and policy needs determine infrastructure investments. A leading example of the latter is the Department of Education, which estimates school needs based on enrollment projections and class size ratios. When the Department of Transportation decides to build freeways and bridges during a recession, it does so more to stem the downside of the economic cycle than to meet rational needs projections.

Other agencies blend rationally projected needs data and available dollars to determine “need.” An example is the State Water Resources Control Board, which assumed this year that only half of the monies needed to pay for water quality facilities would be available from state and federal sources. In this case, the board’s definition of need was derived from the U.S. Environmental Protection Agency’s *1996 Clean Water Needs Survey Report* to Congress. Yet the board reported only half of that need to the Department of Finance for inclusion in the Capital Outlay budget because it “assumes that the demand for local assistance is about 50 percent of the total needs as documented by the 1996 U.S. EPA Needs Survey Report to Congress. Annual needs are estimated by . . . reducing the total by 50 percent to represent a reasonable demand for state and federal funding” (State Water Resources Control Board, 1999 *Capital Outlay and Infrastructure Report* submission to the Department of Finance, July 20, 1998, Table D).

React or Assess?

In many cases, infrastructure managers simply try to stay afloat. This is especially true when they must repair damage from floods, fires, and earthquakes. They must also respond to mandates based on new research, settled lawsuits, and other sources. For example, the Department of General Services Statewide Facilities Plan reveals that, after lease consolidation, most state office building needs are for seismic retrofit, PCB abatement, underground storage tank replacement, asbestos and lead-based paint removal, and Americans with Disabilities Act compliance. Because resources are scarce and incentives for foresight scant, managers often wait for these prompts, which often stem from the

latest headlines, to become institutionalized. For example, one official characterized the infrastructure needs assessment process in health care as “completely reactive.” Health services agencies begin their assessments with the fact that facilities are out of compliance with existing laws or court orders. Many state facilities have received numerous waivers to keep their doors open for business. Reactive needs assessment for these facilities is a result of their low priority.

Although infrastructure managers realize that headlines do not always indicate real need, they often feel resigned to acting when the political moment is ripe. They are caught between rigid methodologies for long-term needs assessment and fluid, short-term political processes. Their quandary is compounded by changes in markets, technology, and other conditions, all of which tend to move faster than the legislative process. In response to this quandary, managers have bowed to politics and become more opportunistic in assessing and reporting need. In short, these managers must strike a healthy and judicious balance between foresight and responsiveness. Legislative staffers are attuned to this tension as well. Infrastructure bills from recent sessions have stressed flexibility and fluidity, partly because many legislators understand the link between adequate resources and effective planning. According to Assistant State Treasurer Sumi Sousa, “If you had a lot more money, you could afford to be a lot less reactive.”

Need or Demand?

Infrastructure need and demand are not identical. For example, a need projection for schools multiplies the projected enrollment increases over a given period of time by the standard amount of space needed per student. This simplification does not reflect other factors that affect demand, including changes in income, technology, and the availability of alternative services. The point is illustrated by the recent compact to increase the number of science and engineering graduates by 40 percent. This compact responds to the demands of a new economy rather than to any demographic characteristic.

In the past, needs assessments based on standard parameters and user growth projections have been the norm. The very term “needs assessment” is a carryover from that mode of thinking, which focused on

common needs for sewers, water mains, roads, parks, and the like. For example, the State Water Resources Control Board calculates the need for sewage treatment facilities using the U.S. EPA's National Cost Model, as stipulated in the Clean Water Act. In contrast, the private sector focuses on market demand for consumer goods and services. An airline, for example, adds or drops routes to accommodate changes in consumer travel preferences. Today, the boundary line between pure need and pure demand is blurring as the public sector privatizes some service delivery, assumes other functions accorded in the past to the private sector, and forms partnerships with nonprofit and private groups.

An especially lucid example of how needs have changed and given way to more flexible demands is the case of California state prisons in the 1990s. After the three strikes law was passed in the early 1990s, each Department of Corrections Capital Facilities Master Plan, which based prison needs on the projected number of inmates, estimated that fewer new prisons were needed. The latest plan projected the need to be for only one or two new prisons.⁹ This trend shows how political and sentencing realities, including gains in experience with the effect of various sentencing laws, have tempered the needs assessment process and resulted in lower projections. This case also shows another factor in the needs equation—that of demand management. In prisons today, inmates are routinely double-bunked to halve the need for beds and save on costs. This practice has caused unsafe and unsanitary conditions and overcrowding, and most corrections officials believe double-bunking not to be sustainable over the long run. Even so, it is the norm today and for the foreseeable future.

Whether a need or demand approach is used, one trend common to all agencies is the use of decentralized methods. Projects are solicited from as close to the actual user or customer as possible. This approach relies on direct user feedback and data to determine actual levels of use rather than projections based on professional standards. The subtle relation between need and demand has yet to be fully exploited by infrastructure managers and policymakers in California. There is a need

⁹California Department of Corrections (1998).

for further research and analysis to ascertain how needs and demands data are used and misused in infrastructure planning.

Needs Assessment Summary

“Current needs assessments are not based on a comprehensive plan of investment, nor are they designed to achieve the goals of ensuring sustained economic growth, environmental preservation, equality of opportunity, and livability”

Angelides (1999, p. 5)

The treasurer’s view of needs assessment relates infrastructure to future goals and therefore stands in stark contrast to current practices. These practices include deriving needs from policies and programs, available dollars, future population projections, user demands, and a host of external mandates. This cacophony has led one official to observe that no magic formula applies universally to all agencies. Rather, each one has devised its own methods suited to its own types of infrastructure.

Regardless of which methods are to be adopted, a set of consistent principles for all agencies, the administration, and the legislature would ensure a level playing field that allows for fair comparison and judgments of priority. Taken together, the inconsistencies and inadequacies of the current assessment process reinforce the culture of political expediency.

Time Horizons

Time horizons currently vary from one to 20 years. At one end of that spectrum, 20-year assessments are disconnected from the realities of the executive branch, in which a new administration is elected every four years, as well as the legislative branch, which changes every two years. They also cannot anticipate changes in lifestyles and technology. Even the 10-year survey elicited quotes such as “Let’s get real!” and “way out there.” On the other end of the spectrum, most interviewees told us that one year is too short, calling the one-year capital budget process a “beauty contest,” “wish list,” “laundry list,” and an “infrastructure wants assessment.” Five years was considered to be the most realistic time horizon in state government. This period coincided best with political turnover, current capital planning, the budgeting processes, and the time

horizons of most departments' strategic plans. Five years is long enough to merit valid planning and short enough to be responsive to changing conditions. According to one veteran, five years is "as good as it will get."

Rapid advances in technology, new immigration patterns, the changing demands of a global society and economy, and the seesaw of economic and political cycles make flexible assessment methods a necessity. In an era that compelled Sun Microsystems CEO Scott McNealy to proclaim "new technology has the shelf life of a banana," state agencies struggle to balance far-sighted visions and short-term sure bets.

Demand Management

Demand management is a relatively new tool in infrastructure planning and needs assessment. Agencies increasingly use demand management to do more with less. It has become a necessity as needs far outstrip resources. The aim is to reap a greater return on capital investments by decreasing the demand for facilities and using existing ones more intensively. Cost savings accrue as less infrastructure is needed to serve the existing population. Conserving energy or shifting demand from cars to buses and trains exemplify two approaches to demand management. Most agencies have become more resourceful and inventive, finding new ways to deliver infrastructure services. Creative partnerships, new technologies, and local initiative have been at the core of demand management.¹⁰ The prevailing attitude has been *smarter*, not *more*.

In the past, state infrastructure planning accommodated or encouraged growth by building new facilities. Now state departments emphasize maintenance, rehabilitation, modernization, and demand management. Whereas the California Community College system's 1991 plan targeted new growth almost exclusively, its new plan will

¹⁰Local water districts work closely with the State Water Resources Control Board to calculate demand projections. Metropolitan Planning Organizations initiate means to reduce travel demand, in collaboration with Caltrans. Year-round schooling is a prerogative of local school districts.

emphasize technology, smart schools, the modernization of buildings and classrooms, and distance and virtual learning. Likewise, the State Water Project and Peripheral Canal proposal reflected an era in which new water projects were built to transport water over great distances. Today's water planning is almost entirely devoted to demand management in one form or another. Caltrans has built fewer highways and directs significant funds to intelligent transportation systems. It also researches and tests a range of demand management strategies, including congestion pricing, automated bridge toll collection, "smart" cards, and multi-modal interconnectivity of urban transportation systems. The Department of Corrections has instituted double-bunking out of necessity. The Department of Education promotes multi-track year-round schooling. The Department of Motor Vehicles instituted mail-in car registration to reduce the need for additional field offices.

Curiously, we did not find evidence of demand management programs for the most rapidly growing sector of infrastructure, telecommunications. This sector seems to be responding to consumer demand and providing as many options, channels, and modes as possible. This proliferation of choices matches the usual pattern of a new technology in its early stages.

Demand management can also be linked to performance targets, or benchmarks for specific infrastructure services. The goal is to ensure optimal use of existing facilities. In general, performance measures related to demand management for infrastructure systems are grouped in several categories:

- Conservation
- Demand reduction
- Healthier environment
- Greater cost savings
- More intensive use
- Fewer negative impacts
- Demand shift

Specific targets in use today include levels of service for traffic congestion, graduation rates and college accession rates for high school students, and pollution loads for water treatment systems. Many

departments do not use such targets, and those that do often employ outdated ones. This is evident in many health and developmental facilities, as new research and new types of stress-induced maladies alter our understandings of the nature of illness, wellness, and treatment.

Summary and Conclusion

Infrastructure planning decisions are based on the current political-economic-social climate as well as on long-term needs and program goals. They tend to reward short-term budget balancing, not long-term asset management. Partly because the administration lacks an infrastructure planning culture and a legal structure by which to effectuate it, each agency has developed its own planning practices. For example, the University of California culture is decentralized, collaborative, and demand-driven. Its calculations are based on informal, information-rich consultations with individual campuses. The State University and Community College systems, while also decentralized and collaborative, use more formalized ranking criteria and more formulaic processes. The Departments of Corrections and Education, which also possess decentralized cultures, use hierarchical chains of command to manage the planning by subordinate units. Such disparate cultures and styles go far in explaining differences and must be accounted for in reform proposals.

5. Budgeting

“One snapshot of our capital outlay on an annual basis does not meet the needs of a modern state.”

*Krist Lane,
Senate Committee for
Budget and Fiscal Review*

Along with debt financing, the annual process of budgeting for capital outlay dominates California’s infrastructure decisionmaking. Shaping the capital outlay section of the Budget Act directly involves nearly every major player responsible for the state’s infrastructure. The state’s capital outlay budget is based on an ad hoc blend of zero-based, prior-year-based, and performance-based methods. In practice, the prior year’s requests overwhelm budget submissions, relegating performance and zero-based methods to the background. A colloquial characterization of the budget process is found in the California Constitution Revision Commission (1996, p. 37): “Try as one might, the natural law that governs the budget process is: ‘You get what you got in the prior year, plus growth.’” Each department’s capital outlay budget request varies markedly from those of its sister agencies. This finding also holds true for other capital management documents and processes.

The SAM Guides the Process to Questionable Ends

Most officials we interviewed questioned the quality and nature of the budget process. Many commented on the scant attention to capital outlay compared to other sections of the Budget Bill, known as State Operations (such as maintenance, equipment, and labor) and Local Assistance (projects held under local ownership). Capital outlay was in “outer Siberia,” a “stepchild,” or an “afterthought.” As one interviewee put it, “There is no there there.” Others remarked on the process itself, calling it messy, fragmented, dysfunctional, bizarre, and micro-managed.

That these same persons and others held the legislative and executive budget staff in high esteem suggests that the problems lie in the governing legislation, administrative regulations, and the lack of policy guidance. This suggestion prompted the following questions. What do we really get from our annual capital budgeting process, and how do economic and financial forces sway these results? If results can be changed, can the process also be changed? What are the implications of using the SAM to guide the process?

Do Lists of Projects Make Good Budgets?

Put simply, the capital outlay budget process prioritizes projects. Because resources are scarce, this process receives intense scrutiny. Agencies compete fiercely for scarce resources; indeed, they often compete several times over as projects go through the Department of Finance, the governor's office, both houses of the legislature, and sometimes Congress or the ballot box. The process is time-consuming and political. From district managers to the governor, players use differing criteria to prepare, prioritize, and review the capital outlay budget.

To prepare the annual capital outlay budget, the Department of Finance solicits Capital Outlay Budget Change Proposals and Capitalized Assets Plans from the agencies. A Budget Change Proposal is required for all capital projects proposed for the Governor's Budget: that is, for any request for capital outlay appropriation and reappropriation. A Budget Change Proposal describes the project, its location, scope, time line, cost, and justification. Whereas agencies propose projects using Capital Outlay Budget Change Proposals, legislators do so using Budget Act amendments. The Department of Finance, which is the governor's management and budgeting arm, works closely with agencies to prepare their capital budget packages. If a project is submitted as a legislative amendment, it by-passes the agencies and the Department of Finance. Otherwise, departments aggregate the project requests of their subordinate units. The Department of Finance then combines departments' requests into the state's capital outlay budget. After weighing the agencies' requests against the total funds foreseen to be available, the DOF then selects the highest-priority projects for inclusion.

In so doing, the Department of Finance initiates a hierarchical chain of budget requests: Finance → Agency → Department → Division → Branch → other smaller units. Additionally, the departments initiate a geographical chain of requests through Regions → Districts → Stations → other smaller field offices. If capital outlay budgets are shaped in the wake of weak policy guidance, they will usually be swamped by the detailed and prescriptive procedural guidance used to hold line agencies accountable.

The administration and other entities may fold their own criteria into the process. For example, projects responding to court orders, licensing boards, and seismic and life safety issues are consistently given priority by the governor, DOF, the Department of General Services, the legislature, and the Legislative Analyst's Office. Aside from these criteria, however, departments use their own standards for constructing their lists. Some agencies, especially those with the largest capital planning and budgeting staffs, use elaborate and quantified prioritization formulae to rank projects. The Departments of Water Resources and Health Services prioritize wastewater treatment projects according to elaborate criteria established by the U.S. Environmental Protection Agency. State University uses a three-category system, with several tiers in each category. The California Community College system is changing from a three- to a six-category system with more than one tier in each category. By working with Caltrans and regional transportation planning agencies, the California Transportation Commission uses a weighted ranking system that factors in cost, a safety index, a delay index, and other criteria. Other agencies, including some with smaller staffs, place projects in rank order according to less elaborate procedures, policies, and criteria.

Because departments prioritize projects differently, capital budget packages vary substantially in their level of detail, comprehensiveness, and justification. Because of disparities among agencies, such as the experience and training of infrastructure professionals, and the resources allocated to capital planning and budgeting, decisions on funding end up being influenced by the quality of the relations between agency and Department of Finance staff. Furthermore, in the absence of clear policy or strategy from the administration, and because they are literally

compiled as lists of individual projects, capital outlay budget requests assume a “wish list” quality.

Consequently, prioritizing requests as they come up the chain is sporadic and inconsistent. In some departments, there is no filtering, and all requests make it to the Department of Finance. The Department of Finance is left to judge departmental capital asset matters and, as time permits, will engage departments in discussions to inform themselves about each department’s program and problems. However, the Department of Finance is afforded little room to maneuver in the exercise of this judgment, as little discretionary funding remains after outlays for continuing projects are budgeted. In such an escalating scenario of competing priorities, only the fittest flourish.

In sum, each department has a “proprietary” priority ranking system. If it is difficult, beyond issues of life safety, to discern a pattern in project selection from the annual list of budget items for capital outlay, this is because no central guidance for criteria exists. According to our interviews, the lack of a substantive statewide policy framework worked together with detailed and prescriptive procedural guidance to produce “wish lists” or “laundry lists” of infrastructure projects.

Legislative Exceptions to Priority Lists

The California EPA building and the East End Project, both under construction in Sacramento, are two examples of major projects that are being given greater detailed guidance on the part of the legislature. They are both part of a “design-build” program, and both acquired enabling legislation separate from the annual budget. Surfacing in times of surplus, such projects tend to be large and out of the ordinary. Like new prisons, they may also be controversial. Most are carried through the legislature at the request of the administration, perhaps using the legislature to avoid the Department of Finance’s competitive budgeting process. A DOF review eventually occurs, but it may take place under the duress of a last-minute rush, especially in the case of so-called “pork barrel” projects. This review is conducted on behalf of the governor to inform the governor’s signing and line item veto decisionmaking. Legislators posting projects are not required to provide details to the

Department of Finance. Although cooperation is common, many such projects obtain approval with little documented justification.

Just as legislators would like to read five-year plans and have greater oversight in the typical capital outlay process, the Department of Finance in its service to the governor would like more time to conduct reviews of projects introduced by the legislature. This tug-of-war is an age-old condition of our system of checks and balances. It is also likely to heighten perceptions of inefficiency on the part of the voting public. At the same time, more and more projects are generated by the legislature and the ballot box. This trend brings into focus a well-known feature of the capital budget process. Initiating new projects, with their visible advantages and ribbon-cutting ceremonies, is more glamorous than fixing existing systems.

The Characters of Appropriation

Capital outlay is one of three “characters of appropriation” in the governor’s budget that the Department of Finance defends in the legislature. The other two are State Operations and Local Assistance. All three characters of budget appropriation deal with infrastructure. The characters of appropriation are important because they determine which expenditure rules will apply to a budgeted program or project.

Requests for infrastructure maintenance, repair, and rehabilitation, can be found in capital outlay, State Operations (support), and Local Assistance. Alteration, addition, renovation, or betterment can fall under both capital outlay and Local Assistance. Maintenance, deferred maintenance, repair and special repair, and equipment replacement fall under State Operations. Given the dispersal of all the sorts of maintenance, repair, and rehabilitation across the budgets, it would be laborious and difficult to calculate their total costs using current budgetary management information systems. Neither the executive nor the legislative branch can provide summary statistics of aggregate statewide expenditures for maintenance and repair, broadly construed.

The importance of these categories and definitions is straightforward. When maintenance is segmented, scattered, compartmentalized, and hidden in the budget, attention is diverted from it. Because of its treatment and standing in budget laws and accounting procedures,

The Three Characters of Appropriation

Capital Outlay

The acquisition of land and real property, construction, improvements, equipment, designs, plans, and repairs necessary in connection with a construction or improvement project; including alteration, renovation, or betterment which extends the life expectancy, designed level of service, or alters/upgrades the function of a structure. This includes lease-purchase, purchase option, and fixed and moveable equipment needed for initial occupancy.

State Operations

(Capital-facility-related only—there are other categories of state operations): equipment not needed for initial occupancy; moveable equipment not part of capital outlay; replacement equipment; repairs, maintenance, and deferred maintenance which keep a facility functional at its designed level of services and life expectancy; relocation; leases and rents except those with purchase or purchase option; and alterations for leased facilities only.

Local Assistance

Grants to local agencies for the operation, maintenance, and acquisition or development of facilities or land, provided that the local entity retains ownership after the completion of the project.

These definitions are from California Department of Finance (1999b, § 6806).

maintenance is a low priority. As Lieutenant Governor Bustamante is fond of saying, “You don’t get any ‘atta boys’ when you push infrastructure.” There are even fewer congratulations for pushing infrastructure maintenance, whose significance is de-emphasized by expenditure rules under each character of appropriation. Legislation requiring funds appropriated for maintenance to be spent on maintenance have been vetoed. Big backlogs have mounted into full-blown new capital facilities needs, requiring replacement instead of repair.

Even an entity with an otherwise accomplished record in infrastructure management can accumulate large maintenance deficits.

Such was the case with the University of California, which listed more than \$500 million in deferred maintenance in its 1997–1998 budget. (This figure did not include seismic retrofits, which have been calculated to exceed \$1 billion for the Berkeley campus alone.) The university’s 1999–2000 budget proposed to use debt service to retire a small fraction of its deferred maintenance backlog—\$60 million. At this rate, however, it is difficult to foresee how maintenance will be brought up to date. The university’s assessment attributes high levels of deferred maintenance to three factors: annual underfunding for building maintenance, a lack of permanent funding for deferred maintenance, and insufficient resources from the capital improvement budget for replacing worn-out building systems.¹ The university is far from unique. It is instead emblematic of the state of the state’s capital facilities’ maintenance.

Experimenting with Performance-Based Budgeting

In principle, the capital budget is zero-based. In fact, it is based on prior capital plans and on continuing appropriations to approved projects that are in the pipeline. There are other bases on which to draw up a budget. One, a performance basis, has been tried in California and elsewhere. The Wilson administration tested performance-based budgeting in four departments with a pilot program. The initial intent was for departments to use their strategic plans to guide performance budgets. The tests obtained mixed results, with the exception of the Department of Parks and Recreation, which continues to use a performance basis. Departments other than the four involved in the pilot program have had sporadic experience in performance-based budgeting.

This innovation has been more fruitful when mandated by a federal program or suggested by an outside consultant following an in-house audit. The Department of Water Resources wastewater treatment capital program, based on the U.S. EPA’s Safe Drinking Water Act, is an example of the former. The Caltrans State Transportation Improvement Plan makes use of both, as it is based on the U.S. Department of Transportation’s Transportation Equity Act (TEA 21) and, increasingly,

¹University of California (1998b), p. 28.

a study from Stanford Research Institute (SRI). In addition, the STIP is perhaps the state's best instance of a budget linked directly to a long-term capital plan. California State University's 1995 Coopers Lybrand study and the California Department of Education's 1988 Price Waterhouse study led to capital budget process reforms that have reaped significant time and cost savings. Both reform efforts serve as models for other agencies as they strive to change their practices.

The UC system introduced performance goals into its budget with the advent of the compact it and CSU made with the governor and the legislature. It committed to honor a list of "important goals" that aim to maintain the quality of academic programs and to help California remain competitive in the global economy. Many of the goals of the first compact for 1995–1998 have been attained or exceeded.² UC and CSU are currently working on a second compact—Compact II—with the governor and the legislature. On the other side of the coin, the California Education Facilities Authority (CEFA) and the California Health Facilities Financing Authority (CHAFA) conduct no performance reviews, feasibility studies, or benefit-cost analyses for the projects they finance. They serve as mere funding conduits and only ensure that financial criteria for loan payback are met.

Even without innovations in performance-based budgeting, the capital outlay budget is more detailed than the State Operations budget. Not only is capital budgeting done project by project, but many projects are cost-estimated in exquisite detail. Other projects only have conceptual cost estimates. Substantial work must be completed on preliminary plans and working drawings before a project's construction cost estimates are placed in the budget. By contrast, the State Operations budget is no longer prepared at the line-item level but rather by general programmatic categories. For example, the CSU system calculates its support budget by a marginal cost per full-time enrolled student (FTE) basis. The fact that the capital outlay budget contains more detail than the State Operations budget seems counterintuitive, as capital expenditures are for large items and operations expenses are for small

²University of California (1998b), p. 19.

ones. Moreover, the capital outlay budget is more than an order of magnitude smaller than the support budget.

Our research revealed pros and cons regarding a project-based versus a program-based capital budget. With its multiple approvals, the project approach consumes more time but enables more accurate costing and pre-construction oversight. A program approach allows for speed and flexibility and encourages creative innovations from programming and financing to budgeting and construction. This approach would satisfy one capital manager, who told us “The state’s capital budgeting process is too long. By the time we get a building built, the needs change.” This capital manager is not alone. Many observers close to the process are asking whether a project-by-project budget makes sense in today’s environment.

Other Ways to Think About Budgeting

Funding priority is now determined by ranking projects in comparison to one another. There is no overarching state strategy against which the capital outlay budget could be measured. Instead, it is fashioned by weak policy guidance in a decentralized institutional environment. “As a result,” the LAO notes, “capital investment decisions are made more on an ad hoc basis. Funding proposals are often considered without an overall sense as to how any proposal fits within statewide needs and priorities” (LAO, 1998a, p. 2).

An alternative system would compare, prioritize, and adjudicate between capital programs according to more general social goals. To illustrate this point, consider comparative costs between prisons and higher education. According to the Department of Finance, capital costs per inmate exceed capital costs per student for the ten-year period 1999–2008 (Tables 5.1 and 5.2). Capital costs per prisoner exceeded those for a full-time community college student by over six to one. This comparison does not consider the annual operating expenses per inmate, which come to \$20,758. Nor does it consider research revenues and royalties generated by higher education. In 1997–1998 alone, the

Table 5.1
Corrections and Higher Education Capital Cost Comparison

	Department of Corrections	University of California	California State University	California Community Colleges
1999 population (FTE)	159,000	147,000	276,000	917,000
2008 population (FTE)	246,000	192,000	352,000	1,125,000
Population increase 1999–2008	87,000	45,000	76,000	208,000
Ten-year capital needs (\$ millions)	9,500	5,300	4,900	7,100
Capital costs per capita (\$)	38,618	27,604	13,920	6,311

SOURCE: California Department of Finance (1999a, Chapter 3).

Table 5.2
**1998 Construction Cost per Inmate,
Comparison at Rated Capacity**

Security Level	Cost per Inmate (\$)
I	16,000
I secure	41,000
II	42,600
III	48,200
IV	63,960
Reception	45,800
Women	52,500

SOURCE: California Department
of Corrections (1998, Table E, p. 4-4).

University of California and the national laboratories it manages produced \$4 billion of such revenue.³

The current planning and budgeting system also overlooks other factors. One is geographical. Every project has a place, yet this fundamental fact does not figure in the system. Prioritization by project alone overlooks whether the sizable gains that accrue from infrastructure investment benefit urban, suburban, rural, or environmental areas disproportionately. No map indicates where projects have been built, much less where they ought to be built. Another missing factor is social equity. Except within the confines of particular programs in selected departments, social equity criteria are not explicitly accounted for in the budget. Report after report has demonstrated that the gap in California between rich and poor is widening.⁴ The current approach to funding and locating capital investments has done little to narrow this gap in any systematic way.

How Financing Constrains the Budget Process

California's capital budgeting system is as competitive as it is because it is constrained by the amount of funds available. Funding availability is determined by the fiscal position of the state and the efficacy of the financing mechanisms in place. Although the state has little control over the economy, which determines its fiscal condition, it has full control over what means it chooses to finance infrastructure. With few exceptions (such as the gas, diesel, and weight taxes), the state has relied on long-term debt, which is not discretionary. As a result, the budget process itself cannot easily allocate money to a long and expensive list of needs. When there are no dollars available, little attention is given to capital outlay. In surplus years, it is the center of debate. This is a broad hint at how financing influences the system. Voicing a common view throughout state government, Pat Drohan, Assistant Vice Chancellor for

³Capital projections are from the California Department of Finance (1999a, Chapter 3). Operating costs and revenues are from the California Department of Corrections (1998, p. 4-5), and the University of California Office of the President (1998b).

⁴Reed, Haber, and Mameesh (1996); Mishel, Bernstein, and Schmitt (1999).

Capital Planning, Design and Construction for the CSU system, referred to this as “the tail wagging the dog approach.”

This trend toward long-term debt has increased markedly since the passage of Proposition 13, which also increased the degree of voter-imposed controls over public spending. With fewer dollars to go around, more have been leveraged out in the form of general obligation (GO) bonds. The total amount of GO bonds approved at the polls has risen from around \$1 billion throughout the 1970s to a high of \$9.2 billion in 1998 (State of California, 1999, p. 23). One trend has been to propose projects that will be built so far into the future that they do not concern today’s voters. For example, the legislature recently passed a 20-year process for private and nonprofit hospitals to obtain funding for seismic retrofits. Although preliminary cost estimates are close to \$24 billion for for-profit hospitals alone, first plans are not due until 2001 and work is not scheduled to start until 2008. The scale of such proposals stands in stark relief to those in the years before Proposition 13. In particular, they show the degree to which the capital budget is dependent on both long-term financing and voter attitudes.

The Capital Budget Surfs the Economic Wave

The economic cycle helps set a pattern for the types and amounts of projects funded from year to year. Fluctuations in economic prosperity have caused what amounts to a “boom or bust” mentality in infrastructure decisionmaking. The pattern has been cyclical to the point of being predictable. In lean years, departments as well as central agencies or the legislature try to do more with less. Faced with operating budget cuts, departments sometimes use funds normally reserved for maintenance to retain staff. Schools raise the pupil-teacher ratio. Prisons increase the number of inmates per cell. The Department of Water Resources devoted resources to educating the public on water conservation. Caltrans and Regional Transportation Planning Agencies tried to pack more autos safely into the same number of lanes and to encourage drivers to switch to public transit. In times of anticipated or realized surplus, such as in recent years, proposals pour in to the Department of Finance from departments that had deferred maintenance to the point of requiring major renovations or whole new facilities. Local

assistance projects also streamed in from legislators hoping to satisfy their constituents and alleviate some of the post-Proposition 13 financial burdens on their local governments.

There are many sound reasons for these patterns. Inflation tends to have a greater effect on construction than on other industries. If maintenance or new projects are deferred in lean years, everyone scrambles to cut into the surplus in times of plenty. In general, surpluses have coincided with low unemployment and rising material and labor costs. Knowing that the state must compete with the private sector for contractors of all sorts, there has been great pressure to secure appropriations, expand staff, and secure contractors as rapidly as possible.

6. Conclusions and Policy Implications

We found that the state’s capital management system still works but needs repair and updating. In this, it is like California’s infrastructure. Some parts of the system are sound but would benefit from a clearer policy framework to enhance judgments in support of future growth and social equity. For example, procedural adjustments to the budget process would afford significant efficiency gains in project approval and management. Two related parts of the system, planning and financing, function in reverse. The availability of financial resources rather than social demands define what infrastructure is “needed.” In this way, finance has constrained infrastructure development. This effect is compounded by the fact that the state of the art in public capital finance techniques lags behind that in the private sector.

Some regard this state of affairs as the *realpolitik* of infrastructure management in California. Others see it as prudent. On the basis of our research, however, we conclude that this approach has really been a *détente* that led to over 20 years of stasis in the evolution of infrastructure planning, budgeting, and financing. Some refinements have recently been passed into law (AB 1473). Others are being considered as of this writing: Assembly Bill 636 (Migden and Thomson), Senate Bill 915 (Peace et al.), and Senate Constitutional Amendment 9 (Peace and McPherson).¹ Although these bills address procedure, they do not go far enough in recognizing the larger forces at play in day-to-day infrastructure decisionmaking and management.

¹There are many other bills in both houses that deal with specific elements of infrastructure. They include transportation (SB 315 and SCA 3 (both Burton and Karnette)) and the Infrastructure and Economic Development Bank (SB 512 (Alarcon) and SB 808 (Peace)).

As we studied infrastructure policy and management, we found that the “system” is intelligible to insiders, opaque to outsiders, and not as intelligent as it could be. The fact that it is understood by specialists and not by citizens has a profound and pervasive consequence. Californians participate in a limited way in infrastructure decisions. This opacity partly reflects public attitudes. “Traffic and transportation” and “water” were at or near the bottom of a list of 18 issues facing California that were “most important for the governor and the legislature to work on in 1999. As a political topic, infrastructure tends to be dull. At least for the moment, however, political interest is high, creating room for effective leadership.

Insiders’ perceptions of the system provide clues to how the system functions and malfunctions, and they also offer cues to reform. This can be seen in the two prevailing metaphors for describing the system, besides the black box. Those who saw the system as a puzzle said they knew their own piece and a few others but not how the pieces fit together. Those who saw the system as a wheel viewed the policy framework as the rim, the administration as the hub, and the spokes as the agencies. Most often, they perceived the wheel as having a flimsy hub and no rims. They were also the clearest about what was necessary to correct inadequacies: namely, a stronger hub and rim.

Key Characteristics of Infrastructure Decisionmaking

We found that three characteristics of infrastructure management override all others. The first is its project-orientation. The state’s capital planning, budgeting, and financing are conducted mostly project by project. Each department or agency prepares plans for specific capital projects such as prisons, schools, bridges, or hospitals. It then aggregates these proposals and presents the list as its overall plan. As a result of this approach, California is relatively strong on project planning by individual agencies and weak on statewide planning and strategy. Indeed, the administration lacks both an infrastructure planning culture and a legal structure to enable it. Instead, each agency has its own planning practices. As state government becomes more complex, the

disparities across agencies carry with them the costs of fragmentation. In particular, coordination becomes more expensive as departments, agencies, and other interest groups proliferate.

The influence of the annual budget process is another feature of the state’s approach to infrastructure decisionmaking. Insofar as the system is project-oriented, it is guided by the details of the budget process rather than by broad policy goals. Indeed, that process provides no formal mechanism for evaluating projects against one another or matching them to overarching state priorities. Consequently, it rewards short-term budget balancing rather than long-term asset management. Because the budget process is an annual snapshot, it does not anticipate or respond well to changes in the business cycle. As a result, the state loses the ability to control construction costs and offset economic downswings with public works spending.

The third major characteristic of infrastructure decisionmaking is that it is finance-driven. Over and above the DOF’s role in the annual budget process, finances tend to drive the system at every stage. Indeed, the availability of funds determines program needs rather than vice versa. This approach to infrastructure decisionmaking is simple, easy to follow, and deceptive. It tells the story backward by defining social needs according to the state’s current budget. It also tends to neglect assessment and regular maintenance in favor of crisis management. Finally, it emphasizes a single financial instrument, long-term debt, and ignores other financial options that could help close the gap between identified needs and available funds. By focusing on a small set of financial factors, the current approach avoids looking at California’s infrastructure system as a whole (see Table 6.1).

Table 6.1

California’s Infrastructure Institution: Key Variables and Vacuums

Prominent Features	Missing Pieces
Finance driven	Demand and need shaping budget
Budget process steers system	Strategic framework to guide system
Project basis	Program basis to guide planning, budget

Specific Findings

1. **Identified infrastructure needs outstrip available resources.** The current policy debate proceeds from this consensus view.
2. **Infrastructure decisionmaking occurs in complex networks.** These networks, which have developed incrementally, do not always serve the state well. Unraveling the whole that these interlocking networks form—a kind of institutional surgery—is a painstaking process. Recent and current attempts at reform have cut open parts but not the whole. This piecemeal approach has been a direct outcome of the bias of the system toward projects and the lack of a statewide strategy.
3. **The definition of infrastructure is changing.** Infrastructure used to be pipes, wires, and roads provided by the government. Now it includes land and buildings, information systems and satellites, and a spectrum of public and private services. Ownership and responsibility are less clear; partnerships and problems are more common.
4. **Competition for infrastructure resources is the inevitable by-product of project-based financing and budgeting.** In the absence of big-picture planning, the legislature has become involved in details rather than in long-term leadership and oversight.
5. **A complicated formal system shapes the budget, but that system lacks a mechanism for dealing with substantive tradeoffs.** The current system relies on departmental planning, DOF oversight, and legislative control over the budget. The governor and legislature lack the information necessary to easily compare needs across departments outside the current budget year, or address issues beyond financial feasibility, such as social, regional, or income equality.
6. **There is no life-cycle framework for infrastructure.** The current approach favors financing and budgeting over planning and assessing. As a result, it overvalues short-term planning and new projects and undervalues maintenance. Systematic, cradle-to-grave planning is missing.

7. **The current system ignores the effects of the business cycle.** As a result, the state cannot offset economic downswings or use fluctuations strategically to control construction costs.
8. **Information for capital decisions is limited.** The *State Administrative Manual* specifies the content of Capital Outlay Budget Change Proposals, the core data in the budget process. The *Capital Outlay and Infrastructure Report* and the *Debt Affordability Report* (typically) have provided a debt capacity orientation to policymakers. Departments' five-year capital plans and strategic plans are not part of legislative review of the budget, with the exception of the Legislative Analyst's Office.
9. **Information is erratic and biased in unpredictable ways.** Each agency uses its own methods for planning and justifying its own budget. The quality of that information depends on the size, expertise, and resources of the agency.
10. **Resources dedicated to infrastructure management vary widely among agencies.** There is no centralized source for training and no centralized sources for the professional development of infrastructure managers and staff. Retaining expert staff, especially project managers, is difficult in the face of private sector competition in a strong economy.

Institutional Design for Infrastructure Management

The ultimate challenge for infrastructure reform is institutional design. Like a conductor without a score or an orchestra, changes to the budget process or the bond process are hamstrung. Listening to music is a seamless experience. We hear music and not the studio, the conductor, and so on. We use infrastructure seamlessly as well. We do not necessarily know or care when a phone line or local street becomes an optical signal, digital transmission, or microwave relay, or a county road, state highway, or federal freeway. We just want to communicate and get there.

The collectivity of organizations that manage infrastructure in California is not seamless. Agencies plan and operate independently, for the most part. Networks are fragmented and coordination is limited.

Decentralization and devolution have happened without an overall design that assigned commensurate accountability and responsibility. Our fragmented institutions suffer without the benefit of a guiding document that articulates a single strategy. They suffer without effective coordination from a single entity.

We found that the transaction costs needed to overcome these systemic institutional deficiencies are high. In high-risk and high-uncertainty situations, attending transaction costs will remain high. In most other scenarios, they could be lowered substantially. Transaction costs are measured in the time, staff, resources, information, and coordination costs to manage a “transaction,” or in the case of government, a program. Institutional redesign can factor in transaction costs as it reconsiders infrastructure management options.

A responsive institutional methodology answers these challenges with an open systems architecture that values flow and coordination over checkpoints and control. This approach points to a new sort of coordination agency, one that serves as a central information processor. Although AB 1473 positions the DOF for just such a role, at the moment there is no central processing, strategic thinking, or information management system. Instead, these functions are diffused among several entities: Finance, General Services, Treasury, and the governor’s office. A responsive institution incorporates the principles outlined here by considering the roles and responsibilities of each player, especially the structural and procedural links among them, in the context of the entire polity.

Keeping a loose and dispersed set of networks working together is partly a matter of institutional design. It is also a matter of having an adaptable, accessible management information system that cuts across organizational lines, and a coherent strategy that makes efficient use of the system. The passage of AB 1473 may mark a step in the right direction, but its success hinges on the design of new implementing regulations. A framework with strong principles and a process that is both iterative and interactive is better suited to California’s governance than a standard, universal, detailed prescription that applies uniformly to all.

Life-Cycle Capital Investment Management

The raw materials of the infrastructure system have the makings of a complete capital investment management system. This system would adopt a life-cycle approach to infrastructure: assess, plan, design, budget, finance, build, operate, maintain and repair, rehabilitate and modernize, and re-assess (see Figure 6.1). This presentation does not imply strict serial order, as some activities would occur simultaneously. Some state agencies have already begun life-cycle programs. In effect, Caltrans has the elements of a life-cycle system with its State Transportation Improvement Plan, State Highway Operations and Protection Plan, and dedicated state and federal revenue streams. With more emphasis on planning (especially land use and demand management), expanding dedicated revenues, and integrating its systems, the department would be very close to achieving this goal.

Life-cycle capital investment management has implications for institutional design and information management as well. This is true for both the administration and line agencies. To continue with the Caltrans example, it has reorganized into five core areas that match its view of the life cycle: planning, operations, maintenance, capital outlay, and local assistance. (These also match, in part, the characters of budget appropriation.) Each core area prepares its own strategic business plan. A review of all capital management activities by the management and budget arms of the executive branch would inform the apportioning of duties within a life-cycle framework.

Perhaps the most critical link in the life-cycle chain, at least in California, is finance. The debt accounting process now in force does not allow for two critical functions. The first is an automatic funding mechanism that provides consistent and routine revenue flows for the entire life of an infrastructure program. The second is a type of sinking or revolving fund that pays for continual maintenance and upgrades over the lifetime of a facility. A dedicated percentage of debt service would automatically be deposited into this fund.²

²Another revenue-generating option, albeit minor, is to design state office buildings along commercial streets to have ground floor businesses. This has been the policy in New Jersey for a decade, to positive effect.

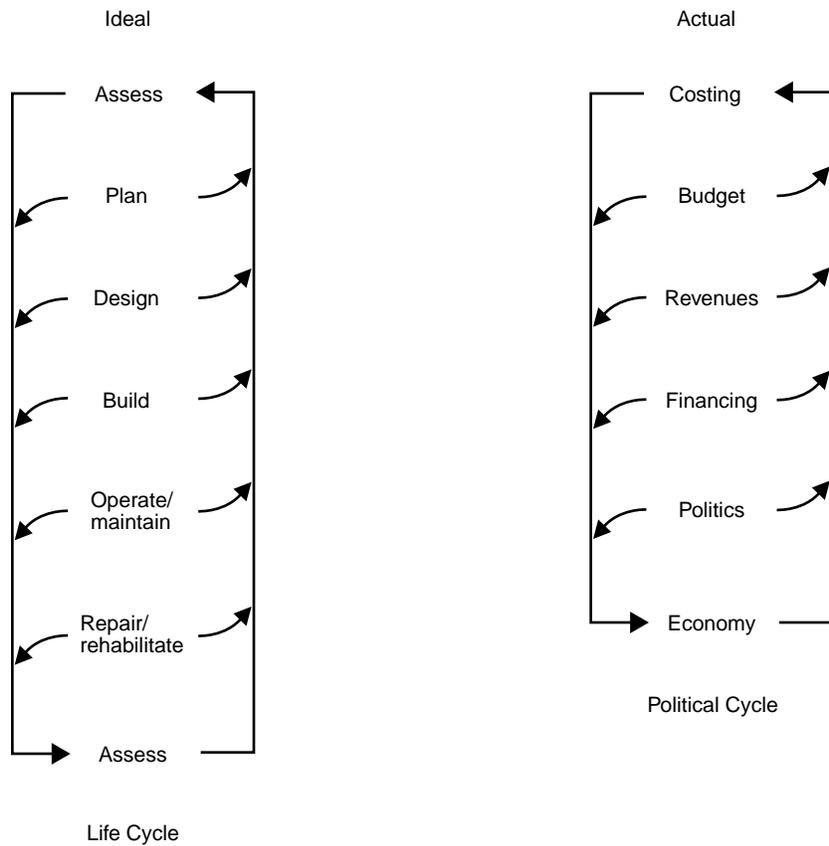


Figure 6.1—Life-Cycle Capital Investment Management

A life-cycle administrative support system could be retooled from the existing pieces. The biggest return on investment, in our estimation, would be in the area of management information systems (MIS). Efforts already under way set the stage for more complete coordination and integration. The Statewide Property Inventory is one database for a life-cycle MIS. In its context, Budget Change Proposals are Inventory Change Proposals. DGS's Project Management System and Department of Finance's emerging Capital Outlay Project Tracking System cover components of a comprehensive package. A valuable model that has been used effectively for decades is the Materiel Maintenance

Management (3M) system of the military. Administrative regulations are central to information management and ought to consider life-cycle parameters. This includes definitions of infrastructure and how they are treated in the characters of appropriation.

Any life-cycle system would have to be adaptable by the plethora of client departments.

The Changing Public-Private Interface

This study was completed in conjunction with another PPIC study regarding mechanisms to finance California's infrastructure (Dowall, 2000). When read together, these studies reveal vast changes under way in government, private sector, and nonprofit entities in their roles as infrastructure providers. Increasingly strapped governmental agencies are finding more ways to leverage private and nonprofit participation in finance, design, construction, management, and operations. California is no exception to this trend.

The University of California has been implementing design-build contracts for campus projects for many years. UC staff has found that certain types of projects lend themselves well to this form of contracting, where the project design and construction occur under one contract (largely on a lump-sum basis). When done properly, design-build reduces project costs and schedules by removing an entire bid cycle from the development process, giving greater participation in the development process to a single contractor or consortium of contractors. In turn, UC has been working closely with the Department of General Services, which also sees benefits in negotiating closely with contractors on a continuous basis between design and construction.

While it is easy to visualize the benefits for relatively simple and standard designs, the state is also taking on more complex efforts, such as the Capitol Area East End Project in Sacramento, as part of an overall pilot program investigating the potential for design-build. Any program that shares risks between government and the private sector will require increased mutual understanding of those risks to be successful. Like any new complex endeavor, there is a steep learning curve. In the short run, design-build projects, especially large and complex ones, may take more time to complete, until experience is gained and lessons are learned. If

our initial review of the legislature's role in the budget process is any indication, an environment of intensive and detailed oversight could spell high costs for this pilot program.

The UC and the legislature are not the only state entities embarking on more engaging relations with the private sector. State Route 91 in Orange County is one of several pilot projects for Caltrans and the California Transportation Commission in private transportation development. The State Treasurer's Office maintains perhaps the closest links to several private and nonprofit providers of infrastructure by providing financing for education and health care through CEFA and CHAFA. How well do these programs fare? Infrastructure financing is undergoing a sea change. California's lawmakers would be well served to investigate these changes.

Every Project Has a Place: The Geographic Imperative for Infrastructure

The purpose of infrastructure is to make the *places* humans inhabit more livable and productive. A municipality's general plan connects infrastructure to the future growth and quality of that place. This link is being reinforced by the rules governing the California Infrastructure and Economic Development Bank, which provides state funding aid to local infrastructure projects. A potential link at the state level and between the state and local jurisdictions exists in the form of the State *Environmental Goals and Policy Report*, produced by the governor. This report is out of date and not in use. Aside from the treasurer's *Smart Investments* (Angelides, 1999), no other statewide policy document regards the spatial aspects of infrastructure. The geography of infrastructure is the missing link in California infrastructure planning today. Infrastructure is the most visible contribution government can make to the state's growth. Infrastructure guides where, how much, and what kind of growth can occur. The current budgeting process should account for the geographic growth implications of infrastructure investments.

As California enters the next century, hundreds of billions of dollars will be spent on infrastructure in the first decades to shape its future. To match its history and fulfill its continuing promise as the Golden State,

its citizens expect their leaders to make the right choices. In this light, infrastructure planning and management reform is a small price to pay for such a big and vital payoff.

Appendix A

List of Persons Interviewed

Cliff Allenby	Interim Director, California Department of General Services
Larry Aull	Director, State Capital Program Development, Office of the President, University of California
Susan Baltake	Executive Director, California Education Facilities Authority, State Treasurer's Office
Gerald Beavers	Director, Business, Labor and Capital Outlay, Legislative Analyst's Office
Katie Benouar	Senior Transportation Planner, New Technology and Research, California Department of Transportation
Sue Bost	Principal Program Budget Analyst, Assistant Administrative Secretary to the Public Works Board, Department of Finance
Duwayne Brookes	Director, School Facilities Planning Division, California Department of Education
John Brooks	Chief, Asset Planning and Enhancement Branch, California Department of General Services
Jeff Brown	Consultant, Senate Office of Research, California Legislature
Marc Carrel	Senior Advisor to the Lieutenant Governor, Office of Cruz M. Bustamante
Sarah Catz	Deputy Secretary, State of California Transportation, Business and Housing Agency

Gail Chong	Associate Government Program Analyst, Budget Office, California Department of Water Resources
Kirk Clark	Program Director, California Business Roundtable
Dale Claypoole	Deputy Director, California State Water Resources Control Board
Judy Corbett	Executive Director, Local Government Commission
Curtis Creel	Engineering Assistant to Chief Deputy Director, Executive, California Department of Water Resources
Diane Cummins	Chief Fiscal Policy Advisor, Office of Senator John L. Burton, President Pro Tempore
John Decker	Budget Director, Assembly Speaker's Budget Office
Ken DeCrescenzo	Supervising Transportation Planner, California Department of Transportation, and staff member of the Commission on Building for the 21st Century
Lyle Defenbaugh	Metropolitan West Securities
Peter Detwiler	Consultant, Senate Local Government Committee
Patrick Drohan	Assistant Vice Chancellor, California State University
Steve Erie	Associate Professor, University of California at San Diego, and member of the Commission on Building for the 21st Century
Karen Finn	Principal Program Budget Analyst, California Department of Finance

Natasha Fooman	Legislative Representative, California League of Cities
Mike Ford	Principal Engineer, California Department of Water Resources, Division of Planning
Fred Harris	Administrator, Facilities Planning Unit, California Community Colleges Chancellor's Office
Bill Hauck	President, California Business Roundtable
Phillip Isenberg	Attorney at Law, Hyde, Miller, Owen & Trost
Dave Jones	Legislative Representative, California League of Cities
Fred Klass	Program Budget Manager, Department of Finance
Krist Lane	Senate Committee on Budget and Fiscal Review
Julia Lave Johnston	Program Manager, Local Government Commission
Jeanine Jones	Chief, Statewide Planning Division, California Department of Water Resources, Division of Planning
Gary Lotspeich	Chief, Budget Office, Division of Fiscal Services, California Department of Water Resources
Larry Magid	Executive Director, California Alternative Energy and Advanced Transportation Financing Authority, State Treasurer's Office
Lynne March	Chief, Intermodal ITS Branch, New Technology and Research, California Department of Transportation
Judy McGillivray	Deputy Director, Planning and Construction Division, California Department of Corrections

Mehdi Morshed	Executive Director, California High-Speed Rail Authority
Diane Munso	Chief, Construction Support Branch, Planning and Construction Division, California Department of Corrections
Chuck Nicol	Principal Consultant, Assembly Appropriations Committee, Office of Assemblywoman Carole Migden
Debra Obley	Director of Budget, University of California, Office of the President
David Pane	Assistant Fiscal Policy Advisor, Office of Senator John L. Burton, President Pro Tempore
Terry Partington	Deputy Executive Director, California Educational Facilities Authority and California Health Facilities Financing Authority, State Treasurer's Office
Richard Powers	Chief, Facility Services, Planning and Construction Division, California Department of Corrections
Robert Remen	Executive Director, California Transportation Commission
Jay Riley	Chief, Office of Advanced Program Planning, California Department of Transportation
Lorri Silva	Safe Drinking Water Manager, Budget Office, California Department of Water Resources
George Smith	New Technology and Research, California Department of Transportation
Nathan Smith	Chief, Office of State Planning, California Department of Transportation, Transportation Planning Program

Sumi Sousa	Executive Director, California Health Facilities Financing Authority, State Treasurer's Office
Sharon Sprowls	Policy Consultant, California Futures Network
Dwight Stenbakken	Government Affairs Director, California League of Cities
James Tilton	Assistant Program Budget Manager, California Department of Finance, and Administrative Secretary to the Public Works Board
Diane van Maren	Associate Secretary, Health and Human Services Agency
Liz West	Senior Consultant, Assemblyman Torlakson's Office
Carol Whiteside	President, Great Valley Center, Modesto

Appendix B

Interview Questions

The following questions were sent to all the interviewees during the conduct of this research.

“The questions contained herein are designed to support research sponsored by the Public Policy Institute of California (PPIC), a private, nonprofit organization dedicated to independent, nonpartisan research on economic, social, and political issues that affect the lives of Californians. The research will be published by the PPIC in a research report titled *Building California’s Future: Current Conditions in Infrastructure Planning, Budgeting, and Financing*. We are interested in the current status or situation as it exists now, as well as how the status or situation may have changed over time.”

1. Who coordinates infrastructure in your agency? (Office and individual(s))
2. Which agency/organization coordinates infrastructure for the State of California? Does any agency handle a specific piece of it and not the entire infrastructure question, such as planning, budgeting, or financing?
3. How does your agency/organization relate and coordinate with the agency you identified in question 2?
4. What is your agency’s/organization’s definition of infrastructure? What elements are included, and which are excluded?
5. Has the definition changed over time? If so, how?
6. How is infrastructure planning done in your agency? Who/which office is responsible? Is the planning summed up in a plan, strategy, or other document? Who approves or adopts it? What is the role of local and regional entities in your infrastructure planning process?
7. How are infrastructure needs calculated in your agency?

- Is it a needs-based calculation or a demand-based calculation?
 - Capital needs alone?
 - Capital and operations and maintenance needs together?
 - Functional or geographic basis?
 - Time horizon?
 - Life-cycle basis?
 - Linked to plan, strategy, program?
 - Linked to growth, population, jobs, housing, etc., projections?
 - Which/whose projections? How are they reconciled with other state projections?
 - Linked to (current/forecasted) operating revenues?
 - Linked to current/projected bond measures?
8. How are infrastructure priorities determined by your agency? How are those priorities reconciled with those of the State of California? What other agencies/organizations/jurisdictions do you coordinate with to determine your agency's priorities?
 9. Is all the infrastructure under the purview of your agency included in your capital budget? If not, which budget is it in?
 10. Is capital budgeting done in conjunction with your operating budget?
 11. What is your agency's annual capital budget? What is your agency's annual total budget? How long have these budget data been kept?
 12. What is the time horizon for your agency's capital budget?
 13. How are infrastructure/capital budgets determined in your agency? What is the capital budget approval process? How are decisions reached? How are conflicts resolved? What is the role of local and regional entities in your capital budgeting process?
 14. How does your agency coordinate with the Department of Finance and other appropriate agencies, including the Governor's Office and the Legislature?
 15. How is the infrastructure managed? (Life-cycle approach? Other system such as planning, programming, budgeting?)
 16. How is infrastructure financed? Indicate all that apply. Indicate which infrastructure is financed by which method, and indicate the percentage of your agency's total capital budget financed by each

method. Do data exist that show how these percentages have changed over time?

- General fund
- General obligation bonds
- Revenue bonds
- Tax increment financing
- User fees
- Grants from the federal government, other
- Public-private partnerships
- Development impact fees
- Local sales tax option
- Fuel tax
- Other

17. Does your agency ever initiate bond measures for capital needs? What is the process by which your agency works with the Governor's Office and the Legislature on capital bond measures? Does your agency get involved with bond measures initiated by citizens?
18. How are infrastructure data gathered? Managed? Used?
 - Gathered by staff, or contracted to consultants?
 - If contracted, are the contractors private sector or university affiliated?
19. Who is responsible for infrastructure data collection and management in your agency? Who is responsible for the State of California?
20. How are infrastructure data gathered? Managed? Used?
 - Are infrastructure data gathered on a geographic basis?
 - Are they gathered on a functional basis?
 - How often is the information collected/calculated?
 - How is it recorded and maintained?
 - What are the typical uses of these data?
21. Are there existing needs or gaps as regards infrastructure data?

22. What percentage of the capital budget is dedicated to/spent on:
- Planning and design (including demand forecasts)
 - Budgeting
 - Finance
 - New construction
 - Operations and maintenance
 - Record keeping/database management
 - Public health and safety
 - Rehabilitation/seismic upgrade
23. What are the obstacles to infrastructure planning, budgeting, financing, and coordination?
24. What role do politicians play in the planning, budgeting, and financing of infrastructure as it affects your agency/organization? What role should politicians play?
25. What are the most important forums to debate infrastructure needs and priorities? Why? Who are the major stakeholders that should be involved?
26. What are the most important arenas that decide infrastructure needs, priorities, budgeting, and funding? Who are the major stakeholders that should be involved?
27. How would you characterize the state's overall capital planning, budgeting, and financing processes? How would you characterize your agency's capital planning, budgeting, and financing processes?
28. Are you satisfied with the current infrastructure decisionmaking process? What would you recommend to improve it? (Incentives, sanctions, etc.)

Documentation to be gathered from each agency

1. Infrastructure and capital policy, planning, and strategy documents.
2. Demographic, economic, and other pertinent projections and forecasts.
3. Capital and operating budget documents.
4. Laws and other documents authorizing infrastructure and capital financing programs and mechanisms.

Statewide documentation to be gathered

5. Statewide Property Inventory SPI—computerized.
6. Department of Finance *Capital Outlay and Infrastructure Report*—annual.
7. Treasurer's *Debt Affordability Report*—annual.
8. Governor's Budget and Budget Summary

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