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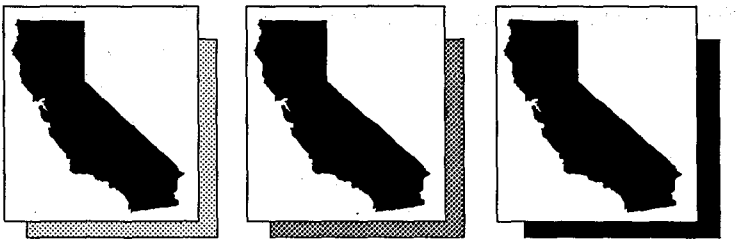
Major Issues Facing the Legislature

Part 4



Major Issues Facing the Legislature

In addition to the major policy and funding issues identified in the *Analysis,* this part discusses some of the broader issues currently facing the Legislature. Many of these issues are closely linked to funding requests contained in the Governor's Budget for 1989–90; others are more long-range in nature and will, in all probability, persist for many years beyond 1989.

The issues in this part fall into five general categories. The *first* involves *issues related to how the state will cope with its current and future populations:* accommodating growth, providing for clean air and solid waste disposal capability, and addressing problems with the state's appropriations limit. The *second* category is related to the first, but focuses on *infrastructure needs:* the level of state indebtedness, the transportation funding problem, year-round schools, asbestos abatement in state buildings, and California prisons.

The *third* category provides information on *cross-cutting issues involving many public-sector programs:* the allocation and expenditure of federal immigration funds, state child care programs, programs for substance-abusing pregnant women and their babies, and state programs for older Californians.

The *fourth* category includes *reviews of specific programs:* insurance reform, mental health, the treatment of youthful offenders, the impact of trial court funding on county finances, energy regulation in the 1990s, the

implementation of Proposition 98 and a discussion of the changes in state accounting practices reflected in the Governor's Budget.

Finally, we discuss three issues related to *public employee compensation:* retiree cost-of-living adjustments, retiree health care benefits and the new PERS-CARE health plan.

Accommodating California's Growth

How Can the Legislature Improve California's Ability to Accommodate Growth?

Summary

- *California's population will increase by 8.3 million, or about 30 percent, over the next two decades.*
- *California's ability to accommodate its current population is strained in several important respects. Moreover, because many of these problems are becoming worse or more difficult to solve, they also may hinder California's economic growth in the future.*
- *Our analysis indicates that there are two primary factors under the state's control which contribute to California's difficulties in accommodating growth. The first factor concerns the way in which decision-making authority over important land development decisions is distributed among the various levels of government. The second factor relates to the consistency of California's economic policies with state economic development goals.*
- *The Legislature and the Executive Branch have three major alternatives for strengthening the state's ability to accommodate growth. Specifically, the state could (1) expand the role of regional bodies in land-use decision making, (2) change economic policies related to growth, and/or (3) expand its direct efforts to guide planning for growth and development.*

In 1987 alone, California's population grew by over 680,000 people—more people than live in the entire state of Vermont. While the state's recent rate of growth (about 2.5 percent per year) is expected to decline somewhat in the foreseeable future, it will still dramatically exceed that of the nation as a whole. According to Department of Finance projections, California's population will increase by 8.3 million people, or about 30 percent, over the next two decades.

California's growing population and rapidly urbanizing landscape pose serious challenges for the state. While all of these challenges cannot be addressed immediately, it is clear that the Legislature and the Executive Branch must begin to address these challenges *now* to ensure that California will have the roads, housing, clean air and water that will be necessary to accommodate the additional people. In this analysis, we describe some of the difficulties California is experiencing in trying to accommodate its *current* population. We then discuss why these difficulties have developed and outline a series of options for strengthening California's ability to accommodate its *future* population.

HOW WELL IS CALIFORNIA ACCOMMODATING ITS CURRENT POPULATION?

California's ability to accommodate its current population is strained in several important respects. California highways are severely congested in many areas. The air quality in many regions of the state violates federal standards, and housing prices are among the highest in the nation. Some California beaches and bays are regularly contaminated with the overflow from undersized or decaying sewage-treatment systems.

These deficiencies—and others—adversely affect the health of California citizens and the quality of their lives. Moreover, because many of these problems are worsening or becoming more difficult to solve, they may also hinder California's future economic growth. Specifically:

Traffic Congestion Is Increasing. About 530,000 hours are lost each day by Californians in freeway traffic jams. The Department of Transportation (Caltrans) estimates that traffic delays cost Californians around $800 million each year in wasted time and increased auto operating costs. The number of hours people lose in traffic congestion is growing by 15 percent annually in Los Angeles and 25 percent annually in the Bay Area. Given the importance of the transportation system for commerce and industry, the existence of such delays make California a much less desirable place for doing business.

Housing Is Becoming Less Affordable. California's housing costs are among the very highest in the nation—and continue to escalate. According to industry experts, only 21 percent of California households could afford the median price home of $177,485 in November 1988, down from 32 percent just one year before. Given the impact of housing costs on business' ability to attract and retain workers, these high costs could influence businesses to locate in other states.

Air Pollution Problem Is Becoming More Difficult to Solve. California has one of the worst air pollution problems in the country. More than 75 percent of Californians live in areas which violate federal clean air standards. If California's population were to remain constant, its air pollution problem would probably improve somewhat as older cars are gradually replaced with newer, cleaner cars and as the benefits of other air pollution control measures are realized. Given the projections for strong population growth, however, these factors will not be enough to prevent further declines in air quality. Other strategies under consideration by air districts, such as staggering work hours and the conversion of autos to cleaner fuels, are much more difficult to implement.

Water Pollution Problem Is Becoming More Expensive to Solve. At least 11 California sewer districts, including the districts which serve the Los Angeles area and the cities of San Francisco and San Diego, are in

violation of the federal Clean Water Act. Moreover, because the federal government recently changed its policy from providing *grants* to local governments for the construction of sewage treatment plants to providing *loans*, local governments will find it more costly to comply with the federal Clean Water Act.

Water Supply Is Becoming More Limited. Already, growth in many coastal and rural areas of the state has been constrained by the lack of adequate water supplies. Much of southern California is expected to face forced rationing in the next two decades if additional water supplies are not identified. Finally, experts advise that the amount of water that will be available to serve California's expanding population is being reduced by the pollution of ground water.

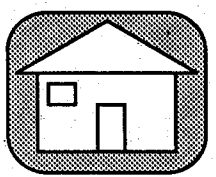
More and More Californians Are Voting to Institute Controls on Growth. Largely as a result of the difficulties highlighted above, surveys indicate that many Californians are becoming increasingly resistant to growth in their communities. According to the California Association of Realtors, almost 200 measures to control growth have been placed on local ballots since 1971—and nearly 60 percent of these measures have prevailed. Almost two-thirds of these were approved in the last three years. Growth control measures have been adopted in 80 cities, 14 counties and eight special districts in the state. While the specific terms of these measures vary (please see Chart 1), most reduce residential construction in the community—either by mandating predetermined building caps or by instituting stringent preconditions to development.

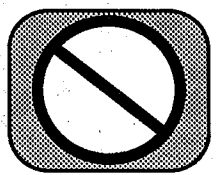
Although growth control measures are heralded as ways to manage development and reduce the ill effects of growth, research indicates that these measures may not produce the results intended by their supporters. For example, recent studies have found that growth control measures tend to shift housing construction to outlying communities where there are few growth restrictions. To the extent that jobs remain in the controlled community, workers now must travel further from their homes to their place of employment, increasing traffic congestion and air pollution. Growth controls also tend to increase the cost of housing, resulting in some families being unable to purchase a home or having to spend a disproportionate amount of their income on shelter. On the positive side, growth control measures have had some success in protecting environmentally sensitive lands and in slowing growth to keep pace with local infrastructure development.

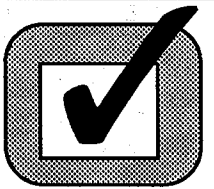
In summary, California is experiencing many serious problems in accommodating our current population. As California adds new residents, these difficulties are becoming more difficult to solve. In order for the Legislature to be able to take steps to improve the state's ability to accommodate growth, we focus in the next sections on *why* the state is experiencing these difficulties—and *what* can be done to address them.

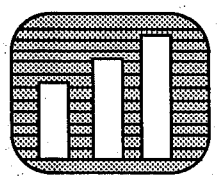
Chart 1

Major Provisions of Growth Control Measures Adopted by Local Voters[a]









MEASURE	Building Permit or Population Growth Caps	Moratoriums, Height Limits & Downzonings	Voter Approval for Land-Use Changes	Performance Standards
PERCENT OF ADOPTED MEASURES	23%	52%	22%	8%
DESCRIPTION	Measure establishes a maximum number of building permits which can be issued or specifies a local governmental population growth limit.	Measure institutes various construction moratoria, restrictions or zone changes (e.g., temporary construction bans, limits on building heights, "downzoning" to require less intensive use of land, and prohibitions on the construction of certain facilities.)	Measure identifies specific land areas and/or potential general plan amendments and requires voter approval before the identified land can be developed or amendments adopted.	Measure specifies minimum performance standards and public facility levels (e.g., traffic flow or school availability) and prevents or reduces development if these standards are not maintained.

[a] Source: California Association of Realtors *"Matrix of Land Use Measures 1971-1988."* Percentages limited to measures for which effect could be readily determined. Totals do not add to 100 because some measures have multiple impacts.

WHY IS CALIFORNIA EXPERIENCING DIFFICULTY ACCOMMODATING GROWTH?

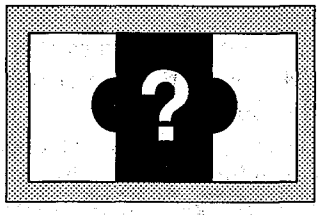
Our analysis indicates that there are two primary factors under the state's control that contribute to California's difficulties in accommodating growth. The first factor concerns how decision-making authority over important land development decisions is distributed among the various levels of government. The second factor relates to the consistency of California's economic policies with state economic development goals. These factors are summarized in Chart 2.

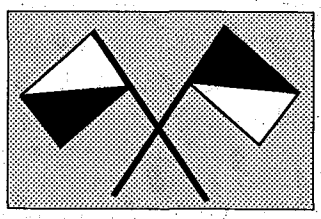
Chart 2

Why Is California Having Difficulty Accommodating Growth?

Dated Government Structure Leaves Gap Between Responsibility and Regional Needs

- Cities and counties lack responsibility for regional impacts
- Regional organizations lack authority to mitigate regional impacts





State Economic Policies Send Wrong Signals

- Many important services are underpriced
- Fiscal incentives unduly influence land use decision-making process
- Few incentives exist for attainment of state and regional objectives

Dated Structure Leaves Gap Between Governmental Authority and Regional Needs

The California Constitution establishes two types of municipal service providers—cities and counties—and assigns responsibilities and authority to each. At the time the Constitution was drafted, most matters related to growth and development could be addressed satisfactorily at the city and county level. With population growth and advances in communications, transportation, and technology, however, more and more matters related to growth have evolved into *regional issues* which are beyond the scope of any single city or county's authority to resolve. Thus, with respect to regional issues, the government structure which has served California has become somewhat dated. There is a gap between local government's

authority and the responsibility to mitigate the regional impacts of growth and development.

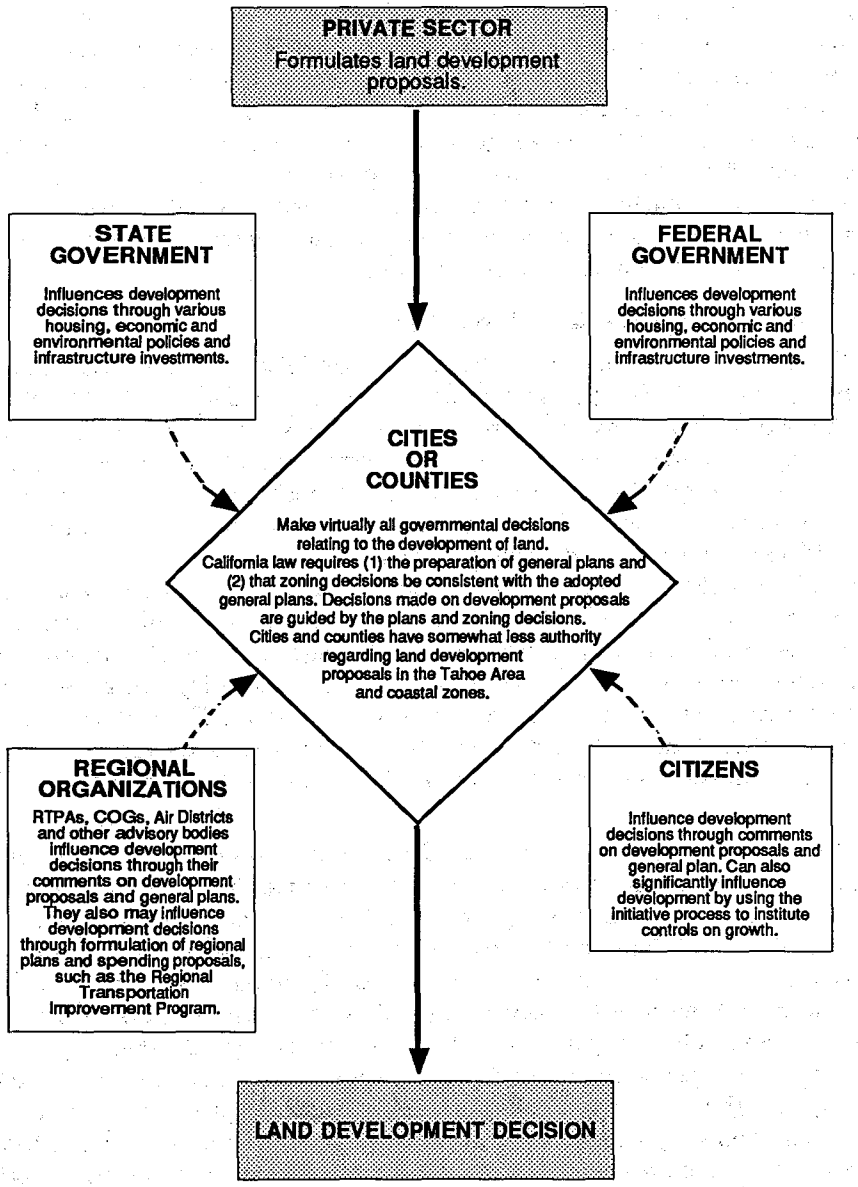
This gap is most noticeable in the area of land-use development. One of the most significant powers vested in local governments is the authority to approve, reject or place conditions on land-development proposals in their jurisdiction. Chart 3 summarizes the forces shaping these local land development decisions. As the chart indicates, the state does not play a direct role in the land-use development approval process. State involvement in local land development matters has generally been limited to (1) outlining the legal framework within which a city or county must exercise its land use authority and (2) indirectly influencing land development decisions through its efforts to promote affordable housing and economic development, through infrastructure investments and through its comments in the environmental review process.

Cities and Counties Lack Responsibility for Regional Impacts. California's approach to land-use regulation places most of the authority for land-use decisions in the hands of cities and counties. At the same time, however, city and county governments do not have commensurate levels of responsibility for the consequences of their actions. For example, cities and counties are not responsible for the achievement of air quality goals within their regions. Land-use decisions made by a single entity can have adverse impacts on the achievement of regional air quality goals, as may be the case when a city's approval of a commercial or industrial project requires longer commutes for the project's employees than would be the case if an alternative site had been chosen. Cities and counties also are not responsible for maintaining traffic flow on the state's freeway system. For example, a city may provide funding for Caltrans to construct numerous interchanges to a state freeway which bisects the city. The interchanges may make land near the interchanges more valuable and relieve congestion on local roads, but the additional interchanges are likely to slow the inter-regional traffic which the freeways were constructed to serve. Thus, there is often a gap between governmental land-use decision-making authority and the responsibility for achieving regional and statewide goals affected by those land-use decisions.

Regional Organizations Generally Lack Authority To Mitigate Regional Impacts. Regional planning in California is generally carried out by advisory bodies divided along functional lines. For example, Regional Transportation Planning Agencies (RTPAs) are responsible for regional highway and transit planning, air pollution control districts are responsible for coordinating district-wide air pollution abatement efforts and Councils of Governments (COGs) are responsible for—among other things—calculating each locality's "fair share" of housing in accordance with state law.

Chart 3

How Are Land Development Decisions Made?



While regional organizations have significant responsibilities for improving the region's transportation network, housing inventory, air quality and meeting other regional goals, they do not have the authority to require changes in local general plans or land development decisions in order to effect these improvements. For example, if a city's general plan enables far more jobs to be established than houses, an air district might comment that additional housing is needed near job centers in order to reduce the number of long auto commute trips and, consequently, auto emissions. Air districts, however, have no authority to require changes in the city's general plan. Similarly, a Regional Transportation Planning Agency may comment on the location of a proposed business park, fearing that construction may result in substantial degradation to part of the state freeway system. The agency, however, has no ability to require changes to the proposal.

State Economic Policies Send Wrong Signals

Over the years, the Legislature, the administration and the state's citizens have forged public policies—both direct and indirect—which influence Californians' consumption of goods and services and the financing of state and local government activities. Although these policies have been adopted to address a variety of needs, we refer to them as "state economic policies" because they represent government attempts to influence economic decisions. Ideally, the state's economic policies should assist the state in its efforts to accommodate growth. For example, economic policies should (1) encourage citizens to use public goods and services carefully to minimize cost and damage to the environment and (2) encourage local governments to make land development decisions which meet state policy objectives and result in attractive and affordable communities. Our analysis indicates that there are at least three ways in which California's economic policies fall short from these goals. Specifically:

Many Important Government Services are Underpriced. Governments provide many important goods and services to California citizens and businesses. For example, governments build roads, libraries, schools, universities and jails, and provide water, sewer, and waste disposal services. When governments set the price of a good or service at *below* its full cost, they in effect encourage citizens to use the good liberally. This underpricing may be desirable with certain goods—for example, governments generally *want* their citizens to use libraries and parks freely. On the other hand, sometimes governments prefer their citizens to use a good very carefully because the good is expensive and can have negative effects on the environment. In these cases, setting the good's price at below its full cost may not be desirable because it encourages *additional* consumption.

For example, the state freeway system is one of the most important publicly provided goods, and its use is underpriced. While freeway users *in the aggregate* pay for most of the cost of building and operating the freeway system, freeway users do not pay for the health and other costs of air and noise pollution which freeways cause. In addition, individuals who drive on freeways during peak hours do not pay for the *full* cost of the delays they impose on others or for the expensive increments to state freeways required to keep peak-hour traffic flowing smoothly. Thus, freeway use is underpriced in general and peak-hour freeway use is particularly underpriced.

California has similar problems in the pricing of water and waste disposal, where below-market costs or flat fees fail to provide the price signals that would encourage individuals to use less of these goods. Raising the price of these goods to reflect a greater portion of the full market cost would encourage consumers to use these goods and services more thoughtfully.

Fiscal Incentives Unduly Influence Land Use Decision-Making Process. The fiscal condition of California counties has deteriorated significantly over the last decade. California city governments have also found it more difficult to raise revenues sufficient to provide the full range of services their citizens demand. This has occurred for several reasons:

- Proposition 13 left local governments, particularly counties, with few avenues for generating revenues to fund general operations or to build infrastructure;
- The cost of state-mandated programs has increased faster than the state and local revenues available to finance them; and
- The demand for many local government services has increased.

Our analysis indicates that the strained fiscal condition of counties and the aspirations of cities to maintain or expand levels of services, have in many cases caused them to look to the revenues generated by land development as a source of funding. This has decreased their ability to use their land use authority to serve traditional local government planning goals, such as ensuring a balance between jobs and housing, providing for homes affordable to all income groups, protecting open space, and preventing leap-frog development. Growth control proponents frequently cite local governments' pursuit of revenue-generating land developments and their neglect of traditional planning goals when explaining why a growth control initiative is needed.

A key example of the effect of strained local financing options on land use is the undue competition between localities for land uses which generate sales and property tax revenues. Because commercial develop-

ments generate sales tax revenues and most nonresidential developments generate more property tax revenues than they cost to service, cities and counties tend to *compete* with each other for these land uses and, occasionally, to permit their construction in areas not well suited for the purpose. Alternatively, because many moderate- and low-income residential developments result in more expenses to local government (in terms of schools, public assistance and roads) than property tax revenues, cities and counties are less likely to solicit or encourage their construction.

Few Incentives for Attainment of State and Regional Objectives. While the state has established many policies which depend on cities and counties for implementation, state agencies have few incentives (or sanctions) at their disposal to reward or discourage city and county land-use decisions. For example, the state depends on each city and county to establish policies and programs in the housing element of its general plan which will enable the community to provide its calculated "fair share" of housing affordable to low- and very low-income households. While the state Department of Housing and Community Development (HCD) reviews draft housing elements for compliance with state law, there are virtually no sanctions which HCD can impose if these elements do not comply. Even if the HCD determines that the housing element violates state law, the community is still permitted to commence and expand redevelopment activities, receive federal Community Development Block Grant funds allocated by the department, and obtain revenue bond subsidies. Similarly, because state law requires the California Transportation Commission (CTC) to allocate a certain "minimum" of transportation money to each county, the CTC is limited in its ability to target transportation funds to support state objectives.

Partially as a result of the lack of incentives and sanctions for city and county compliance with statewide objectives, we have found that cities and counties often take actions which are inconsistent with state or regional objectives. For example, according to the Bay Area Council, only one of 97 bay area communities will meet its 1980-1990 "fair share" goal for the provision of low- and very low-income housing.

In summary, California's structural gap between governmental authority and regional needs, and its lack of coordinated economic policies, are contributing to the state's difficulties in accommodating growth. In the next section, we outline options for the Legislature to consider to mitigate these problems.

WHAT OPTIONS DOES THE LEGISLATURE HAVE TO IMPROVE CALIFORNIA'S ABILITY TO ACCOMMODATE GROWTH?

The Legislature has three major alternatives for strengthening the state's ability to accommodate growth. Specifically, the Legislature could:

- Shift some land-use approval authority from cities and counties to regional bodies so that major land development decisions are reviewed in a regional context;
- Alter economic policies to change the signals received by consumers and cities and counties; and/or
- Expand the state's direct efforts to guide planning for growth and development.

Expanding the Role of Regional Bodies

As we discussed above, California's allocation of decision-making authority for the land development process does not ensure that decisions are made by the level of government responsible for fully considering *and* mitigating undesirable consequences of the decision. The Legislature could correct this by granting additional powers to regional bodies. For example, regional bodies could be authorized to review and approve major local land-use development decisions for consistency with regional goals, including air quality improvement, traffic abatement, and housing affordability. There are at least two ways this could be accomplished.

Consolidate Existing Regional Planning Organizations. The Legislature could consolidate the existing regional planning organizations into a single regional authority, headed by locally elected or regionally elected officials. The consolidated organization could then be granted the additional authority to approve city and county general plans and to veto major land-use decisions, such as the granting of building permits for industrial parks or shopping centers. Regional veto systems such as this operate to some extent in Vermont and Maine and in the coastal areas of several states. Establishing a regional authority would ensure that the costs and benefits of land development decisions are reviewed in a regional context. The Legislature could also increase the regional authority's ability to coordinate local land-use decisions by empowering the authority to allocate some additional federal, state and regional transportation funds *and* to raise funds for transportation, environmental or open space purposes through taxes or fees approved by the voters.

Establish a Regional Adjudicatory Body. Alternatively, the Legislature could establish separate new regional adjudicatory bodies. These bodies could adopt region-wide growth plans and hear appeals from regional organizations, such as RTPAs, or from cities and counties regarding land use decisions or general plan changes which may have regional impact. The adjudicatory body would be empowered to approve, reject or place conditions on the development proposals it reviewed. A process somewhat similar to this exists in Florida.

Change Economic Policies Related To Growth

As discussed above, California's economic policies do not consistently reward consumer and local government actions which enhance the state's ability to accommodate growth. Motorists who drive during nonpeak hours pay about the same tax as motorists who drive during periods of peak congestion. Cities and counties which actively encourage the construction of low-income housing (1) may generate insufficient property tax revenues for general operations and (2) do not receive any preference in the award of state grants and subsidies. As discussed in more detail below, the Legislature could encourage citizens and cities and counties to work with the state in accommodating growth by: adjusting the price of public goods and services, reducing local financing constraints, and/or providing incentives to cities and counties to encourage them to meet state objectives.

Adjust the Price of Public Goods and Resources. Some of the strain on California's roads and resources could be reduced by the state, regional organizations and cities and counties by requiring individuals and businesses to bear more of the costs of public goods. For example, the Legislature could increase the gas tax to more nearly reflect the full roadway *and* environmental costs of auto usage. Cities and counties could adjust water and waste disposal fees to reflect a greater share of the true cost of the services. Regional bodies could be empowered to impose congestion fees on users of freeways during high occupancy times.

Reduce Local Financing Constraints. As California gains new residents, the demand for local government funds for roads, police and fire protection, public assistance, recreation and other purposes will continue to grow. In order to lessen local governments' reliance on the tax revenues related to retail, commercial and industrial development, the Legislature has essentially three options:

- Provide cities and counties an additional ongoing revenue source to lessen their dependence on growth-related revenues (for example, distribute additional state funds as unrestricted subventions or authorize cities and counties to levy new county-wide taxes). By improving city and county fiscal conditions, their fiscal reliance on development-related revenues would be lessened.
- Relieve cities and counties of some existing responsibilities, or provide them with greater flexibility in determining how to meet them. For example, the state could assume responsibility for financing county General Assistance programs. Actions of this type would reduce the cost pressures that contribute to deteriorating fiscal conditions and reliance on development-related revenues.
- Establish a mechanism to redistribute the additional local property and sales tax revenues resulting from commercial and industrial developments on a regional basis. This option could reduce the fiscal incentive present in development-related decisions.

Provide Incentives or Sanctions Which Encourage Cities and Counties to Meet State Objectives. The Legislature could encourage cities and counties to meet state goals by placing conditions on state grants or targeting subsidies and capital outlay expenditures. For example, the state could withhold subsidies or grants to a community whose housing element is not in compliance with state law. While placing conditions on state money should be done carefully and in a manner consistent with overall state goals, these funds can provide an effective "carrot" to guide the local decision-making process.

Expand The State's Efforts In Guiding Development

Finally, the Legislature could consider taking action to enhance the state's role in guiding California's development. These actions could range from relatively modest steps, such as expanded monitoring of local efforts to achieve these statewide goals, to more extreme measures, such as direct intervention in the land-use decision-making process. Below, we offer three modest steps as an initial point of departure:

Collect Information on the State's Performance in Accommodating Growth. As the state adds new residents, the Legislature could direct state agencies to gather information on how well this growth is being accommodated. This could be accomplished to some extent by strengthening existing state agency review functions. For example, under state law, HCD is required to review draft local housing elements and is authorized to review final elements. The HCD is not required, however, to summarize its findings in any report to the Legislature. The HCD could be required to review *final* housing elements and analyze (1) the extent to which local housing elements comply with state law (2) the effectiveness of local actions to promote housing, and (3) the extent to which the sum of the units of housing called for in the local elements will meet the expected need for housing in each region and statewide.

Similarly, the Legislature could amend the California Clean Air Act to require that local air districts comment in their existing three-year plans as to local governments' cooperation with air district pollution abatement efforts. For example, local air districts could comment as to whether (1) local general plans ensure a balance of jobs and houses, (2) new developments are added to the city in a manner which will minimize auto usage, and (3) local parking policies are consistent with regional efforts to promote ride-sharing and transit use. The Air Resources Board could report to the Legislature on the local air districts' comments.

Coordinate State Activities Related to Growth. The Legislature could improve the coordination of state activities related to growth. For example, the Legislature could establish a formal role for the state Air

Resources Board and local air districts in the annual State Transportation Improvement Program process. Also, the Legislature could again enact legislation establishing a comprehensive multi-year capital outlay plan. This plan would ensure that the state has a central process for identifying state infrastructure needs, establishing priorities and developing financing plans. (Such a plan was approved by the Legislature in 1988, but was vetoed by the Governor.)

Develop a Statement of Overall Goals and Policies. While the state requires that cities and counties develop general plans to guide land-use decision making, the state itself has no such document. State goals, policy statements and objectives are scattered throughout state statutes. The primary objectives of a state planning document would be to identify where:

- Conflicts exist between current goals and objectives;
- Additional goals or objectives should be added; and
- Impediments to the achievement of these goals and objectives exist.

In 1970, the Legislature took a step toward addressing the need for a coherent statement of overall state goals and policies when it specified that the Governor's Office of Planning and Research (OPR) should develop and maintain a comprehensive *Environmental Goals and Policy Report* and transmit it to the Legislature every four years. The Government Code specifies that the report is to identify the state's objectives for land use, population growth, development, transportation, conservation and other matters. The OPR submitted a report to the Legislature in 1978, but has not prepared a document since that date. The Legislature may wish to specify in the *Supplemental Report of the 1989 Budget Act* that the OPR shall develop the *Environmental Goals and Policy Report* in the budget year.

CONCLUSION

The state already faces many significant challenges in accommodating its *current* population. The challenges posed by the state's *future* population are even more complex and demanding. Many difficult changes will be needed for California to comfortably accommodate the coming population growth. While the actual changes could take many forms—from road pricing to expanded regional decision-making to new state incentives for cities and counties—it is critical that the Legislature and the Executive Branch begin working on these changes now.

Implementing the California Clean Air Act

How Can the Legislature Ensure That Planning Required by the California Clean Air Act Results in Improved Air Quality?

Summary

- *Despite having one of the most stringent air pollution control programs in the nation and making significant improvements in air quality since the early 1970s, California still has the country's worst air quality. Many areas of the state, including most urban areas, fail to meet both federal and state air quality standards.*
- *The deadline for complying with federal air quality standards expired in 1988 with many areas of the state out of compliance. The continued federal role in achieving air quality goals is currently in question. As a result, the Legislature stepped in and passed the California Clean Air Act (CCAA) and a number of other related pieces of legislation aimed at strengthening state and local efforts to improve air quality.*
- *The CCAA establishes a mandate, independent of the federal Clean Air Act, to bring all areas of the state into compliance with state air quality standards. Specifically, the act (1) establishes a district-level planning process overseen by the state Air Resources Board (ARB) and (2) increases both state and air district regulatory authority.*
- *Our review of the CCAA planning process suggests that negative air quality effects from land use and transportation planning decisions at the local level are likely to limit the extent to which the CCAA actually results in cleaner air.*
- *In order to ensure that the planning process required by the CCAA results in effective action at the state and local level, we recommend that (1) air districts be given a greater role in local and regional transportation and land use planning processes, (2) the Legislature consider options to expand air districts' authority to implement local land use and transportation control measures, and (3) that legislation be enacted giving all districts the authority to assess motor vehicle registration surcharges.*

Introduction

In the last year, the Legislature has taken many significant steps to address increasingly severe air pollution problems throughout the state. By passing the most far-reaching of these laws, the California Clean Air Act, the Legislature acted to develop a comprehensive planning process to address California's air pollution problems. This new statewide process, which requires the active participation of several levels of government,

fills the planning and regulatory gap created when deadlines for complying with air pollution standards under the *federal* Clean Air Act expired in August 1988.

In this analysis we describe the continuing air pollution problem that besets many areas of the state. We then discuss the California Clean Air Act, which seeks to clean up the state's air within 20 years. Finally, we offer some options and recommendations for increasing the likelihood that California will actually meet that goal.

Background

California exceeds all other parts of the country in terms of both the number of days and the amount by which the state violates federal air pollution standards. Federal standards establish emission levels for specific pollutants (known as "criteria pollutants"), including ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and small particulate matter (known as "PM-10"). (A federal PM-10 standard was only recently set by the Environmental Protection Agency (EPA); consequently, we will not address compliance with the PM-10 standard in this analysis.) Under the federal Clean Air Act, states may not exceed the standards for criteria air pollutants after 1988. Other pollutants that pose potential risks to California's air quality are not regulated by the federal government as criteria pollutants. These "noncriteria pollutants" include toxic air contaminants, acid deposition (such as acid rain), and other emissions for which federal standards have not been established.

To date, the state's air pollution control program has been directed toward bringing the state into compliance with federal standards, as required by federal law. For some pollutants, such as ozone, the state has set more stringent standards than the federal government. In the past, however, state law did not require compliance with state standards by specific dates.

To meet these standards, California has used several approaches to control emissions. For instance, cars must have specific types of on-board equipment, such as catalytic converters, and must be inspected periodically to ensure that emissions do not exceed permissible levels. Stationary sources of pollutants, such as manufacturing industries, must demonstrate the ability to comply with emissions limits before receiving an operating permit. In general, measures adopted by the state have required specific pollution control steps rather than providing individuals with economic incentives to reduce pollution.

As a result of these regulatory actions, the state has successfully complied with some emissions standards. Chart 1 shows that high-emissions areas of the state now are in compliance with both the federal standard and the more stringent state standard for sulfur dioxide. Sulfur

dioxide reductions have resulted from both emission control measures and economic changes, such as relocation of high-emitting industries to other areas or other states.

Chart 2 illustrates the compliance history of these same four areas with regard to lead emissions. As the chart shows, the areas have lowered lead emission levels dramatically since 1976, and today all are in compliance with the federal standard for lead emissions. This reduction in lead emissions largely resulted from requirements for the use of unleaded fuel in newer vehicles.

Despite control efforts, however, several parts of the state have not been able to comply with the criteria pollutant standards for ozone, carbon monoxide and nitrogen dioxide. Chart 3 shows that 25 areas of the state exceed federal standards for one or more of these pollutants, and thus have been designated as "nonattainment areas" by the EPA.

Since the 1970s, various patterns have emerged in different parts of the state for these three pollutants:

- ***Ozone.*** Levels of ozone have not decreased markedly in most nonattainment areas. The South Coast region of the state has shown a general decline, while many regions have stayed at relatively stable levels. In some areas, such as the southern San Joaquin Valley, ozone levels have increased somewhat over time.
- ***Carbon Monoxide.*** Reductions in carbon monoxide emissions have been dramatic. The South Coast region has reduced the number of days that standards are exceeded tenfold since the early 1970s, although it still experiences levels greater than any other in the state and is significantly out of compliance with federal standards. The only area which has not shown a steady decline in carbon monoxide emissions is the Sacramento area.
- ***Nitrogen Dioxide.*** The only area of the state that is still not in compliance with nitrogen dioxide standards is the South Coast region. While most parts of the region are in compliance, some urban areas still do not meet the standard.

Why Has It Been Difficult for the State to Meet Federal Standards for Some Pollutants?

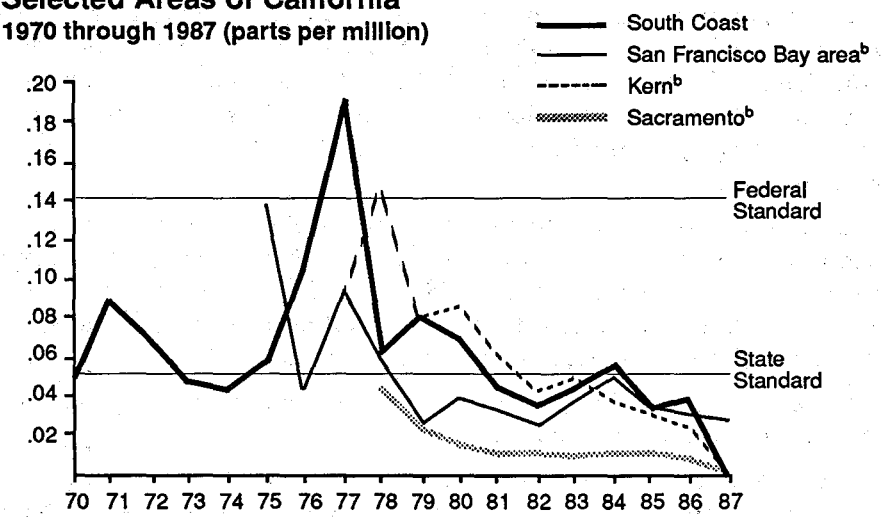
There are three primary reasons why air pollution is more severe in California than elsewhere and why it is difficult to meet federal and state standards for various air pollutants.

Weather and Topography. The climate and topography of many regions of the state work together to maximize exposure to—and the formation of—air pollutants. Because several areas of the state form basins, they have static or trapped air patterns which increase exposure

Chart 1

Attainment of Sulfur Dioxide Standards Selected Areas of California[a]

1970 through 1987 (parts per million)

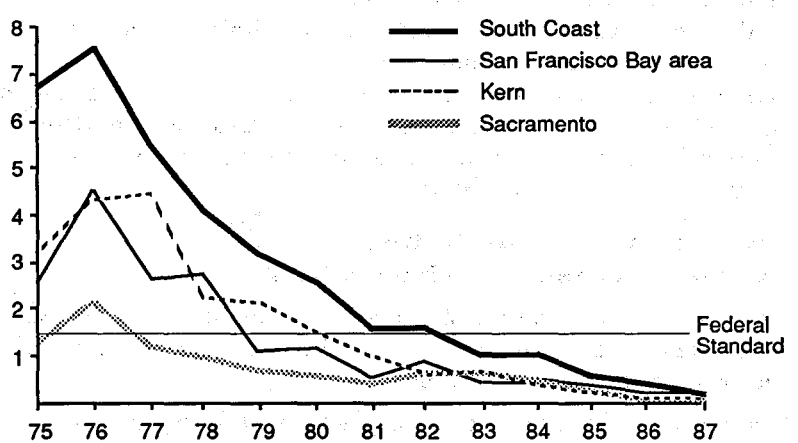


[a] Source: ARB. Data represent the year's maximum 24-hour average.
[b] Years shown are those in which reliable data is available.

Chart 2

Attainment of Federal Lead Standard Selected Areas of California[a]

1975 through 1987 (micrograms per cubic meter)



[a] Source: ARB. Data represent maximum quarterly average lead concentration.

Chart 3

California Counties Exceeding Federal Air Pollution Standards

January 1989

	AREA	Ozone	Carbon Monoxide	Nitrogen Dioxide
SAN FRANCISCO BAY AREA	Alameda	●		
	Contra Costa	●	◒	
	Santa Clara	●	◒	
	Solano	●	◒	
SOUTH CENTRAL COAST	Santa Barbara	◒		
	Ventura	●		
SOUTH COAST	Los Angeles	●	◒	◒
	Orange	●	●	●
	Riverside	◒		◒
	San Bernardino	◒		◒
SAN DIEGO	San Diego	●	●	
SACRAMENTO VALLEY	Butte	◒	●	
	Placer	●	◒ [a]	
	Sacramento	●	◒	
	Yolo	●		
	Yuba	●		
SAN JOAQUIN VALLEY	Fresno	●	◒	
	Kern	●		
	Kings	●		
	Madera	●		
	Merced	●		
	San Joaquin	●	◒	
	Stanislaus	●	◒	
SOUTHEAST DESERT	Imperial	●		
MOUNTAIN COUNTIES	El Dorado	●	◒ [a]	

● Does not meet standards

◒ Urban areas do not meet standards

[a] Lake Tahoe Basin area.

to pollutants. In addition, California's weather, with a high proportion of sunny days, contributes to the formation of some pollutants. Ozone, a principal component of smog and one of the most significant pollution problems in the state, is formed by sunlight reacting with "smog precursors," gases (such as carbon dioxide) emitted from motor vehicles.

Population Growth. California has experienced extremely rapid growth, increasing by almost 16 million people since 1960. Current Department of Finance projections indicate that an additional 8.3 million people will live in California by 2010. Population growth affects the amount of pollution in three ways: (1) emissions increase from both manufacturing (primary) industries and the secondary service industries that support them and the workforce; (2) emissions from household and consumer products, such as paint or hair-care products, increase; and (3) emissions increase due to the greater use of automobiles (see below). As long as the state's population continues to grow, efforts to control and reduce air pollution will be partially offset by increasing emissions from more sources.

Automobile Use. Partly as a result of increasing population and partly due to changes in where Californians live in relation to where they work, emissions from automobiles have not decreased as rapidly as those from stationary sources. While the total amount of smog agents emitted from automobiles and other motor vehicles *decreased* from 1979 to date, state experts expect the amount to *rise* again after 2000. This is primarily because the number of miles traveled by motor vehicles is expected to increase by 5 percent annually. In addition, increasing congestion on roadways leads to much higher emissions from individual vehicles because cars do not burn fuel as completely at decreased operating speeds.

What Is the Federal Role in Regulating Air Pollution in California?

Under the federal Clean Air Act of 1977 and a subsequent congressional extension, states were required to submit to the EPA air pollution control plans developed by local air districts that would ensure compliance with *federal* standards for ozone and carbon monoxide by August 31, 1988 (plans for nitrogen dioxide—NOx—were required in 1982, and deadlines were not extended). The EPA's review of state plans placed areas that did not meet federal standards by the deadline into two categories: (1) potentially sanctioned areas and (2) other nonattainment areas.

Potentially Sanctioned Areas. The EPA is only required to take action, such as imposing sanctions, against those areas which *knowingly did not include sufficient measures to meet* standards by August 1988. Four areas of the state (the South Coast region, Ventura County, Fresno County, and Sacramento County) submitted plans that contained measures to control

emissions to the maximum extent the districts considered feasible, but that would not result in compliance with federal standards by 1988. In these areas, the EPA is required to take some action to ensure achievement of federal air quality standards.

Other Nonattainment Areas. The other areas of the state that did not manage to meet federal standards by 1988 submitted plans to the EPA that included measures which *they thought would meet* standards by the deadline. These areas will be required to submit new plans to the EPA that demonstrate compliance within three to five years, but will not be subject to sanctions at this point.

The EPA Approach to Sanctions. For potentially sanctioned areas, the EPA is required to impose a ban on construction of facilities—such as large refinery complexes—that would emit more than 100 tons per year of hydrocarbons, volatile organic compounds (such as gasoline vapors), or carbon monoxide. To date, the EPA (under court order) has imposed the construction ban on the South Coast, Ventura, and Sacramento areas. (This sanction is not especially significant in that few, if any, facilities of this size are planned in the state in the foreseeable future, largely because of existing air pollution control restrictions.) In addition, the EPA has other, discretionary sanctions that it could impose on these areas. At present, the EPA's general approach appears to be to avoid imposing sanctions on a district so long as the district and state continue their efforts to resolve the air quality problem.

What Does the California Clean Air Act (CCAA) Require State and Local Agencies to Do to Achieve Air Quality Goals?

With many areas of the state out of compliance with federal air quality standards, the expiration of the federal Clean Air Act deadline has resulted in uncertainty. This uncertainty is caused by (1) concern over the future direction of EPA actions and (2) the possibility of congressional amendments to the federal act. Because the state's air pollution control efforts were driven by the federal process, this uncertainty resulted in a void in California's efforts to improve air quality.

The Legislature took the initiative by enacting a number of significant pieces of air pollution legislation. In the area of criteria air pollutants, the most significant piece of legislation enacted was Ch 1568/88 (AB 2595—Sher), known as the California Clean Air Act (CCAA). This and other significant legislation relating to criteria air pollutants are summarized in Chart 4. (The chart does not include enacted legislation relating to noncriteria pollutants, such as toxic "hot spots" and acid rain).

The California Clean Air Act establishes a mandate, *independent of the federal Clean Air Act,* for state and local government agencies to clean up California's air. Under the federal system, specific deadlines were established for meeting federal air quality standards and the states and

Chart 4

Summary of Major Air Pollution Legislation Enacted During the 1987-88 Legislative Session

California Clean Air Act

Chapter 1568/88 — Assembly Bill 2595 (Sher)

This act establishes a stand alone state air pollution control program. The act establishes a planning process overseen by the ARB and provides additional regulatory authority to both the ARB and Air Pollution Control Districts.

Smog Check Program

Chapter 1544/88 — Senate Bill 1997 (Presley)

This act both extends and expands the Smog Check Program administered by the Bureau of Automotive Repairs.

State Agency Ridesharing

Chapter 1435/88 — Senate Bill 2723 (Seymour)

This act requires state agencies to develop flex-time and ridesharing programs and creates a loan and grant program under the Department of Transportation to establish vanpools.

Expanded Authority for Local Air Pollution Control Districts

Chapter 1596/88 — Assembly Bill 3971 (Cortese)
Chapter 1541/88 — Assembly Bill 4355 (Connelly)
Chapter 1546/88 — Senate Bill 2297 (Rosenthal)
Chapter 1301/87 — Senate Bill 151 (Presley)

These four acts expand the Bay Area (Chapter 1596), Sacramento (Chapter 1541), and South Coast (Chapter 1546 and 1301) air districts' regulatory authority over mobile and indirect sources of air pollution.

local governments were to determine how to meet those deadlines. In the past, California's air pollution program focused primarily on (1) requirements for on-board air pollution control equipment for passenger vehicles and (2) local regulation of large stationary sources of pollution.

The CCAA makes three fundamental changes to California's air pollution program: (1) it establishes the *state's* existing air quality standards as the goals to be met, (2) it creates a new process to plan and implement these goals, and (3) it gives air pollution control districts (APCDs) and the state Air Resources Board (ARB) greater regulatory authority and enhanced funding in order to better achieve the act's goals.

New Goals and Requirements. The goals established by the CCAA differ significantly from the federal act in three ways. First, air districts must meet *state* air quality standards, which generally are *more* stringent than federal standards. Second, the CCAA classifies nonattainment districts into three different categories—moderate, serious and severe—each with different compliance timeframes and progressively more stringent requirements. Third, the CCAA requires that all nonattainment districts demonstrate annual reductions in excess emissions of nonattainment pollutants of *at least 5 percent.* Under the federal act there was no requirement to demonstrate annual reductions in emissions, only that the states be in compliance with the federal standards by 1988.

Chart 5 shows the specific goals and requirements placed on APCDs by the CCAA.

Chart 5

The California Clean Air Act Requirements For Non-Attainment Districts

ALL NON-ATTAINMENT DISTRICTS

General Requirements
- Meet emissions reductions goal of 5% per year.
- Upgrade emissions inventory.
- Upgrade public education program.
- Mitigate air pollution transported to other districts.

Mobile Source Requirements
- Require adoption of all reasonable available transportation control measures.
- Develop transportation control program.

Indirect/Area Source Requirements
- Develop area and indirect pollution control program.

MODERATE NON-ATTAINMENT DISTRICTS

General Requirements
- Attain state standards by December 31, 1994.

Stationary Source Requirements
- No increases in emissions from permitted stationary sources emitting more than 25 tons per year.
- Require reasonable available control technology on all permitted sources of pollution.

SERIOUS NON-ATTAINMENT DISTRICTS

General Requirements
- Attain state standards by December 31, 1997.

Stationary Source Requirements
- No increases in emissions from permitted stationary sources.
- Require best available retrofit control technology on all permitted sources of pollution.

Mobile Source Requirements
- Substantially reduce the rate of increase in the number of passenger trips and vehicle miles traveled.

SEVERE NON-ATTAINMENT DISTRICTS

General Requirements
- Meet emissions reduction goal of 5% per year plus 25% per capita reduction by 1995, 40% by 1998, and 50% by 2001.

Stationary Source Requirements
- No increases in emissions from permitted stationary sources.
- Require best available retrofit control technology on all permitted sources of pollution.

Mobile Source Requirements
- Substantially reduce the rate of increase in the number of passenger trips and vehicle miles traveled.
- Increase commuter ridership to 1.5 persons per vehicle by 1999.
- No net increase in vehicle emissions after 1997.
- Develop measures for low emissions automobiles.

The Planning and Implementation Process under the CCAA. As with the federal Clean Air Act, the CCAA requires air districts to develop air pollution control plans. The CCAA, however, requires air districts to include elements in their plans not required previously under the federal program. These include (1) emission reductions from a wide variety of sources—mobile sources, indirect sources (facilities like shopping centers that attract cars or other sources of pollution) and area sources (multiple, nonspecific sources of pollution such as agricultural burning and use of consumer products like aerosols)—that previously were not regulated by districts, and (2) contingency measures to be implemented if the plan fails to meet the requirements of the act. In addition, the CCAA institutes an ongoing approach to planning, requiring APCDs to update their plans for compliance with air quality standards every three years.

The ARB is the state agency responsible for implementation of the CCAA. Among other things, it is responsible for reviewing and approving all district plans. Once a district plan is approved by the ARB, the district must adopt the individual regulations and control measures necessary to implement the plan. The ARB is responsible for overseeing this implementation and ensuring that the individual regulations are adopted and enforced. Toward this end, ARB enforcement options include (1) requiring districts to implement contingency measures, (2) withholding state funding to districts for pollution abatement activities, and (3) taking over a district's program and implementing a plan on behalf of the district. In addition to approving and overseeing the implementation of district plans, the CCAA requires the ARB to adopt *more stringent* air pollution control standards for products sold in California that it currently regulates, such as motor vehicles and motor vehicle fuels, and adopt *new* standards for many consumer and other products it does not currently regulate.

New Regulatory Authority Granted by the CCAA. The CCAA and related legislation give both the ARB and air districts significant new authority to regulate previously unregulated sources of air pollution. As shown in Chart 6, new laws enacted during the 1987-88 legislative session grant the state—through the ARB—additional authority to (1) set product standards for most consumer products, (2) set product standards for previously unregulated mobile sources of pollution (off-road vehicles, marine vessels, construction equipment, etc.), (3) assess certification fees

Chart 6

Air Pollution Control Regulatory Authority By Level of Government Before and After the 1987-88 Session

	ARB		LOCAL	
MAJOR EMISSION SOURCES	**BEFORE**	**AFTER**	**BEFORE**	**AFTER**
MOBILE SOURCES				
Passenger vehicles[a]	Set standards	Set more stringent standards Assess fees on motor and vehicle manufacturers	None	Regulate use Require rideshare programs Assess motor vehicle registration surcharge fee[b]
Medium and heavy trucks	Set standards	Set more stringent standards Roadside inspection program	None	Regulate use
Motor vehicle fuels	Set standards	Set more stringent standards	Vapor recovery program	Vapor recovery program
Other mobile (trains, construction equipment, marine vessels, etc.)	None	Set standards Regulate use	Varies by type	Varies by type
STATIONARY SOURCES[c] (Factories, refineries, etc.)	Fee authority for specific programs	Expanded fee authority	Regulate emissions Permit authority Fee authority	Regulate emissions Permit authority Fee authority
INDIRECT SOURCES[c] (Office complexes, retail malls, etc.)	None	None	None	Regulate emissions Fee authority
AREA SOURCES[d] Consumer products[e]	None	Set standards	Set standards	None

[a] In addition, the Department of Consumer Affairs runs the Motor Vehicle Inspection and Maintenance (smog check) program.
[b] Only the South Coast and Sacramento air districts have the authority to assess this fee.
[c] In addition, local governments have land use authority to plan, permit, regulate and site land developments.
[d] Include many sources other than consumer products, such as house paints, agricultural burning, pesticide use, and other small sources of pollution.
[e] Under the CCAA, APCDs are prohibited from adopting standards different than the ARB until 1994.

on motor and vehicle manufacturers, and (4) assess fees on stationary sources of pollution.

In addition, the CCAA grants air districts new authority to (1) control the use of mobile sources, (2) regulate indirect sources of pollution, such as office complexes and shopping centers, and (3) assess fees on indirect sources which are regulated but for which permits are not issued.

The CCAA Requires Development of New Control Measures. The CCAA will result in districts and the ARB developing a new array of measures to control pollution because it requires (1) the implementation of transportation control measures in all nonattainment districts, (2) no net increase in emissions from new or modified stationary sources in moderate and severe nonattainment areas, and (3) a 5 percent annual reduction in emissions.

Unlike many other parts of the country, California has already implemented many stringent control measures, so that there are very few, if any, "quick fixes" left to reduce air pollution emissions in the state. In general, in order to achieve the act's air quality goals, future control measures will need to (1) squeeze an additional increment of reductions from sources already under some degree of control (such as cars and factories), (2) reduce emissions that previously were not regulated (such as consumer products, diesel engines, and construction equipment), and (3) alter individuals' behavior either through direct regulatory intervention or by providing individuals with incentives to reduce pollution (for example, the use of diamond lanes or the encouragement of flexible work schedules to reduce traffic congestion). Incentive programs might affect how much people drive, or where they choose to shop, live and work.

HOW CAN THE LEGISLATURE ENSURE THAT THE PLANNING PROCESS RESULTS IN ACHIEVEMENT OF AIR QUALITY GOALS?

The CCAA provides a new set of goals for APCDs and the ARB in achieving air pollution reductions. These goals include specific annual percentage reductions in air emissions and require the implementation of specific types of control measures. In our view, the CCAA is an important step in bringing about significant reductions in air pollution. To ensure achievement of air quality goals, however, the Legislature should consider taking further steps. These steps would involve increasing the degree of coordination among the various agencies involved in planning at the local level, and improving the ability of districts to implement programs that can accomplish the goals set by the CCAA.

Goals of Local Agencies Should Be Integrated in the Planning Process

We recommend that the Legislature expand the role of air pollution control districts in local land use and regional transportation planning in order to enhance coordination between districts and other local and regional governmental agencies.

Both transportation and land use planning decisions affect the achievement of air pollution control goals, but neither planning process is closely coordinated with air pollution control plans. The goals of different local planning agencies, including APCDs, may conflict, decreasing the effectiveness of the planning process.

Land Use Planning. The role of air districts in land use planning is very limited. Air districts have no formal role in reviewing city and county general plans—the major vehicle for land use planning decisions. In fact, there is not even a requirement that city or county general plans address air quality by including an air quality element. As a result, local decisions concerning the siting of facilities such as office buildings, shopping centers, and industrial parks are made outside the purview of the APCD, even though such facilities are potential indirect sources of air pollution because they attract automobiles.

When local agencies site these facilities, their decisions often reflect local fiscal priorities that rank commercial and industrial development higher than residential development. This can result in local growth patterns in which insufficient housing for the needed workforce is available near industrial and commercial growth centers. As a consequence, individuals may live far from their work, increasing the length of commuting trips. This in turn, increases vehicle miles traveled and traffic congestion, both of which worsen air quality. The CCAA directs air districts to consider controlling indirect sources of pollution, but does not clarify how differing goals of local planning agencies should be balanced when in conflict.

Transportation Planning. Under the CCAA, districts classified as serious or severe nonattainment areas are required to substantially reduce the rate of increase in passenger vehicle trips and in miles traveled per trip. In order to meet this requirement, changes in the way we use automobiles will be necessary. In the past, however, air districts and the ARB have played only a small role in the transportation and land use decisions that have a direct impact on traffic congestion, travel patterns and automobile use. For instance, air districts have no formal role in the regional transportation improvement planning process—including both the development of the longer-term Regional Transportation Plans (RTPs) and the shorter-term program of projects contained in the Regional Transportation Improvement Programs (RTIPs). Similarly, the ARB has no formal role in the development of the State Transportation Improvement Program (STIP) adopted annually by the California Transportation Commission. The plans reflected in the RTPs and the projects to implement these plans contained in the RTIPs and STIP have broad implications for future emissions from motor vehicles.

If substantial gains in air quality are to be made, air quality goals need to be reflected in the planning process for siting of industrial and commercial concerns and transportation projects. Currently, coordination often is lacking between land use and transportation planning agencies and the air pollution control district. As a result, air quality goals are not integrated with other local planning efforts. In order to better facilitate the inclusion of air quality goals within broader local and state planning concerns, we recommend that the Legislature (1) require that local general plans include an air quality element and (2) specify that local general plans and plan amendments be consistent with the APCD air quality attainment plans. In addition, the Legislature should consider requiring air districts to review and comment on RTPs and RTIPs, and the ARB to review and comment on the STIP, as a way of promoting consistency between transportation and air quality goals.

Legislative Options to Improve Districts' Ability to Implement Air Quality Measures

The CCAA has increased APCD authority over some sources of air pollution, but as discussed above, APCDs have only a limited and often informal role in local land use and transportation planning decisions. Moreover, they have no permitting authority over *new* developments or transportation projects, and little or no authority over the operation of *existing* transportation systems or indirect sources of pollution. As a result, general authority granted to air districts by the CCAA to (1) regulate or decrease emissions from indirect sources and (2) affect the use of motor vehicles, may be ineffectual unless strengthened.

There are at least three options available to strengthen the ability of APCDs to implement effective control measures on indirect and mobile sources of pollution.

Explore Methods to Give APCDs Increased Authority over New Projects and Operation of Existing Projects. Districts could be given greater regulatory authority over local facilities and transportation projects. For example, the Legislature could expand the number and types of local projects which are subject to APCD permit requirements. This approach would ensure that air quality goals are considered in siting and operating decisions. The major disadvantage of this option is that it could result in delays in projects because a new level of government would be interjected into the permitting process.

Better Integrate Decision-Making Roles of Local Government Agencies. As we discussed earlier in "Accommodating California's Growth," a single body could be charged with the responsibility for approving city and county general plans, and given the authority to veto major land use decisions. This would allow better coordination of these decisions with air

quality objectives. Alternatively, if an adjudicatory body were established, conflicts between local agencies could be resolved.

Greater Use of Economic Incentives—or Disincentives—to Get Polluters to Modify Their Behavior. Generally, APCDs have little ability to implement pricing programs that make citizens and businesses face the economic costs of their decisions. Such programs might include mileage charges for automobile use, or tax incentives to locate indirect source facilities so as to minimize air quality impacts.

Legislature Needs to Be Informed about Progress in Achieving Air Pollution Goals

We recommend that the Legislature amend the CCAA to require (1) air districts to include an analysis of the impact of land use and transportation decisions on district programs and air quality in their three-year plan reviews and (2) the ARB to report these findings to the Legislature.

Because local land use decisions may impinge on meeting air quality goals, the Legislature needs to know if it should consider taking further action to strengthen compliance efforts. However, the extent to which district compliance problems result from local agency decisions on land use and transportation projects is not known. While the CCAA requires APCDs to review their plans every three years to correct deficiencies, it does not require districts to identify in their plans the extent to which problems in achieving air quality objectives were due to factors outside their control, but within the control of local land use or transportation planning agencies. Although the ARB is required to report to the Legislature on expenditures of fees collected and on the funding of large APCDs, there is no requirement to report on overall progress towards meeting state standards, or to identify the extent that local land use and transportation decisions affect air quality.

In order to ensure that the Legislature is informed concerning the air quality impacts of transportation and land use decisions, we recommend that districts be required to include in their three-year plans an analysis of the impact of land use and transportation decisions on district programs and air quality, and that the ARB report these findings to the Legislature. We recommend that the ARB include in its report (1) an assessment of the extent that local land use and transportation decisions prevent districts from meeting the goals of the CCAA, and (2) specific legislative options to address this problem. If the report indicates that localities are not acting in a manner consistent with regional air quality goals, the Legislature may wish to consider further options to more closely integrate air quality objectives into local planning processes.

Drivers Should Help Pay for District Programs

We recommend that legislation be enacted extending the authority to assess motor vehicle registration surcharges to all air pollution control districts.

In the past, air pollution control district programs have focused primarily on stationary sources, and fees charged to these sources have paid for district regulatory costs. Now, however, the CCAA authorizes districts to broaden their scope of regulation to include transportation control measures and indirect sources. As a result, APCDs will incur costs to regulate cars and their use.

The CCAA authorized APCDs to increase fees on stationary sources and assess new fees on regulated indirect sources of pollution. In addition, Ch 1546/88 and Ch 1541/88 gave the South Coast and Sacramento air districts the authority to assess surcharges of $1 and $4, respectively, on motor vehicle registrations to support alternative fuel, indirect source and mobile source programs. The authority to assess a vehicle registration surcharge was not extended, however, to other APCDs. As a consequence, in most districts drivers still will not pay the costs of district air pollution control programs aimed at regulating the use of automobiles.

In our view, automobile users should pay for district regulatory costs related to automobile use. Consequently, to ensure that the cost of air district regulatory programs are borne by all of the regulated community, we recommend the Legislature enact legislation to give all districts the authority to assess motor vehicle surcharges similar to the authority granted to the South Coast and Sacramento districts during the past legislative session.

Conclusion

The CCAA represents a major new effort by the state to meet air quality goals within a 20-year timeframe. As a first step, it requires that the state and air pollution control districts develop plans for meeting air quality objectives. In addition, it grants new authority to the districts and the ARB to strengthen regulatory efforts related to sources of air pollution that they already regulate, and it extends to the districts and the ARB the authority to regulate some sources of pollution that previously have not been regulated. The CCAA, however, does not provide for a process that balances or integrates air quality objectives with other local planning goals and land use decisions. This will limit the ability of districts to achieve the CCAA's air quality goals.

In order to enhance the ability of air districts to actually meet air quality goals, we recommend that the Legislature, among other things, increase air district and ARB participation in land use and transportation planning at the state and local level, and consider options to increase the ability of districts to effectively reduce emissions.

Solid Waste Management in California

Is California Facing A Solid Waste Management "Crisis"?

Summary

- *Current fees for waste disposal in California are relatively low. Future disposal costs are likely to escalate some, but increases affecting residential and commercial waste generators will probably be relatively small.*
- *Fees charged for trash collection and disposal often do not reflect the full cost of providing collection and disposal services. As a result, there is little economic incentive to reduce the volume of waste or to recycle waste.*
- *State law requires counties to plan on an ongoing basis for the provision of disposal capacity sufficient to last at least eight years. Most counties either already have or will soon develop additional capacity in order to comply with this requirement. Some counties, however, face short-term shortages of disposal capacity due in large part to public opposition to constructing new facilities.*
- *Despite prohibitions against it, household hazardous waste is often disposed of in municipal garbage. If these materials are not sorted out of the waste stream, or if disposal facilities are not designed to handle such wastes, the result may be water contamination or air pollution.*
- *Despite these concerns, our review indicates that there is no "crisis"—either in terms of cost or landfill availability—in the state's waste management system.*
- *However, in order to address certain existing problem areas and improve the state's solid waste management system, the Legislature can take steps to:*
  - *(1) Ensure that local governments impose fees for waste disposal that reflect all applicable costs.*
  - *(2) Assist counties in facility siting decisions.*
  - *(3) Minimize the potential environmental threats of disposal operations.*

Californians discard an average of about 7.5 pounds of various materials per person each day. This amounts to more than 38 million tons of waste each year, enough to fill 80 football stadiums with trash 100 feet deep. There appears to be a widespread perception that this mountain of waste is about to bury the state and bankrupt it in the process. In contrast to this perception, the available evidence indicates that, although there are

problems with the existing solid waste management system, in general the waste we produce can be disposed of safely and at relatively low cost.

This analysis attempts to put the status of waste management in California into perspective and focus discussion on those problem areas that do need attention. We first provide background information on the structure of the solid waste management system. Next, we evaluate how well the existing system is working. Then, we briefly outline specific actions the Legislature can take to address problems with the existing waste management system.

Background

In California, responsibility for solid waste management is divided between the state and local governments. The state is responsible for developing general solid waste management policies and guidelines. Cities and counties manage the collection systems and disposal facilities needed to dispose of the waste produced in their jurisdictions.

The California Waste Management Board (CWMB) is the lead state agency responsible for developing and implementing state-wide solid waste management policy. The board:

- Sets minimum standards for handling solid waste and operating waste disposal facilities,
- Reviews waste disposal facility operating permits issued by local enforcement agencies (LEAs) to ensure compliance with state standards,
- Conducts oversight inspections of waste handling facilities to ensure effectiveness of LEAs,
- Approves landfill closure and postclosure maintenance plans,
- Approves county solid waste management plans, and
- Evaluates and promotes new waste management strategies.

In addition to the CWMB, other state entities conduct a variety of activities related to solid waste. For example, the Department of Conservation manages the Beverage Container Recycling Program, the State Water Resources Control Board monitors potential groundwater contamination caused by landfills, the Air Resources Board and local air districts enforce air pollution standards that apply to landfills and waste-to-energy facilities, and the Energy Commission evaluates the energy market impact of large scale waste-to-energy proposals.

In contrast to the general policy setting responsibilities conducted at the state level, local governments are responsible for "hands on" waste management activities such as:

- Operating or contracting for waste management facilities and services within their jurisdiction,

- Issuing operating permits to private entities for waste handling facilities,
- Setting rates for trash disposal services provided within their jurisdictions, and
- Designating local enforcement agencies (generally county health departments) and setting fees to cover the cost of enforcement activities.

To help ensure that solid waste management activities are adequately planned and coordinated, the state requires each county to develop and implement a comprehensive county solid waste management plan (CoSWMP). The CoSWMP must include:

- A schedule of the combined capacity of existing solid waste facilities available to the county;
- A plan for maintaining disposal capacity sufficient to last at least 8 years;
- Plans, including an implementation schedule, detailing how the county will recycle at least 20 percent of its solid waste; and
- An analysis of the economic feasibility of the plan, including the cost of waste disposal in the designated jurisdiction.

The CoSWMP must first be approved by the city councils of a majority of the cities containing a majority of the county's population, and then must be approved at the county level. A CoSWMP must also be approved by the CWMB to ensure that the plan satisfies applicable state laws and regulations. Counties are required to update their CoSWMPs at least every three years.

There are 389 landfills, 245 transfer stations (facilities where waste is transferred from the collection truck to a tractor/trailer rig or train for long-distance hauling) and two waste-to-energy facilities currently operating in California. More than half of the 38 million tons of waste produced annually in California is disposed of in the state's 10 largest landfills. In addition to the 389 operating landfills, there are approximately 1,800 closed landfills that no longer accept waste. The range of problems associated with closed landfills varies considerably. Some closed landfills have few, if any problems, and are now used for such purposes as golf courses. Other closed landfills have created such serious problems that they have been listed by the Environmental Protection Agency as federal Superfund toxic waste sites.

HOW WELL IS CALIFORNIA'S SOLID WASTE MANAGEMENT SYSTEM WORKING?

Economic and environmental considerations are the underlying subjects in much of the recent media attention on solid waste issues, with particular emphasis given to the subject of landfills. The conclusions often

drawn in the media are that (1) landfills are a cause of environmental problems, (2) landfill space is rapidly disappearing throughout the country, and (3) the scarcity of landfill space is likely to cause significant price increases for trash disposal services. Our analysis indicates, however, that—at least in California—the situation is not as serious as is being suggested by many.

Current Waste Disposal Fees Are Low and Likely to Remain That Way

Currently, charges for waste disposal in California are relatively low when compared to other regions of the country or to other basic services. Table 1 illustrates the fees charged for *residential* trash collection in a sample of local governments throughout the state. As the table shows, the fees for these entities average about $8.35 per month. Fees for *commercial* trash collection are highly variable, depending on the volume of waste, the frequency of collection, the location of collection bins, and the type of trash. In general, however, commercial trash collection is less expensive for a given volume of waste than is residential collection. At the prevailing collection fees, it costs each of us an average of about 20 cents per day to dispose of the waste we generate in activities at home and at work.

Table 1
Residential Trash Collection Fees
In Selected California Cities
December 1988

Local Agency	*Monthly Fee*	*Weekly Volume Limit (gallons)*
Ventura	$11.10	55
Riverside	10.63	32
Sacramento	9.68	32
Thousand Oaks	9.25	45
Oxnard	9.15	105
San Francisco	8.49	32
Oakland	8.15	45
Los Angeles County	7.37 [a]	no limit
San Jose	6.31	no limit
Anaheim	6.11	220
Milpitas	5.65	no limit
San Diego	no fee [b]	no limit
Los Angeles	no fee [b]	no limit
Average	$8.35	

[a] Average cost, based on a range of fees from $5.25 to $9.50 per container.
[b] Trash collection and disposal are supported by city general fund revenues. These cities were not included in the average cost figure.

The comparatively small price we pay to dispose of our solid waste is likely to remain relatively low. This is because solid waste management involves numerous activities and the cost of only one of those activities,

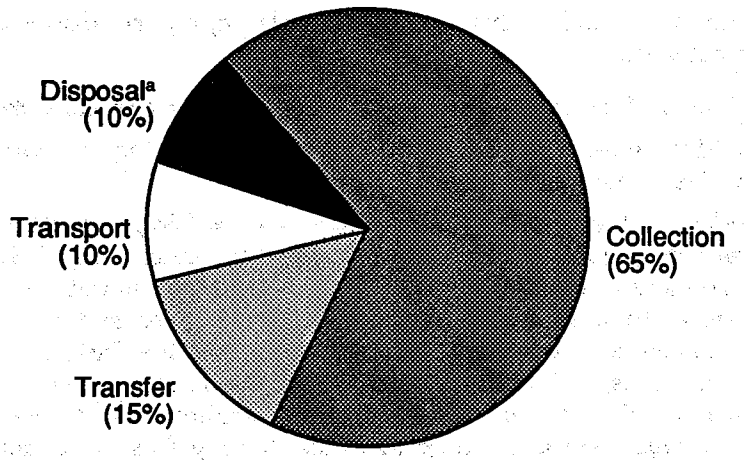
landfilling, is likely to rise significantly in the near future. Differentiating the various aspects of waste disposal helps to illustrate this point.

After we throw our trash away, it must be (1) collected from the containers on the curb or in the alley, (2) transferred from the collection truck to a tractor/trailer rig or train for long distance hauling, (3) transported to a disposal facility, and (4) disposed of either by burying, burning, or reprocessing (recycling). If waste disposal facilities are reasonably close to the collection area, transfer operations may be unnecessary.

Chart 1 illustrates the percentage of overall costs attributable to these four components, based on the statewide average landfill tipping fee (the charge for dumping materials at the landfill) and estimated average costs for collection, transfer, and transportation. It shows that collecting waste from the curb or alley is by far the most expensive aspect of waste management, accounting for about 65 percent (with costs ranging from 60 percent to 70 percent) of the overall cost of waste disposal. In contrast, the cost of landfilling—at the rates currently prevailing in California —generally contributes only about 10 percent (with a range of 5 percent to 20 percent) of the total cost. Costs for waste transfer operations (which may include the cost of screening for and removing hazardous wastes and/or recovering recyclable materials) make up another 15 percent

Chart 1

Distribution of Solid Waste Management Costs
Average Costs for Selected California Cities
December 1988



[a] Primarily landfilling.

(with a range of 0 percent to 25 percent) of the total cost. The cost of transporting waste to disposal facilities is similar in proportion to landfilling costs—about 10 percent (with a range of 5 percent to 15 percent).

Landfill tipping fees, which in California currently average about $10 per ton, are beginning to increase, due primarily to more stringent environmental regulations. Industry sources estimate that after landfill operators comply with requirements for new environmental safeguards, the cost of landfill disposal will probably level off in the range of $20 to $25 per ton. Increasing land acquisition costs may also push tipping fees up. The impact of land costs on fees, however, is relatively insignificant because the cost of land on which to build a landfill generally accounts for less than 5 percent of the total cost of developing, operating, closing, and properly maintaining the landfill.

These rising tipping fees, however, will not significantly affect trash collection bills because, as explained previously, landfill costs are such a relatively small component of the total cost of waste collection and disposal. For example, if landfill tipping fees double from the current statewide average of around $10 per ton to $20 per ton, the overall cost of residential waste disposal would probably increase by only about 10 percent (or less than $1.00 per month per household).

Although the economic cost of waste disposal is likely to remain relatively low in California, there are still problems with California's existing system of waste management. The most significant problems include: an economically inefficient pricing system that often does not impose the full cost of waste disposal on waste generators, local difficulties in siting new facilities, and potential groundwater contamination and air pollution caused by hazardous materials improperly disposed of in municipal waste.

The Full Cost of Waste Disposal Is Not Directly Imposed on Individuals

Individuals often do not bear the full cost of disposing the waste they create. This occurs for two reasons:

- ***Individuals are not billed for trash disposal in proportion to the waste they generate.*** In some cities, such as Anaheim and San Jose, residences are charged a flat fee for essentially unlimited disposal service. In other cities, such as in Los Angeles and San Diego, residences are not directly charged even a flat fee. Instead, funding for trash disposal services is provided by general tax revenues.
- ***Disposal fees do not reflect all of the economic and social costs associated with waste disposal.*** Most tipping fees in California do not reflect the full cost of financing landfill closure and postclosure maintenance costs and the cost of environmental safeguards such as

methane gas and "leachate" collection systems (a leachate is any substance that drains out of a landfill). Fees also may not reflect the social cost of nuisances (such as dust, noise, and pests) that may be caused by landfills.

In both cases, the true cost of waste disposal is masked and greatly understated to most individuals. Consequently, people produce *more* waste than they would if confronted with the full cost of the service. Better price signals not only would influence individuals to reduce the amount of waste they generate, they also would improve the relative position of alternatives to landfilling (such as recycling).

Unfortunately, there are several obstacles that make it difficult to directly and accurately bill each individual for the waste he/she produces and that undermine the benefit of direct billing:

- ***Expense of Separate Billing.*** The procedures involved in billing individuals for the waste they produce may be so expensive that billing costs outweigh the benefits.
- ***Difficulty of Determining the Source of Waste.*** In many cases, garbage from numerous sources is combined at one collection point, such as a large dumpster serving several apartment units. Such collection systems make it impossible to bill individuals accurately for the waste they generate.
- ***Tendency of Higher Prices to Encourage Illegal Dumping.*** Direct billing may increase the level of illegal dumping as waste generators attempt to avoid paying the full cost of disposing the waste they generate.
- ***Relative Insignificance of Waste Disposal Fees.*** To the extent that accurate pricing of waste disposal services results in higher costs, individuals should reduce the amount of waste they generate. However, since the magnitude of an individual's trash bill is likely to be small relative to other expenses (such as housing payments, grocery bills, and phone expenses) direct and accurate billing for waste disposal services may not appreciably affect individuals' waste disposal decisions.

Some Counties Face Disposal Capacity Problems

Our review of California's waste disposal system indicates that, while the state is not in imminent danger of running out of landfill capacity, there are certain counties with *short-term* capacity problems. In response to the landfill problems experienced by some local agencies, the Legislature recently imposed a new requirement on counties that they plan for disposal capacity sufficient to handle the county's projected volume of waste for at least eight years. These plans must be updated every three years, thereby continually extending the eight-year planning horizon.

Because the capacity planning provision is so new, not all counties have as yet fulfilled this requirement. Based on CoSWMPs filed with the Waste Management Board, 46 of the state's 58 counties already have eight years' worth of landfill capacity. Table 2 lists those 12 counties that do not now meet this requirement. Most of the counties shown are rural counties with small populations. The list also includes Los Angeles County, however, which is responsible for almost two-fifths of the state's total waste stream.

Table 2
Remaining and Planned Disposal Capacity for Counties That Currently Have Less Than Eight Years Capacity
December 1988

County	*Annual Waste Generation (Thousands of tons)*	*Percent of State Waste Stream*	*Currently Remaining Disposal Capacity (Years)*	*Disposal Capacity Coming On-Line[a] (Years)*
Calaveras	18	—[b]	0	100
Madera	78	0.2%	0	35
Del Norte	10	—[b]	1	—[c]
Contra Costa	914	2.4	3	20
Tuolumne	43	0.1	3	40
Sonoma	394	1.0	4	30
Ventura	730	1.9	4	40
San Bernardino	1,554	4.1	5	300
Sutter-Yuba	82	0.2	5	15
Los Angeles	14,612	38.5	5	30
Lassen	20	0.1	5	—[c]
Kings	93	0.2	6	35
Totals	18,668	48.8%[d]		

[a] Indicates capacity of facilities anticipated to open within 5 years.
[b] Accounts for less than 0.05 percent of California annual waste generation.
[c] Volume of proposed facilities is unknown.
[d] Detail does not add to total due to rounding.
Source: California Waste Management Board.

Table 2 also shows the disposal capacity which is expected to be available within five years in these counties. It indicates, for instance, that Los Angeles County soon expects to expand existing facilities or construct new facilities that will be able to dispose of the county's waste for 30 years. Furthermore, San Bernardino County has reserved a site that, when fully developed, will be able to hold an estimated 462 million tons of waste—enough capacity to handle that county's current annual volume of waste for more than 300 years. Thus, even those counties included in Table 2 would appear to face problems which are generally of a short-term nature.

The lack of adequate disposal capacity in some counties is due to the increasing difficulty in California of gaining public approval to locate new waste disposal facilities near urban areas. For example, in spite of the current shortage of disposal capacity in Contra Costa County, in the 1988

November general election voters in that county disapproved of all three initiatives proposing new landfills for the county. In addition, only four *new* waste disposal facilities have been sited in the state since 1984. Consequently, almost all new landfill capacity in California has been added by expanding existing facilities, rather than siting new ones.

Disposal Facilities May Cause Environmental Damage

The perceived environmental problems associated with disposal facilities are probably the most significant reason that few new facilities have been constructed. For instance, many people are concerned about toxic wastes in general purpose landfills. The greatest threat of toxic contamination, however, is posed not by *new* disposal facilities (which generally are designed to limit this threat), but by landfills that are now closed. Many of these landfills accepted hazardous industrial wastes that they were not designed to handle. Consequently, these closed facilities may cause groundwater contamination. The full extent and significance of this problem is unknown. The Water Resources Control Board (WRCB) currently is evaluating the results of water quality assessment tests conducted at 50 landfills that pose the greatest threat of water contamination. Preliminary results indicate that some of these landfills have caused low concentrations of contamination in groundwater. The contamination is primarily from petroleum-related sources.

In addition to the problems at closed landfills caused by improperly disposed industrial toxins, existing disposal facilities may contribute to environmental pollution due to *nonindustrial* sources. State law prohibits disposing of hazardous materials in municipal garbage collection systems. However, many common household products—such as paint, batteries, motor oil, and some household cleaners—are hazardous materials that people either unknowingly or illegally discard in their household trash. Consequently, if these materials are not sorted out of the waste stream, or are not deposited in waste disposal facilities that are constructed to handle such materials, they can produce water contamination (if the materials leach from landfills) or air pollution (if the materials are not completely incinerated in waste-to-energy facilities).

In addition to pollution problems resulting from hazardous materials in the waste stream, pollution may also be caused by burying materials that are normally harmless. In landfills, the natural decomposition of biodegradable materials, such as food and yardwastes, produces methane gas. Landfills can be constructed with systems to collect this gas and use it for fuel to generate electricity. Older landfills, however, rarely have such collection systems, and in many cases the gas escapes from the landfill and causes air pollution. Some cases of gas buildup have even resulted in explosions.

New disposal facilities that are properly designed and managed are much less likely to cause pollution problems than are older facilities. Landfills can be constructed with impermeable caps and bottom liners that prevent rain and snowmelt intrusion and reduce the chances of toxic materials leaching from the facility and contaminating groundwater. Waste-to-energy (WTE) facilities that burn garbage as fuel can also be constructed with high-temperature combustion chambers and filters enabling them to meet existing air quality requirements.

Although air pollution control requirements regulating emissions from WTEs are very specific, state regulations pertaining to leachate control at landfills indicate only that "the [landfill] operator shall take adequate steps to monitor, collect, treat, and effectively dispose of leachates." Thus, the application of available methods of preventing landfills from contaminating water is to a large degree left up to individual landfill operators.

Since landfill management decisions made by local governments can potentially affect the groundwater used by other entities, there is a definite statewide interest involved in how these disposal facilities are built and run. In the next section, we offer the Legislature suggestions on how it might address this concern, as well as the pricing and siting problems identified earlier.

OPTIONS TO IMPROVE CALIFORNIA'S WASTE MANAGEMENT SYSTEM

As the preceding discussion indicates, California currently does not face a waste management crisis. There are, however, a number of problems with the existing waste management system, including (1) a pricing system that obscures choices facing individuals and underprices waste generation, (2) local capacity concerns in some areas, and (3) potential environmental damage resulting from (a) individuals disposing of hazardous materials in municipal garbage and (b) unsorted waste being disposed of in facilities that are not constructed to contain hazardous materials. We discuss below ways for the Legislature to address these concerns, thereby improving the way in which solid waste is managed in the state.

Promote Fees That Include All Costs for Waste Disposal Services

Fees for trash collection and disposal services should reflect the full cost of providing the service. Fees that reflect all costs of disposal would influence individuals to minimize their waste generation, resulting in a reduced demand for landfills. As our previous discussion indicates, however, there are numerous instances in which individuals are either not directly charged for waste disposal or are charged much less than the full economic and social costs of disposal.

While there are obstacles to ensuring that individuals face the costs of waste generation, it is possible to improve pricing systems. For instance, many cities have shown that it is practical to impose trash collection fees that are proportional to the weekly volume of waste that is collected from a household or business. For example, the city of San Francisco charges residential customers $8.49 a month for weekly collection of one 32-gallon can of trash, and an additional $3.86 per month for each additional 32 gallon can. The effect of proportional billing on the volume of waste individuals produce can be dramatic. For example, in 1988 the town of High Bridge, New Jersey required that town-issued stickers be placed on each 30-gallon trash container prior to collection. The stickers cost $140 for 52, and additional stickers cost $1.25 each. Eleven months after implementing the sticker system, the town's volume of trash has declined 25 percent.

Thus, perhaps one of the most important steps the Legislature can take in this area is to promote the direct billing of full waste disposal costs to users. One way to accomplish this end would be to require CoSWMPs to include an outline of the billing system and fee rates imposed in each city within the county jurisdiction, and compare those fees against the estimated full costs of providing waste disposal services. Hopefully, this type of information would help counties—especially those facing short-run capacity problems—move toward a more rational pricing system.

By promoting direct and accurate billing for waste disposal, the Legislature would help achieve two positive results. First, individuals would tend to minimize the quantity of waste they produce. Second, this approach would also indirectly promote alternative waste management strategies. For example, in California landfill tipping fees average roughly $10 per ton. The average tipping fee, however, does not reflect the full cost of financing landfill closure and postclosure maintenance costs and the cost of environmental safeguards (such as gas and leachate collection systems). If these costs were incorporated into tipping fees, the average fee would probably increase to about $25 per ton. At this fee level, alternatives to landfill disposal may be more economical. For example, based on our calculations, the net cost of San Jose's curbside recycling program is roughly $20 to $25 per ton (depending on the market prices for certain recyclables). Thus, under these conditions, the cost of recycling would be an economically viable alternative to landfilling.

Help Counties Resolve Disposal Facility Siting Issues

As noted above, there are only a few counties with serious landfill capacity shortfalls, and the problem in most of these cases does not appear to be over land availability as much as local resistance to having such facilities sited nearby. The Legislature may want to consider ways to help localities resolve impasses in siting needed disposal facilities. One

way to address this problem would be to grant the CWMB the authority to certify when local jurisdictions are in need of additional disposal capacity, and allow the CWMB (or some other designated entity) to act as arbitrator in stalled local siting negotiations.

Granting a state agency this type of authority has proven successful in Wisconsin. There, a state agency first certifies the need for new or expanded disposal facilities in a given jurisdiction. Next, the prospective facility operator is required to negotiate the terms of an operating agreement with the host community's government. If the operator and the host community cannot reach an agreement, either party may petition the state's Waste Facility Siting Board for arbitration. Under Wisconsin's law, the board must select one of the parties' last best offer (which covers such factors as site location, operating hours and fees). Since 1982, 21 siting agreements have been signed in Wisconsin without any cases going into arbitration.

Consider More Stringent Environmental Requirements for Disposal Operations

Unless hazardous materials are prevented from entering the waste stream, separated out before waste is buried or burned, or disposed of in facilities designed to handle such materials, they may cause water contamination and/or air pollution. While current groundwater monitoring has not discovered any serious contamination levels, the extent and significance of the problem is really not known. If the Legislature is concerned about the future threat to the environment from these hazardous materials, there are at least two options available to it.

First, the Legislature could impose more stringent environmental protection requirements on landfills. For instance, depending on such factors as the level of the groundwater, the state could require that new landfills be constructed with various types of liners and caps capable of preventing hazardous materials from leaching into water supplies. Because the cost of landfilling is a relatively small component of the overall cost of waste collection and disposal, such a requirement would probably result in only a small increase in disposal fees for residences and businesses. Alternatively, the Legislature could require all landfills only to accept waste that has been sorted to remove potentially hazardous materials. The cost of sorting these materials from the waste stream is unknown.

Second, the Legislature could take additional steps to encourage the proper disposal of hazardous wastes by individuals. For instance, the state could require CoSWMPs to contain a plan element devoted to household hazardous waste separation. The CWMB currently provides local governments with technical assistance and advice on household hazardous waste

as part of the board's hazardous substance information program. The success of this program in influencing a significant number of individuals to properly dispose of their household hazardous waste has not been demonstrated. However, requiring that CoSWMPs include a household hazardous waste separation element would probably encourage cities and counties to take advantage of the information available through the CWMB.

Conclusion

Our review suggests that California is not presently facing a waste management crisis. The overall cost of waste disposal in California is relatively low and not likely to substantially increase in the near future. Most counties have adequate disposal capacity, and there is little evidence at present of significant environmental damage caused by waste disposal facilities. There are, however, problems with the state's existing solid waste management system: (1) in many areas, waste disposal services are not realistically priced; (2) some local governments have difficulty gaining public approval to site new disposal facilities; and (3) without preventive measures, household hazardous waste can pose a threat to the environment.

To address these problems, the Legislature can take steps to: (1) ensure that fees which reflect the true costs of waste disposal are imposed wherever practical, (2) assist counties in landfill facility siting decisions, and (3) minimize the potential environmental threats of disposal facilities. These steps will help influence individuals to minimize the waste they generate, stimulate efficient competition among conventional and alternative waste management strategies, help maintain an adequate supply of disposal capacity, and ensure that waste is disposed of safely.

State Appropriations Limit

How Should the Legislature Address Problems With the Appropriations Limit?

Summary

- *Based on the estimates of revenue and the spending plan contained in the Governor's Budget, the state is very close to its appropriations limit for both the current and budget years—$134 million and $128 million, respectively. Using the administration's long-term forecast of state revenues, we estimate that revenues will exceed the appropriations limit by 1990-91.*
- *State spending authority, as adjusted for changes in the price of goods and services faced by the state, has declined under Article XIII B. The limit does not allow sufficient growth in spending authority to maintain current service levels or to keep pace with growth in the economy.*
- *In many cases, the current limit tends to distort government decision making, thereby adding to the cost and complexity of the public sector.*
- *As a result of the appropriations limit, the state is facing increasingly difficult choices about which programs can be funded and at what level they can be funded. Changes in public demands for services, as in the case of education and transportation, are increasing pressures on spending subject to the limit. Further, funding for the state's reserve fund can only be provided at the expense of other state programs.*
- *Because there is no apparent consensus as to which programs should be eliminated or reduced in order to accommodate the magnitude of spending increases sought in program areas where demand is building (such as transportation), and because in the long run the limit will hamper the state's ability to provide the services needed to keep the state's economy functioning efficiently, we recommend that the Legislature place on the ballot a constitutional amendment calling for the repeal of Article XIII B.*
- *Whether a different type of limit should also be adopted is a policy choice only the Legislature can make. In reviewing the arguments for and against limits, we are not convinced of the need for a limit from an analytical perspective. If an alternative type of limit is desired, however, we recommend that several considerations be carefully addressed in determining how it should operate.*

As discussed in Parts One and Two of this document, the Legislature and the Governor face an extremely difficult situation in developing a state budget for 1989-90. In addition to finding a way to avert a deficit for the current fiscal year, the Legislature faces a funding gap of over $1.6 billion between expected General Fund revenues and the cost of maintaining current service levels, including a provision for a prudent reserve. At the same time, the Legislature faces pressing demands for increased funding for transportation and other infrastructure projects.

Faced with such prospects, some consideration ordinarily would be given to increasing the level of General Fund and special fund revenues. However, the Department of Finance's calculations indicate that the state is very close to its appropriations limit for both the current and budget years—$134 million and $128 million under the limit, respectively. This situation effectively precludes the state from considering a revenue increase as part of its effort to balance these demands, unless changes are made to the appropriations limit.

This section provides background on the appropriations limit imposed by Article XIII B of the California Constitution. It also discusses the long-term effect on the budget process and on the provision of state services of operating under the current limit. Finally, this analysis provides the Legislature with our recommendations as to actions it needs to take to ensure that the state can effectively address the demands for state services in the future.

Background

Article XIII B was added to the State Constitution when the voters approved Proposition 4 on the November 1979 Special Election ballot.

Briefly, Article XIII B does three things:

- It limits the level of tax-funded appropriations (General Fund and special funds) which can be made by the state and individual local governments in any given year. The limit for each year is equal to the limit for the prior year, adjusted for changes in the cost of living and population, and other adjustments as required (for example, transfers of financial responsibility).
- It requires that state and local governments return to the taxpayers any revenues collected—from both tax and nontax sources—that exceed the amount which can be appropriated in any given fiscal year.
- It requires that the state reimburse local governments and school districts for the cost of complying with state mandates.

The limit applies only to appropriations financed from the "proceeds of taxes," which include tax revenues, proceeds from the investment of tax revenues (such as interest earned on tax proceeds), and any revenues

collected by a regulatory license fee or user charge in *excess* of the amount needed to cover the cost of providing the regulation, product, or service. Appropriations financed by other sources of revenue (for example, bond funds) are not subject to the limit.

Certain specific categories of appropriations are also excluded from the limit. These include payments for interest and redemption charges on preexisting debt or voter-approved bonded indebtedness, appropriations needed to pay the state's cost of complying with federal laws and court mandates, and unrestricted state subventions to local governments. For additional information on the background of the appropriations limit, please see *The 1987-88 Budget: Perspectives and Issues*, pp. 111-127.

State's Current Position Relative to the Appropriations Limit

Table 1 presents estimates of the state's position relative to the limit for 1988-89 through 1991-92, based on the Department of Finance's estimates of long-term revenue growth included in the Governor's Budget. The Department of Finance estimates that the state will be $134 million below its limit in 1988-89 and $128 million below its limit in 1989-90, given the estimates of revenue contained in the budget. Table 1 also shows that, under the moderate economic growth assumptions underlying the budget's revenue forecast, the state could have $500 million in excess revenues by 1991-92. A stronger-than-expected economy, or higher levels of capital gains realizations than anticipated by the budget, could easily result in the state receiving revenues in excess of the limit as soon as the current year.

Table 1
State Appropriations Limit and Appropriations Subject to Limitation
1988-89 through 1991-92 [a]
(dollars in millions)

	Appropriations Limit	*Appropriations Subject to the Limit*	*Amount Under/(Over) the Limit*
1988-89	$27,079	$26,945	$134
1989-90	29,184	29,056	128
1990-91	31,227	31,427	(200)
1991-92	33,412	33,912	(500)

[a] Figures for 1988-89 and 1989-90 are from the Governor's Budget. Figures for 1990-91 and 1991-92 are estimates by the Legislative Analyst's Office, based on the long-term revenue projection contained in the 1989-90 Governor's Budget.

Is There a Problem with the Limit?

Two years ago (please see *The 1987-88 Budget: Perspectives and Issues*, pp. 111-127), we addressed the issue of what the effect of Article XIII B might be in future years, and whether the state would have a problem in both providing the levels of service demanded by state taxpayers and

complying with the appropriations limit. This section updates that analysis and examines how the limit has constrained the state's ability to provide services. We do not explicitly consider the impact of the limit on local governments in this analysis.

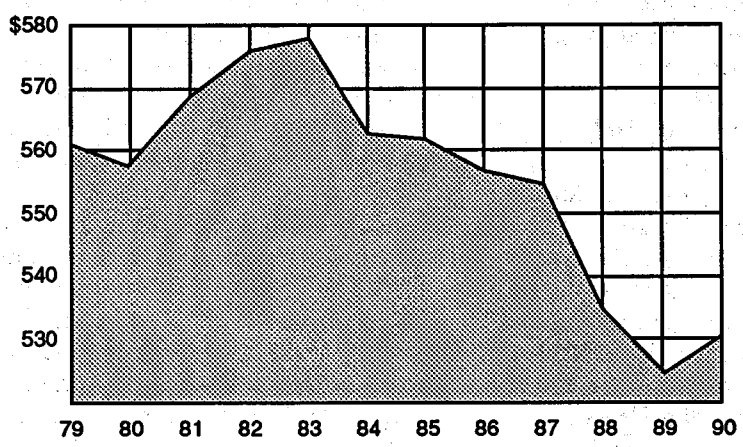
Current Service Levels Cannot Be Maintained. As we noted two years ago, the current appropriations limit grows more slowly than the cost of government services. This slower growth is largely the result of using the *lower* of the change in inflation (as measured by the United States Consumer Price Index—USCPI) or the change in California per capita income as a cost-of-living adjustment. In seven of the last 10 years, the USCPI has been the lower index. This index, however, does not reflect the increased costs faced by *governments* in providing services. Rather, it reflects the price changes faced by *individual consumers*, such as changes in housing and transportation costs. The price changes faced by government entities are influenced by other factors not reflected in the USCPI, such as salary payments for government workers and construction costs. A more appropriate index for the measurement of government cost increases is the Gross National Product (GNP) implicit price deflator for state and local purchases of goods and services.

Because the GNP index has exceeded the USCPI each year since 1982-83, the current inflation adjustment formula has resulted in a *decrease* in state purchasing power since 1978-79, as shown in Chart 1. Real per capita state spending authority (the appropriations limit adjusted for inflation using the GNP deflator) has fallen from just over $560 per person in 1978-79 to about $530 per person in 1989-90. If the limit had been adjusted using the GNP deflator since 1978-79, Chart 1 would show a flat line over time. Instead, real state purchasing power has declined.

Because the inflation adjustment that has been used to calculate the appropriations limit each year has not kept pace with the cost of providing government services (as the GNP deflator has exceeded the USCPI), the limit has not provided sufficient authority to maintain current service levels. As the price of government goods and services is expected to continue to increase faster than the cost-of-living factor used in the appropriations limit calculations, the state will find it necessary to reduce service levels to compensate for the difference.

Chart 1

Real Per Capita State Spending Authority
1978-79 through 1989-90[a]



[a] 1979 dollars. Data are for fiscal years ending in year shown.

Government Spending Authority Will Not Keep Pace with the State's Economy. When the economy grows faster than inflation, as it has in seven of the last 10 years, the appropriations limit acts to "restrain" the growth in government spending relative to the growth in the economy. However, the economy's growth brings with it expanded needs for existing government services, such as improved transportation facilities to move increasing amounts of goods and services as well as commuter traffic. Yet, because of the limit, existing state services cannot increase in proportion to the growth in the economy. The result is a lower average level of government service in the state.

One example of an area in which services have not increased proportionately with the economy is infrastructure development. Several reports completed in the last few years have identified an infrastructure funding shortfall in California over the next 10 years that is in the tens of billions of dollars. In the area of transportation, the 1989 State Transportation Improvement Program (STIP) is now projected to have a five-year estimated funding shortfall of $4.5 billion. As discussed in our recent report, *A Perspective on the California Economy*, these kinds of funding shortfalls have long-term consequences for the future economic health of the state. To the extent that the current limit impairs the ability of the state and local governments to finance the full range of necessary public

services in the future, it will hinder efficient economic growth in the state.

Limit Distorts Public Decision Making. During each year's budget process, the Legislature must make decisions regarding how available funding will be allocated among different programs. As part of this process, it often examines alternatives for funding those programs. In the past few years, however, the structure of the limit itself has influenced how these decisions are made. For example, because the current limit excludes some sources of revenue (for example, fee revenues) and some kinds of spending (for example, debt service, unrestricted subventions to local governments), it has provided incentives to fund or implement programs inefficiently—just to get around the limit. In 1988, for instance, the Legislature considered legislation to deal with the problem of abandoned cars by creating new governmental entities—with their own appropriations limits—in order to be able to raise and spend funds outside the confines of existing state and local limits. The creation of new governmental entities just to escape the constraints of the limit increases the cost and complexity of government.

The limit also provides an incentive to increase the use of voter-approved bonds, since the debt service on these bonds is exempt from the limit. As we discuss elsewhere in this volume, the state is not in any immediate danger of having "too many" bonds issued, and a substantial amount of additional authorizations would have to be approved by the voters before the state's debt-service levels reach the point where concern may be warranted. However, there are many situations where bond financing may not be preferable to pay-as-you-go financing (for example, when a project's benefits last only a short time). In such cases, the use of bond financing increases the cost of the project. Moreover, while bond financing allows the state to spend revenues in excess of the limit in years when revenue growth is strong, the use of bonds also locks in higher levels of required debt payments that cannot be reduced if revenues fall in the future. Thus, the incentive to use bonds to get around the limit can both increase the cost of providing government services and reduce the state's flexibility with respect to spending priorities in years when revenue growth is not strong.

The constraints of the limit also have produced incentives to increase the use of tax expenditures. Tax expenditure programs result from various tax exclusions, exemptions and deferrals which reduce the amount of revenue collected from the state's "basic" tax structure. Although tax expenditure programs effectively allow spending outside the limit, these programs are generally less efficient than direct spending programs, make legislative oversight of programs more difficult, and add complexity to the tax system.

Finally, the inflexibility of the limit has led to an increase in efforts to earmark state funds and place programs *outside* the appropriations limit, in order to "protect" them from limit-related budget cuts. Propositions 71 and 72, which were defeated on the June 1988 ballot, both sought to exempt transportation spending from the constraints of the limit. Proposition 98, which was approved at the November 1988 election, guarantees K-14 education a fixed percentage of the state budget (roughly 40 percent), regardless of the overall condition of revenues and spending in the state. Proposition 99, also approved on the November 1988 ballot, creates a new dedicated revenue source, generated by increased taxes on cigarettes and tobacco products, and places it permanently outside the limit. The incentive to try to remove particular categories of spending or revenues from normal budgetary oversight makes it increasingly difficult for the Legislature to allocate state revenues in accordance with overall statewide priorities.

Special Factors Have Cushioned the Impact of the Appropriations Limit

During the last three years, three factors have cushioned the impact of the appropriations limit, thereby forestalling the trade-offs among program expenditures that would otherwise have been necessary.

K–12 Education. One factor that has allowed for additional growth within the limit for some program areas is a shift in the method of computing appropriations subject to limitation for school districts. This change, implemented in 1987–88, reduced the amount of local school district appropriations that count against the state's limit and increased the amount charged to school district limits. Thus, while *overall* state funding for K–12 education increased by 9.8 percent between 1986–87 and 1988–89, the amount of state expenditures *subject to limitation* for K–12 education actually shrank by 6.5 percent. Moreover, it does not appear that the state can make additional changes of this magnitude in the method of computing local school districts' appropriations subject to limitation in the future, since most of the benefits of these changes have already been realized. In 1988–89, increases in school district appropriations subject to limitation have outpaced increases in the appropriations limit and we expect that this will continue to be the case for future years. In part, this reflects the adoption of Proposition 98 by the voters in November 1988. As a result, K–12 education will no longer help provide the cushion necessary to accommodate growth within the limit for other state programs.

Transportation. In recent years, transportation programs have also helped cushion the impact of the appropriations limit on other state programs because transportation programs are largely dependent on the slow-growing state gasoline tax for funding. As a result, transportation expenditures have grown more slowly than overall state spending

authority over the past several years. In the future, however, it is unlikely that the state will be able to rely on slow growth in transportation programs to help accommodate higher-than-average growth in other state programs. This is because, as discussed elsewhere in this volume, increased expenditures for transportation will be required in the future in order to meet recently enacted funding requirements.

Reserve Funding. Finally, in the last three years, none of the state's overall spending authority has been used to build or maintain a prudent reserve. In fact, the reserve has been *drawn down* each year since 1986–87. The state has used all of its appropriations authority to cover state program requirements, and none has been available to maintain the reserve. Because the state's appropriation authority in the current year is "fully allocated" to pay for state programs, the appropriation proposed to rebuild the Special Fund for Economic Uncertainties (SFEU) in 1989–90 *must displace appropriations needed to maintain other state programs which are subject to the limit.* While the state will always face a direct trade-off between funding the reserve and spending on state programs, this trade-off is made more difficult in the budget year because the reserve has been completely depleted over the last two years. Moreover, normal growth in the limit does not allow sufficient room to completely restore the reserve in the budget year without reducing current service levels in other programs areas.

Without changes in state laws or the constitution then, the Legislature must choose between funding the reserve or funding the current level of services in a variety of state programs. Yet, in the long run, even if statutory and constitutional changes were made to permit reductions to be made across a larger portion of the state's expenditure base, this basic conflict between funding for the reserve and funding for state programs would still remain.

In summary, the change in the method of accounting for appropriations to K–12 school districts, the slower rate of growth for transportation spending and the lack of additional funding for the reserve have enabled the state to avoid difficult limit-forced trade-offs for the last three years.

Program Demands Building within the Limit

Eight programs make up more than 80 percent of all state appropriations subject to limitation: public health, K–12 education, higher education, Aid to Families with Dependent Children (AFDC), Supplemental Security Income/State Supplemental Program (SSI/SSP), Medi-Cal, youth and adult corrections, and transportation. Of these eight programs, four—AFDC, SSI/SSP, Medi-Cal and youth and adult corrections—have consistently grown more quickly than the limit. For example, state spending on youth and adult corrections grew more than 8 percent more

quickly than the limit between 1986–87 and 1988–89. The faster growth in these four programs is largely the result of existing statutory requirements requiring annual increases in spending to accommodate caseload and cost-of-living increases.

The faster-than-average growth in these programs over the last several years has largely been accommodated by "extra room" in the limit made available by other, slower growing programs, as noted earlier. Yet, the cushion provided by these slower growing programs is declining, as evidenced by the multi-billion dollar increases being sought in the area of transportation. For 1989–90, we estimate that providing K–12 education, AFDC, SSI/SSP, Medi-Cal, youth and adult corrections, and transportation programs with funding increases consistent with current laws and expected caseload growth would consume over $1.6 billion of the $2.1 billion projected growth in the state's appropriations limit between 1988–89 and 1989–90. This would leave only $500 million available to fund the state's reserve *and the growth in all other state programs.*

The ultimate result of these increasing program demands is that spending for programs that have historically grown more quickly than the limit will have to be scaled back to accommodate growth in other programs. Yet, in the face of increasing program demands, there is as yet no apparent consensus as to which of the state's current programs can be reduced or eliminated to accommodate all of the existing spending demands within the limit.

What Should the Legislature Do?

As discussed above, the state's current appropriations limit has a number of defects. Given the state's current demands for services and the formidable challenges posed by the anticipated growth in the state's economy, it appears that the existing limit will significantly constrain the state's ability to provide the level of services demanded by its taxpayers. For this reason, ***we recommend that the Legislature place on the statewide ballot a constitutional amendment calling for the repeal of Article XIII B.***

Should a Different Type of Limit Be Adopted? In the event that the Legislature agrees with our recommendation that the current limit should be repealed, it has two basic options. First, it can choose to rely on the traditional constraints on spending embodied in the two-thirds vote requirement on expenditure and tax measures and the availability of revenue. Second, it can choose to adopt a different type of limit which ideally would avoid the shortcomings of the current limit. In considering these options, it is useful to review the basic arguments which have been advanced in support of and in opposition to the adoption of limits. Specifically:

- ***Proponents of limits*** argue that government cannot always be relied upon to make rational spending choices, and that a limit is necessary to force the elimination of low-priority expenditures. Without the elimination of these low-priority expenditures, it is argued that government spending will require a constantly increasing share of the state's economic resources, and will ultimately become a restraining influence on economic activity.
- ***Opponents of limits*** argue that limits are arbitrary and that there are a sufficient number of *other restraints* on government spending that can hold it "in check" without a formal limit. These other restraints include the supermajority vote requirements for appropriations and tax increases, the line-item veto power of the Governor, and perhaps most importantly, the natural constraint imposed by the growth of revenue. Given recent changes in the state's tax structure, such as the indexing of the personal income tax and the allowance of offsets against corporate income for net operating losses, state revenues no longer can be expected to expand significantly faster than the state's economy. In our view, this natural constraint will itself force the reconsideration of expenditures for lower-priority state programs.

In reviewing these arguments, *we are not convinced from an analytical perspective that there needs to be a spending limit.* From the Legislature's perspective, there may nevertheless be reasons why some sort of formal limit on state expenditures is necessary or desirable. If the Legislature chooses to replace the current limit with some other form of limit, however, we recommend that it consider several important factors in its design.

Impact on Decision Making. As noted earlier, one of the defects of the current limit is that it has produced a bias against making government decisions in the most efficient manner. This bias stems from the limit's provision of preferential treatment for certain types of expenditures and the exclusion of non-tax revenues. One way to address this concern would be to use a limit which operates solely as a constraint on the amount of revenue from all sources that can be made available for expenditure.

Impact on Services. A more reasonable limit would allow government spending to keep pace with the growth in the state's economy, so that as the economy grows, the services needed to accommodate that growth can be provided. This could be accomplished by restricting the level of governmental receipts to a certain percentage of state personal income. A more difficult issue, however, is how to determine at what level a revised limit should be set. As a practical matter, this decision must be based largely on the existing level of state resources, but consideration should be given to how the expected need for additional funds in such areas as transportation is to be accommodated.

Impact on Reserve Funding. Because of the importance of an adequately funded reserve to the maintenance of state services under adverse conditions, consideration should be given to allowing "excess" revenues to be allocated to the reserve fund without regard to the limit. The expenditure of such funds could then be prohibited except under conditions where state revenues fell below some allowable level. Under this scenario, other cost increases, such as unanticipated caseload increases would have to be accommodated by reordering priorities among other state programs.

Impact on Legislative Flexibility. One of the major concerns we have about a limit is that it can prevent the Legislature from responding to changing conditions in a timely and effective manner. An override provision which allows the limit to be changed more easily than the current limit could provide the necessary flexibility.

Conclusion

In the 10 years since the constitutional limit on appropriations was adopted, state financial and program decisions have become increasingly dominated by the constraints of the appropriations limit. Because of increasing public demands for higher levels of expenditure in transportation and education, and the importance of funding for the reserve, significant pressures are building within the constraints of the limit. These pressures will ultimately require the elimination of state programs in order to stay within the limit, or the limit will have to yield to these pressures. Because there is no apparent consensus of opinion as to which programs should be eliminated in order to allow significant spending increases in program areas where demand is building (such as transportation), and because in the long run the current limit will hamper the state's ability to provide the services needed to keep the economy functioning efficiently, ***we recommend that the Legislature place on the statewide ballot a constitutional amendment calling for the repeal of Article XIII B.*** Although there are existing constraints already in place to restrain the growth of state spending, the Legislature may wish to put in place a different type of limit. This is a *policy decision* that should reflect the Legislature's view as to the ability of the budget process to reconcile competing demands for the state's resources. Should another limit be desired, then it can be crafted to avoid most of the problems which are inherent in the existing constitutional limit on appropriations. It is likely, however, because of the state's inability to predict the future, that such a limit would have to be modified along the way to respond to future changes in circumstances and the demand for state services.

The Level of State Indebtedness

Should the Legislature Be Concerned about the Level of State Bonded Indebtedness?

Summary

- *California's voters approved over $5.5 billion in new general obligation bonds during 1988. As a result, the state now has over $13 billion in authorized General Fund indebtedness.*
- *Although California's bonded indebtedness is large in absolute dollar terms, it is **not** particularly large relative to either the state's economy or its budget. California's bonds currently are highly rated and popular with investors.*
- *Although California's debt burden will increase as the new bonds authorized in 1988 are issued, the share of General Fund expenditures needed to pay debt service still will be **relatively modest** compared to other states — about 3 percent of General Fund expenditures as opposed to between 4.5 percent and 5 percent for other states.*
- *If the same volume of new bonds were authorized in future election years as occurred in 1988, debt service as a percent of General Fund expenditures would increase to somewhat over 5 percent shortly after the turn of the century.*
- *There is a strong argument **against** the state establishing a formal "debt limit," since such a limit could prevent the state from meeting the capital outlay needs of California's citizens. If a debt limit were nevertheless adopted, it should have some flexibility to prevent this from occurring.*
- *What California needs most is a **comprehensive multi-year capital outlay planning process** that can serve as the basis for making decisions about using bonds, including determining how much and for what purposes debt should be issued. Such a planning process was enacted by the Legislature in 1988 but was vetoed by the Governor. Working together to implement such a process during the budget year should be a top priority for both the Legislature and the Executive Branch.*

California's voters have authorized the issuance of nearly $15 billion in general obligation bonds during the 1980s, including a record of over $5.5 billion during 1988. This dramatic increase in authorized borrowing largely reflects the growing need that California has for financing the capital outlay requirements of its expanding population. However, the increased use of bonds also has raised concerns about

whether the state's debt level is becoming too high, and whether some type of action is needed to limit the amount of additional borrowing that can occur in the future.

This analysis addresses the general topic of the state's debt level. It first reviews the state's current debt situation, including the volume of bonded indebtedness presently outstanding and the financial burden that paying this debt off imposes on the state budget. Next, it discusses the question of how much debt is "too much" and whether a formal limitation on debt is advisable. Finally, it considers how the state can best ensure that its borrowing capacity will be effectively used in the future.

WHAT IS THE STATE'S CURRENT DEBT SITUATION?

In discussing the state's current debt situation, it is first important to distinguish between the following four basic categories of bonds which the state issues:

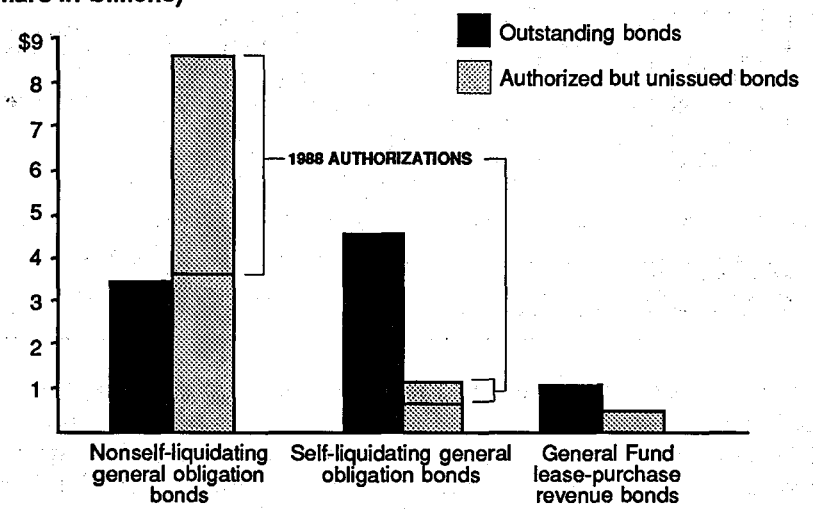
- ***Self-liquidating general obligation (GO) bonds*** are bonds which are backed by the full faith and credit of the State of California. This means that the payment of principal and interest on these bonds has "first claim" on the state's revenues and other financial resources. These self-liquidating bonds do *not*, however, generally impose any direct costs on the General Fund. This is because their debt-service costs (that is, principal repayment and interest costs) are paid from revenues generated from the projects they finance, and the General Fund incurs costs only if these revenues prove insufficient to service the debt. An example of such bonds is those sold to provide loans to home buyers, who in turn make mortgage payments that are used to pay off the bonds.
- ***Nonself-liquidating GO bonds*** also are backed by the full faith and credit of the state. However, they are *fully paid for* by the General Fund, through statutory appropriations of principal and interest payments.
- ***Lease-purchase revenue bonds*** are currently used to finance certain higher education and prison capital outlay projects. They are issued by the State Public Works Board, and their debt service is funded out of the lease payments made to the board by state agencies that use the facilities. The money for these lease payments is appropriated from the General Fund in the annual Budget Act. Because these bonds are not voter approved, they are not GO debt. However, for all practical purposes, the state has taken on a "moral obligation" to pay them off.
- ***Other revenue bonds*** are issued for a variety of purposes, and are fully paid for out of revenues generated by the projects they are used to finance. Such bonds impose *no* direct General Fund cost.

How Much Debt Is There?

Chart 1 shows that the amount of state bonds currently outstanding includes about $3.5 billion of nonself-liquidating GO bonds, $4.6 billion of self-liquidating GO bonds and $1.1 billion of lease-purchase revenue bonds. In addition, there are over $20 billion in other revenue bonds outstanding. Thus, the amount of debt outstanding that must be directly paid off by the General Fund—that is, the nonself-liquidating GO bonds and lease-purchase revenue bonds—is about $4.6 billion. In addition to these outstanding bonds, there are about $8.6 billion of nonself-liquidating GO bonds that have already been authorized by the voters but are as-of-yet unsold, including $5 billion worth of bonds approved in June and November of 1988.

Chart 1

State Bonded Indebtedness as of December 31, 1988
(dollars in billions)[a]



[a] Excludes self-liquidating revenue bonds, which total in excess of $20 billion.

How Significant Is the State's Debt Burden?

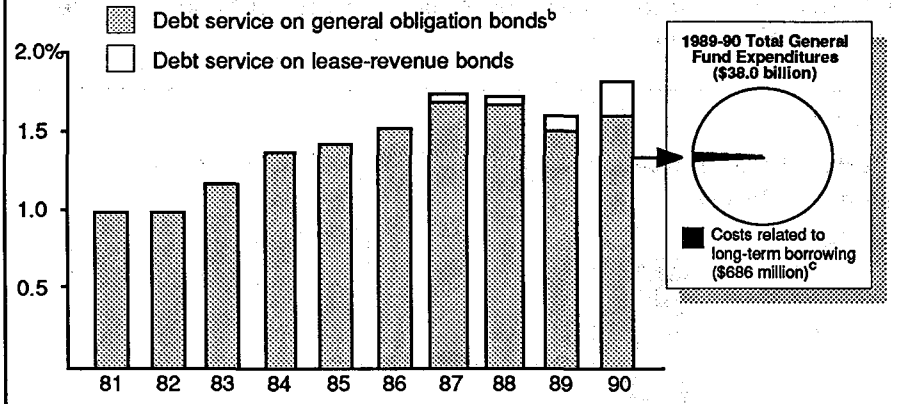
Although the amount of outstanding state bonded indebtedness is large in absolute dollar terms, it is *not* particularly large relative to the size of the state. For example, the value of California's gross economic product exceeds half a trillion dollars yearly and the state's annual budget is well over $40 billion.

Probably the single best general measure of California's "debt burden" is the percent of total state General Fund expenditures that must be

devoted each year to making debt-service payments on nonself-liquidating GO bonds and lease-purchase revenue bonds. Chart 2 shows that at present, this "debt-service ratio" is under 2 percent. This compares to an average ratio of between 4.5 percent and 5 percent for other states.

Chart 2

General Fund Debt Service and Related Borrowing Costs as a Percent of State Expenditures
1980-81 through 1989-90[a]



[a] Source: *1989-90 Governor's Budget*, State Treasurer and State Controller. Data are for fiscal years ending in years shown.
[b] Includes both debt-service payments on bonds and net interest costs of loans to bond programs from the Pooled Money Investment Account (PMIA).
[c] Includes about $610 million for debt service on general obligation bonds, $4 million for net interest on PMIA loans, and $72 million for debt service on lease-revenue bonds.

California also is well below the national average in terms of alternative debt-burden indicators, such as the amount of general obligation debt outstanding, both in per capita terms and as a percent of statewide personal income. Thus, California is *not* at present a "high debt" state. This view appears to be shared by the nation's bond rating agencies and the investment community generally. For example, California's bonds are popular with investors who buy government securities and currently have a very high credit rating, both of which enable the state to sell its bonds at relatively favorable interest rates.

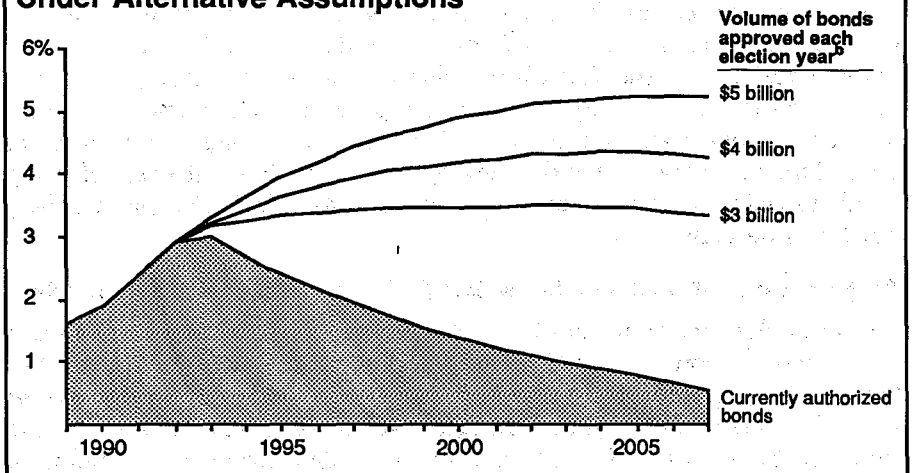
WHAT WILL HAPPEN TO THE DEBT BURDEN AS ADDITIONAL BONDS ARE SOLD?

As currently authorized but as-of-yet unissued bonds are marketed in coming years, the state's debt-service ratio will increase from its current level. Chart 3 shows that given the budget's proposed bond sales in 1988-89 and 1989-90, and reasonable assumptions about the timing of

subsequent bond sales, trends in interest rates and state expenditures, the debt-service ratio will increase to approximately 3 percent by the early 1990s. Thus, even after the sale of these authorized bonds, California's debt-service ratio still will be *relatively modest* compared to other states. (A more complete discussion of the budget's proposed bond sales and debt-service requirements for 1988-89 and 1989-90 is contained in the capital outlay section of the *1989-90 Analysis of the Budget Bill.*)

Chart 3

Future Trends in the General Fund Debt-Service Ratio Under Alternative Assumptions[a]



[a] Data shown are for fiscal years ending in years shown. The "debt-service ratio" represents General Fund costs for paying off nonself-liquidating general obligation bonds and lease-purchase revenue bonds, plus net cost of PMIA loans, as a percent of total General Fund expenditures. Projections assume that new bond authorizations are marketed within three-to-four years and paid off over 20 years at an average interest rate of 7.5 percent.

[b] Constant 1988 dollars.

Exactly what happens to the debt-service ratio beyond the early 1990s will depend upon the extent to which additional bond sales are authorized in future election years. For example, Chart 3 indicates that if the same volume of new General Fund bonds were authorized in each future election year as was authorized in 1988 ($5 billion), the state's debt-service ratio would drift upward throughout the 1990s and eventually level off at about 5.2 percent by the early 2000s. Alternatively, the chart shows that the ratio would level off at a lower amount if fewer bonds were authorized.

HOW MUCH DEBT IS IT APPROPRIATE FOR THE STATE TO HAVE?

There is no simple formula or "rule of thumb" to come up with the level of indebtedness that it is appropriate for California to have, or for that matter to say how much debt is "too much." Rather, the amount of

debt California issues should reflect a variety of factors. The single most important consideration on which the debt level should be based is the *need* for public projects and programs that bonds are typically used to finance. These public needs should be identified and prioritized by the administration and the Legislature in a multi-year statewide capital outlay plan, which in turn can be used to determine the total amount of bonds necessary to fund these needs and the amount of annual debt service this would entail. The Legislature could then arrive at the appropriate level of bonded indebtedness for the state by making policy decisions regarding which of the projects and programs should actually be undertaken, based on the amount of the debt-service requirements relative to other competing expenditure needs. Because bonds are simply a "tool" for financing the state's capital outlay needs, the focus of the administration and the Legislature should not be on bonds per se, but rather on the capital outlay needs of state programs. Of course, in making decisions about using bonds, such factors as the state's overall fiscal condition, the views of bond rating agencies, the interest costs of using bond financing, and the burden on future generations of repaying debt must also be considered.

At What Level of Debt Would the State's Credit Rating Be Jeopardized?

One of the factors to consider in deciding how much debt the state should have is how various levels of indebtedness would affect the state's bond ratings. California has been successful in achieving a high credit rating by the nation's major credit rating agencies. It is important that the state try to maintain this rating because a high credit rating helps to minimize the interest costs that the state must pay on its bonds. Once lost, it can take considerable effort to "win back" a high credit rating. Given this, the effect of issuing additional debt on the state's credit rating certainly should be taken into account in deciding how much debt to issue.

The 1988 Bonds Pose No Problem. During the past year, we discussed with a number of financial experts active in the bond markets how the issuance of additional bonds would affect both the state's credit rating and the interest rates at which it borrows. The general conclusion presented to us was that the 1988 bonds would *not* adversely affect either the state's credit rating or the interest rates at which its bonds could be sold, largely because of the state's relatively low current debt burden and healthy economy. As noted above, California's debt-service ratio would remain relatively modest even after the 1988 bonds are sold. Thus, it appears *very unlikely* that the issuance of the bonds authorized in 1988 would, *by itself*, cause California's bond ratings to be hurt.

What about the Future? Looking *beyond* the bonds authorized in 1988, it is impossible to predict how much additional debt the state could

authorize and issue before its bond ratings would suffer. We have asked the bond rating agencies this same question on a number of occasions, and we have never been given a specific answer. Rather, the rating agencies have indicated that they consider a *variety* of factors in arriving at their bond ratings, only one of which is the actual level of debt. For example, the agencies examine such factors as the state's overall budgetary situation, the size of its contingency reserve fund, its economic and revenue outlook, the purposes for which debt is being issued, and the state's overall debt-management policies. Given this, there is not necessarily any close correspondence between the amount of debt a state issues and the bond ratings it receives. In fact, there are some states that receive high bond ratings despite having above-average debt-service ratios, and other states that receive lower ratings despite having below-average debt-service ratios.

It is our general understanding, however, that a state's bond ratings do come under increasingly close scrutiny when its debt-service ratio stays on a persistent upward trend, particularly once that the ratio begins to significantly exceed 5 percent. As shown in Chart 3, California could issue significant amounts of additional debt for quite a few years before its debt-service ratio exceeded 5 percent. As noted above, it is impossible to predict what the state's bond ratings actually would be if this volume of indebtedness (or an even higher level) were to be undertaken, since other factors—such as the state's overall budgetary situation—would play a key role in the decisions made by the rating agencies.

Will Additional Debt Restrict the State's Future Fiscal Flexibility?

Another factor to consider in determining how many bonds it is appropriate for the state to issue is their effects on the state's fiscal flexibility in future years. Generally speaking, the state's fiscal flexibility is reduced whenever irrevocable future financial commitments are made, including debt-service requirements. This fact is often used as an argument against increased issuance of debt. However, the exact effects on fiscal flexibility of issuing more bonds would vary, depending primarily upon three factors: (1) the level of revenues in future years, (2) the extent to which the state's appropriations limit constrains the expenditure of state revenues, and (3) the amount of money needed to fund other, nonbond state programs.

If, for example, state revenues consistently exceed the appropriations limit, the debt service for additional GO bonds could be paid from the excess revenues without having to reduce basic funding levels for other programs or increase taxes. (This is because debt service on voter-approved debt is exempt from the appropriations limit.) On the other hand, if revenues fall short of both the appropriations limit and the amount of money needed to fund basic state programs, issuing additional

bonds could require that nonbond programs be reduced or taxes raised. (This is because debt service on GO bonds basically has "first claim" on state revenues.)

SHOULD THERE BE A FORMAL LIMIT OR "CAP" ON THE STATE'S DEBT LEVEL?

As the state has increased its use of bond financing in recent years, the idea that the state should adopt a formal debt limit has received increasing attention. Given that the Legislature's decisions about funding public services should be the primary determinant of how many bonds the state issues, does imposing a formal debt limit make sense?

A Formal Limit Isn't Necessarily Needed

There are arguments both for and against having a formal debt limit:

- ***Opponents*** of debt limits argue that such limits can interfere with a state's ability to fund the full range of projects and programs that the public demands and the economy needs to effectively function. Such demands include roads, prisons, schools, water systems and a clean environment.
- ***Proponents*** of debt limits argue that bonds are often approved without closely scrutinizing the relative costs and benefits of the programs they are to finance, partly because bond costs are not paid until future years and therefore can seem "less real" than direct appropriations. Given this, proponents say that some type of limit is needed to keep excessive amounts of debt from being issued. They also argue that debt limits can sometimes help a state obtain better bond ratings, and that a limit can always be raised if more bonds are truly needed.

While there is some truth to both of the above views, it is our opinion that California does *not* need a debt limit, *especially if it implements a comprehensive multi-year capital outlay planning process like the one enacted by the Legislature in 1988 but vetoed by the Governor.* This is because such a limit could in some cases *prevent* the Legislature and the Governor from exercising their responsibility to make capital outlay decisions in a fashion consistent with the needs of the state. While it is true that there may be some tendency for additional bond issuances to sometimes be sought simply in order to avoid direct spending, especially with the constitutional limit on appropriations in place, the use of a capital outlay planning process would act as an effective "screening device" to help minimize inappropriate uses of the state's bond authority.

If a Limit Is Nevertheless Adopted, What Form Should It Take?

If the Legislature nevertheless were to adopt a debt limit, it has several options to choose from in structuring it. For example, it could place an

upper limit on per capita debt, or debt as a percent of personal income or gross state product. Another alternative is to simply place a limit on the debt-service ratio, thereby ensuring that debt-service costs do not rise above a specified percent of total General Fund expenditures. We know of no firm analytical basis for either choosing amongst these various alternatives or deciding at what level such limits should be set, other than that they should not be so low as to keep needed public capital outlays from being funded. One commonly suggested option, however, is to limit the state's debt-service ratio to 5 percent, on the grounds that this is both the approximate upper bound of the average for states, and also the range at which the bond raters apparently begin to become concerned about excessive debt issuance. As noted earlier, California currently is well below this 5-percent threshold and probably would not reach it for a number of years.

A Debt Limit Should Have Some Flexibility. If the Legislature were to enact a debt limit, we firmly believe that regardless of its form it should *not* be thought of as an "iron clad," absolute maximum limit on borrowing. Rather, there should be some *flexibility* for the Legislature to adjust the limit upward if and when a legitimate need for issuing more bonds exists. Such flexibility would prevent the limit from keeping needed capital outlay projects from being funded in the future. At the same time, requiring that specific action be taken to adjust the limit upward would still make it a practical "warning signal" to the Legislature that any further increases in the debt level need to be carefully reviewed, given that the more debt there is, the greater is the potential for debt-related problems to occur.

WHAT REALLY IS NEEDED—A COMPREHENSIVE CAPITAL OUTLAY FINANCING PLAN

Even if a debt limit were to be adopted for California, the real solution to the question of how much and what type of debt the state should have lies elsewhere. Specifically, what California really needs is something which it has never had—*a comprehensive, multi-year state capital outlay plan* which can be used as the basis for determining how much debt is appropriate and for what purposes it should be issued.

Why Is Such a Plan Needed?

As noted earlier, decisions about bonded indebtedness should reflect California's *needs* for the types of projects and programs that bonds are typically used to finance. This, in turn, requires that a comprehensive state multi-year capital outlay plan exist that identifies such needs and their relative priorities. The capital outlay plan can then serve as the basis for determining what volume of bonds and annual debt-service payments would be necessary to fund this list of needs. Once this is accomplished,

the Legislature would have the information necessary to make its policy decisions about which elements of the plan to adopt, and establish a comprehensive multi-year schedule for the state's bond financing needs. Thus, proceeding in this manner would help identify the appropriate level of state indebtedness and debt-service costs, and also help ensure that the state's limited borrowing capacity is allocated to different purposes in an effective way.

No Such Process Now Exists

Formulating a comprehensive multi-year state capital outlay plan and using it to identify the state's bond financing needs must involve both the Executive Branch and the Legislature in order to be successful. In response to a recommendation we made in 1987 that such a process be established, the Legislature enacted Senate Bill 2214 (Campbell) in 1988 to accomplish this. The Governor, however, vetoed this measure. Thus, California *still lacks* an effective process for determining and ranking capital outlay needs and making decisions regarding the use of bonds.

Conclusion

Given the increasing urgency of addressing California's rapidly growing capital outlay infrastructure needs, working together to initiate such a process should be a top priority of both the Executive Branch and the Legislature during the coming year.

State Transportation Funding

What Is the Extent of the Funding Shortfall in the State Highway Transportation Program and What Options Are Available to Address It?

Summary

- *Highway user fee revenues have not kept pace with the growth in state highway costs. Consequently, as highway maintenance and rehabilitation expenditures outpace revenues, less funds are available for capital outlay projects to improve the system's operational efficiency or to expand the system's capacity.*
- *Chapter 24, Statutes of 1988, among other objectives, sought to ensure adequate funding to maintain and operate the state highway system and to stop the decline in highway capital outlay funding. The measure established specific funding levels for various categories of transportation improvements and stated the intent of the Legislature and the Governor to provide additional state resources as necessary to maintain these funding levels.*
- *Based on the 1989 State Transportation Improvement Program Fund Estimate adopted by the California Transportation Commission, about $4.5 billion in additional resources would be needed over the next five years to meet the statutory levels specified in Ch 24/88 and to provide for projects which improve the operation of the state highway system.*
- *The size of the funding shortfall, however, may vary. For instance, if capacity enhancement projects are programmed annually at a level higher than is included in the 1989 Fund Estimate and a state-local demonstration program is to be funded in 1990-91, the funding gap for the five-year period would be about $6 billion.*
- *The Legislature and the Governor will need to act during 1989 to address the highway transportation funding shortfall by raising revenues or reducing expenditures. The state is limited, however, in its ability to reduce highway maintenance and operation expenditures over the long term without producing adverse impacts on motorists. The state would also need to consider how reductions in expenditures for highway projects would affect California's future economic prospects.*
- *The state has several alternatives available to it for increasing resources to address the transportation funding shortfall. Increases in transportation user charges would provide the best approach by linking system costs with those who most directly benefit from the system. Accordingly, we recommend that these fees be increased.*

- *The level by which these fees should be increased depends on the extent to which the state relies on a "pay-as-you-go" system or bond financing to support transportation programs in the future.*

The Governor's Budget for 1989-90 acknowledges a $666 million shortfall in State Highway Account funding for the state highway transportation program in the budget year. As discussed in our *Analysis of the 1989-90 Budget Bill* (please see Item 2660), the budget proposes the following actions in order to address this shortfall: (1) transfer funds from the Motor Vehicle Account and the Highway Construction Revolving Fund, (2) defer advertising and construction of highway capital outlay projects, and (3) reduce other State Highway Account (SHA) expenditures in both the current and budget years.

While this shortfall in state funds materializes for the first time in 1989-90, it is not a one-time problem. Based on expenditures currently planned for the next five years, a funding *shortfall* will continue to exist in future years, totaling about $4.5 billion for the five-year period 1989-90 through 1993-94. As a consequence, the State would need to provide additional resources in order to maintain and operate its highway system and to carry out the program of capital outlay improvements required by current law. Alternatively, the State would have to reduce the size of its highway transportation program.

This section discusses the magnitude of the shortfall in state funds for the highway transportation program over the next five years based on the program required by current law. It also discusses the issues the state will need to address in confronting this shortfall.

Background

Our review of the 1989-90 Governor's Budget shows that the state would spend about $2.5 billion in state and federal funds on the state's highway transportation program. About 69 percent of these expenditures would be for highway maintenance, operations, project design and engineering, and local transportation purposes. The remaining expenditures would be for highway capital outlay improvement activities. About $1.2 billion of the program would be funded from federal funds and $1.3 billion from state funds.

Maintenance and operations expenditures generally are not eligible for federal funding. Consequently, state funds must be used to pay for virtually all of these costs. In 1989-90, these expenditures are estimated to consume about one-half of the available state funds. When these amounts are added to those for highway design and engineering services, and local assistance, about 84 percent of state funds will be expended for noncapital outlay activities. By contrast, about two-thirds of all federal funds are used

for capital outlay projects, with the rest used for noncapital costs.

Five-Year State Transportation Improvement Program. Under current law, the California Transportation Commission (CTC) is annually required to adopt a five-year State Transportation Improvement Program (STIP). The STIP is the basic plan for all transportation capital outlay projects funded from state and federal resources. The highway component of the STIP constitutes the state's five-year highway capital outlay plan.

Until recently, the amount of projects which could be programmed for funding in the STIP was limited to those levels which could be funded from resources reasonably expected to be available *after* highway maintenance, operations and other support and local assistance expenses are met. The STIP was developed first by estimating for the STIP period (1) all transportation revenues available and (2) expenditures for noncapital costs such as highway maintenance or project design. Remaining revenues available for the period were then programmed to fund capital outlay projects.

Capital Program Squeezed by Slow Growth in Revenues

After meeting noncapital expenses, the amount of revenues available for capital improvements has been declining. This is because revenues have not grown commensurately with the increase in costs of highway maintenance and construction, primarily due to the following reasons:

*1. **Fuel consumption no longer adequately reflects the demands placed on the state's transportation system.*** The existing highway financing mechanism—the state gas tax—is based on the consumption of fuel. In other words, the more fuel used by vehicles, the more revenues that are generated. However, because vehicles have become more efficient, increased usage of the highway system (miles traveled) has not resulted in a corresponding growth in fuel consumption or gas tax revenues.

*2. **The state's transportation revenue sources are not responsive to inflationary increases in the costs of the state's transportation system.*** This is because the revenue sources that the state relies on to finance transportation programs—the fuel tax, weight fees, and registration fees—are fixed in dollar terms and do not change with inflation. As a result, inflation reduces the purchasing power of these tax and fee rates.

*3. **Revenue generation is not closely linked to funding needs.*** Because the bulk of the state's highway system was constructed more than 25 years ago, many road segments are now, or soon will be, in need of major repairs and rehabilitation in order to maintain their serviceability. Revenues, however, do not recognize and respond to this aging of the state's transportation network.

Consequently, as maintenance and rehabilitation expenditures increase faster than the growth in revenues, less funds are left available for capital outlay projects to improve the system's operational efficiency or to expand the system's capacity.

Legislature Enacts Change in Funding Policies

Chapter 24, Statutes of 1988 (SB 140, Deddeh), made significant changes in the state's policies relating to programming and funding of transportation activities. These changes were made, in part, to stop the decline in highway capital outlay funding by establishing specific funding levels to be maintained through provision of additional resources.

Project Funding Levels. Prior to enactment of Chapter 24, capital projects were programmed in the STIP only up to the amount of resources reasonably expected to be available during the five-year STIP period. However, Chapter 24 establishes the amount for specific categories of transportation capital outlay improvements to be programmed annually in the STIP. These amounts include:

- The amount needed for rehabilitation and safety improvements of state highways,
- $1 billion for projects which expand the capacity of the highway system, and
- $15 million for soundwalls.

Chapter 24 also makes two other changes which affect the highway transportation program. First, it requires $75 million of SHA funds be programmed annually for capital improvements of mass transit rail guideways. Second, it establishes a state-local demonstration program to provide state funds ($300 million in 1990-91) to match local dollars for transportation improvements.

By setting the above funding levels, Chapter 24 defines a minimum annual capital outlay program for highway transportation. We estimate the *annual* costs of this program to be between $1.1 billion and $1.3 billion beginning in 1989-90. (The range in program level depends on a legal interpretation as to whether the $1 billion for highway capacity enhancement projects is only for construction costs or if it also includes related design and engineering support costs. Pending clarification, the CTC has programmed capital outlay costs for these projects at $750 million, with the remainder for engineering support activities.)

When capital outlay expenditures are added to noncapital outlay costs (maintenance, operations, engineering support and local assistance), the state highway program under Chapter 24 would average about $3 billion annually for the five-year period from 1989-90 through 1993-94. (This program level, however, does not include funding for the state-local demonstration program.)

Bond Measure Failed. Chapter 24 also placed a $1 billion general obligation bond measure for transportation before the voters at the June 1988 statewide election. This measure was intended to provide the first increment of additional money needed to fund transportation programs at the specified levels. The bond measure, however, was defeated.

Six-Year Financing Plan. In addition to the bond measure, Chapter 24 stated the intent of the Legislature and the Governor to provide additional state resources as necessary to support a highway program at the level specified by the act. In order to determine the additional resources needed, Chapter 24 requires the Governor to submit biennially a six-year transportation financing plan that identifies anticipated transportation expenditures and the amount of any shortfall in state resources available to fund those expenditures. The plan must also identify new revenue sources necessary to address any funding shortfall.

The first plan was due in January 1989 with submission of the 1989-90 Budget Bill. However, the administration has not yet submitted the required plan.

1989 STIP Fund Estimate Indicates $4.5 Billion Shortfall

Based on policy guidelines and requirements specified in Chapter 24, the CTC has adopted a Fund Estimate of the resources available and needed to support a highway program for the 1989 STIP period from 1989-90 through 1993-94. This is summarized in Table 1.

As Table 1 shows, the Fund Estimate projects total resources for the five years to be about $10.9 billion, while expenditures are projected to be $15.4 billion. Thus, resources would fall short of anticipated expenditures by about $4.5 billion. Consequently, if the STIP is to be *fully* funded during this period and if federal funds are not increased above anticipated levels, about $4.5 billion of *additional* state resources would be needed.

Table 1
Fund Estimate for the 1989 STIP
1989-90 through 1993-94 [a]
(dollars in millions)

		Expenditures			
Funding Sources	*Total Resources*	*Support and Local Assistance*	*Capital Outlay* [b]	Total	Balance
State Highway Account	$6,270	$7,468 [c]	$979 [d]	$8,447	−$2,177
Federal funds	4,653 [e]	1,869	5,109	6,978	−2,325
Totals	$10,923	$9,337	$6,088	$15,425	−$4,502

[a] Detail may not add to totals due to rounding.
[b] Assumes 85 percent of project costs added in 1989 STIP are federally eligible.
[c] Includes $802 million in reservations for workload increases.
[d] Includes $658 million to match federal funds for capital outlay.
[e] Funds remaining after funding $767 million of prior project commitments.

Size of Shortfall May Vary. The funding shortfall, however, may vary depending on the following factors:

First, the Fund Estimate reflects a policy decision by the department and the commission to set aside about $800 million for workload and other increases in support expenditures, such as highway maintenance and operations, over the five-year period. To the extent that actual increases in workload vary, the amount of actual expenditures and, consequently, the funding gap would differ.

Second, the Fund Estimate anticipates additional costs of about $550 million to construct projects as a result of changes in project scope or delays in construction schedules. These cost impacts, however, may differ depending on the actual project scopes and construction schedules.

Third, the Fund Estimate reflects the CTC's decision to program $750 million annually for capacity enhancement projects for the five-year period. If $1 billion of these projects is programmed instead, total expenditures over the STIP period would be $1.25 billion *higher*, resulting in a correspondingly larger shortfall.

Fourth, the Fund Estimate also does not include $300 million the Legislature indicated it intends to appropriate for a state-local demonstration program. If funding for this program is to be provided in 1990-91, as intended by Chapter 24, the funding gap would be commensurately larger.

Consequently, depending on the above factors, the funding gap for the five-year period from 1989-90 through 1993-94 would differ from that projected by the Fund Estimate. For instance, if capacity enhancement projects at the higher $1 billion-per-year level are to be funded together with the 1990-91 funding of the state-local demonstration program, the five-year shortfall would be $6 billion—or $1.5 billion more than the $4.5 billion reflected in the Fund Estimate.

Resources Inadequate in the Budget Year

The shortfall in funding the STIP is beginning to have a real and immediate impact on the state's transportation program. As discussed in greater detail in the *Analysis*, this funding shortfall first materializes in the budget year. The administration identifies a funding gap of $666 million in the proposed 1989-90 budget, and it proposes to address the shortfall by a combination of transfers from other fund sources and reductions in highway activities.

Our review shows that the funding gap is an ongoing problem. By 1993-94, the last year of the 1989 STIP, the shortfall would increase to about $1 billion *annually* if the state highway program is funded at the levels specified in Ch 24/88 and projects are provided to improve the

operation of the system. *Without additional resources, reductions in expenditures would be required in each year from 1989-90 through 1993-94 to make up the total $4.5 billion gap for the five-year period.*

After 1993-94, a shortfall of about $1 billion would continue annually if no additional state and federal funds become available.

Options to Address Funding Shortfall

The Legislature and the Governor will need to act now in order to address the state highway transportation funding problem. The state's options are to reduce expenditures below currently planned levels, increase resources, or do a combination of both.

Reducing Expenditures—Not a Long-Term Alternative. One approach that could be taken to eliminate the funding shortfall would be to reduce the size of the highway program. However, if the current highway system is to continue to provide adequate service to motorists, the state could not achieve reductions in expenditures for maintenance and operations sufficient to address the funding shortfall. For example, even if maintenance and operations expenditures were reduced by one-half, only about $500 million would be saved annually (or $2.5 billion over five years). Thus, there would still be a funding gap of $2 billion over the life of the STIP. Consequently, in order to eliminate a fund shortfall, the state would be faced with cutting back state funding of the capital outlay program and related design and engineering work.

Reducing the capital improvement program, however, may not be a desirable long-term solution. In making such a decision, the state would need to consider how such a reduction would affect the California economy. As we indicated in our December 1988 report, *A Perspective on the California Economy*, deficiencies in the transportation infrastructure, like other infrastructure deficiencies, can result in significant economic costs and inefficiencies. For example, it is conservatively estimated that congestion on state highways in 1987 cost drivers the equivalent of $800 million in lost time, vehicle maintenance and operating costs, and commercial driver wages.

Increased Resources—A Must for the Long Run. Consequently, the Legislature and the Governor must seek to increase resources to fund transportation programs over the long term, especially if the state highway program is to be sustained at levels specified in Ch 24/88. The state has essentially two options to increase resources for transportation: redirect resources from other areas of the state budget or increase revenues.

Increased Revenues Are Needed

While the state could redirect resources from other areas of the budget, it is our judgment that redirections of the magnitude required to make up the STIP shortfall on an ongoing basis are *not* feasible without severe impacts on other state programs. As a consequence, we believe the state will need to *increase revenues.* To accomplish this, the Legislature and the Governor will have to decide what funding source the state should use and what level of revenue increase is needed.

User Charge Approach Is Reasonable. The state could increase various funding sources to provide additional revenues. Historically, however, California has funded its highway system through a set of user charges, such as the gas tax and weight and registration fees. This approach charges those who most directly benefit from the highway system for the costs of the system. While the benefits of an efficient transportation system extend well beyond highway users, they are the ones who most directly benefit from the use of the system. In this sense, user charges to support the system are reasonable.

What Level of Increase Is Needed? The Legislature and the Governor will also have to determine the appropriate level of increase in the selected funding source. In part, this decision will depend on the extent to which the state relies on a "pay-as-you-go" system or bond financing to support transportation programs. There are advantages and disadvantages to both financing methods, which we have discussed in more detail in our report *A Perspective on Bond Financing* (December 1987).

Assuming the historical "pay-as-you-go" approach is used, and $4.5 billion in additional revenues needed for the five-year period were to be raised through an increase in the gas tax, an average increase of about 6 cents per gallon (above the current 9 cents-per-gallon state tax rate) would be needed. This increase would generate about $4.4 billion for the five-year period, assuming historical growth in fuel consumption. To the extent cities and counties continue to receive about one-half of gas tax revenues, as under current law, the increase would need to be twice as large—about 12 cents per gallon. Concurrent increases in other fees, such as truck weight fees, would reduce the amount of the needed gas tax increase.

As an alternative to the "pay-as-you-go" approach, the state could issue bonds to be repaid from gas tax or other highway user charges in order to fund the shortfall in the 1989 STIP. For example, raising the $4.5 billion needed during the period 1989-90 through 1993-94 from bond sales would require about a 2.2 cent increase in the gas tax if the bonds were to be repaid over a 20-year period. *This would be a short-term solution because it would fund the shortfall only during the five-year STIP period.* To fund the shortfall after 1993-94, additional tax increases would be needed.

Appropriations Limit Poses a Constraint. As discussed elsewhere in this *Perspectives and Issues*, the state is near the level of appropriations from tax revenues allowed under the California Constitution. If the Legislature and the Governor decide to increase taxes to fund transportation program costs on a "pay-as-you-go" basis, it must also determine how the increased revenue is to be accommodated within the appropriations limit. One option would be for the state to seek voter approval to modify or repeal the state's appropriations limit (see below).

The limit, however, would not be a consideration if increased gas tax revenues were used to pay off voter-approved bonds.

Recommendation

We recommend that the Legislature increase the state's gas tax and other highway user fees to provide additional funding for the state's highway transportation program. We further recommend that the Legislature provide for future increases in these sources based on an index of highway construction and operation costs.

Our review indicates that up to $4.5 billion in additional revenues will be needed during the next five years if the program required by Ch 24/88 is to be carried out. Annually thereafter, depending on the availability of federal funds, the state highway program will have a shortfall of about $1 billion. In order to provide the additional resources needed to fund this program at levels specified in Ch 24/88, we recommend that the Legislature increase the state's gas tax and other fees. The level by which these fees should be increased depends on the extent to which the state relies on a "pay-as-you-go" system or bond financing to support transportation programs in the future.

Elsewhere in this *Perspectives and Issues*, we have recommended that the Legislature seek voter approval to repeal the existing appropriations limit, and either rely on traditional mechanisms to control state spending (such as the 2/3 vote requirement for tax increases) or replace the limit with one which provides more flexibility to deal with problems like the current transportation funding gap. In either case, this would allow revenues from such increased taxes to be appropriated to fund transportation programs.

Furthermore, to ensure that these user fees keep pace with increases in highway maintenance and improvement costs in the future, we recommend that the Legislature provide for periodic increases in these fees based on an index of costs to build, maintain and operate the state highway system.

Year-Round Schools

What Are Year-Round Schools and How Can Their Use Reduce the Demand for Limited School Facilities Aid Funds?

Summary

- *Currently, school district requests for state aid to accommodate unhoused students through the State School Building Lease-Purchase program far exceeds–by several billion dollars–the amount of funds currently available from the state. In addition, the demand for these limited state resources will mount in the coming years as the K-12 school-age population continues to grow.*
- *Through the use of year-round education, school districts can make more intensive use of existing facilities, thereby expanding the capacity of a school site by up to one-third (or more, in certain cases).*
- *As a result, year-round school programs can reduce the demand for school construction funds by hundreds of millions of dollars. In addition, these programs can reduce school district per-pupil operating costs.*
- *The academic achievement of students attending year-round school programs is generally comparable to that of their counterparts in traditional calendar schools.*
- *In order to maximize the number of pupils that can be housed with limited state financial resources for school construction, we recommend that the Legislature enact legislation requiring Lease-Purchase program funds for new construction to be allocated to school districts as if the facility would operate on a year-round basis.*

Introduction

The Department of Finance (DOF) estimates that, on a statewide basis, the California K-12 school-age population will grow by approximately 140,000 students per year between now and 1997, resulting in a need for an additional 2,100 new schools. The State Department of Education (SDE) estimates that the cost associated with providing these additional facilities could be as high as $11 billion. There are several methods available to school districts to finance their school facilities needs using either state resources, local resources, or a combination of the two. First, the State School Building Lease-Purchase program provides most of the money used by local public school districts to construct and/or modernize school facilities. Currently, school district requests for state aid

through the Lease-Purchase program far exceed the funding available for this purpose. Specifically, as of November 1988, applications from school districts for state aid ($4.3 billion) exceeded existing available funding ($800 million) by approximately $3.5 billion.

In addition to the state program, school districts may raise funds locally for school facilities through three primary methods:

- ***The Mellow-Roos Community Facility Act of 1982.*** Pursuant to this act, school districts are authorized to form "community facilities" districts, subject to the approval of two-thirds of the voters, to sell bonds to raise revenue for building new, or modernizing existing school facilities.
- ***Local General Obligation Bonds.*** School districts are generally authorized to incur bonded indebtedness for school facilities construction purposes, subject to a two-thirds voter approval.
- ***Developer Fees.*** Since January 1, 1987, school districts have been authorized to impose developer fees, as specified, on a per-square-foot basis upon new residential and commercial/industrial construction. These fee revenues can be used only for the construction or modernization of school facilities.

One important way to reduce the cost of providing school facilities is through the use of year-round schools. Year-round school provides a more intensive use of existing facilities, thereby expanding the capacity of a school site, and commensurately reducing the need for new facilities. In the discussion that follows, we describe what year-round education is, how its use can accommodate more students at an existing site, why it is educationally sound, and why we believe it should be an essential component of any state program to assist school districts in meeting their school facility needs.

What Is Year-Round Education?

Year-round education is an alternative *schedule* for learning; it is not an alternative *curriculum* for learning. Students attending a year-round school go to the same types of classes and receive the same amount of instruction–generally 180 days per academic year–as students attending traditional nine-month calendar schools. The year-round school calendar is organized into instructional blocks and vacation periods that are evenly distributed across a 12-month calendar year.

Specifically, on a traditional calendar, students generally attend school for nine months followed by a three-month summer vacation. On a year-round calendar, the three-month summer vacation is divided into several shorter vacation periods which are then spread throughout the school year. As a result, year-round students receive several shorter vacations; however, the total amount of vacation afforded to each pupil is

still the same as that of students attending a traditional-calendar school. Typically, a year-round student receives three one-month vacations or four three-week vacations during one academic year.

Single-Track Versus Multitrack. Year-round schools can be operated on either a "single-track" or "multitrack" basis; however, *it is only when the multitrack format is implemented that the capacity of the school can be increased.* A single-track system provides for the entire school population (that is, all students and teachers) to follow the same calendar with the same vacation periods. This means that, at any given time, all of the students and teachers are in school, or they are all on vacation. The school is typically closed during the vacation periods when neither the students nor teachers are present.

On a "multitrack" system, students and their teachers are grouped into different tracks, with staggered instructional blocks and vacation periods. While one track is on vacation, another track can use its space, thereby allowing for an increase in the capacity of the school. For example, depending on the actual calendar used, students and their teachers may be divided into four tracks. At any one time, three of these tracks, or three-quarters of the school's students/teachers, will be in school, and the remaining track, representing one quarter of the school's students/teachers, will be on vacation. (The remainder of this discussion will focus on the characteristics of multitrack programs because it is only on a multitrack system that the capacity of a school site can be increased and corresponding facility-related costs reduced.)

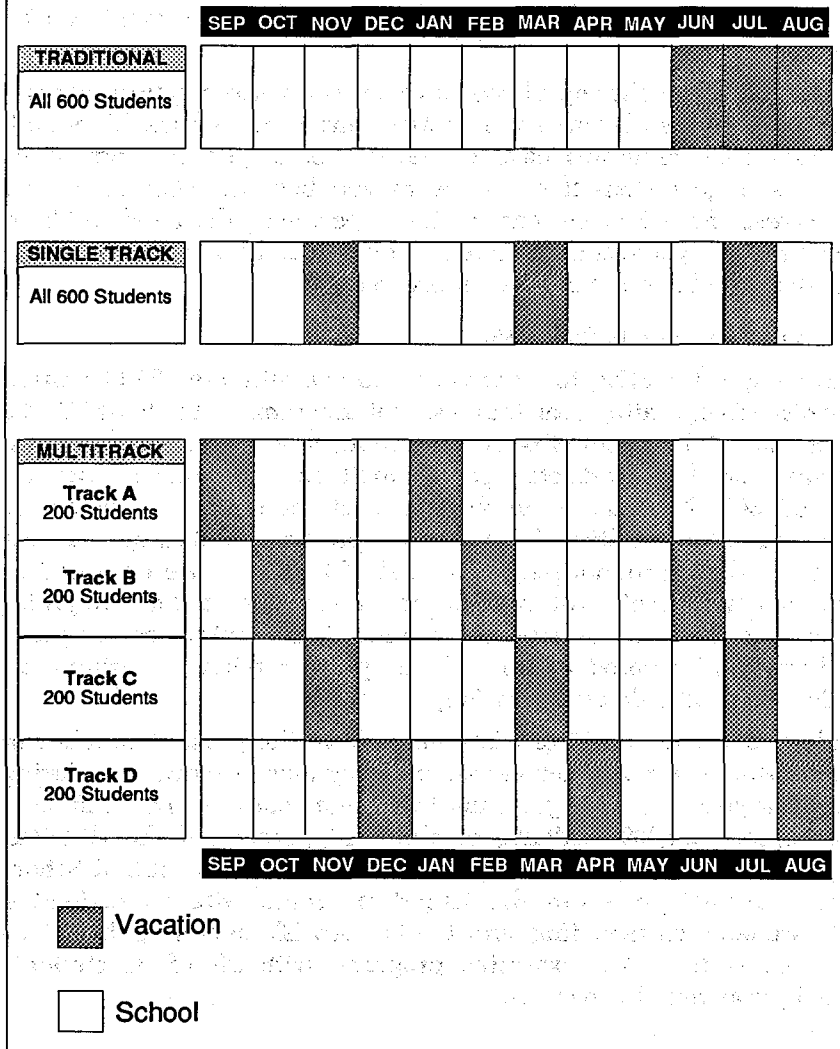
Chart 1 compares the different attendance patterns for a traditional, single-track and multitrack calendar program. It shows that both the traditional calendar and single-track calendar can accommodate only 600 students and that all students are either in school or on vacation at the same time. Chart 1 also shows that, by dividing students into four tracks and staggering instruction and vacation periods, the multitrack calendar can accommodate 800 students, a 33 percent increase in capacity.

Track Assignments. On a multitrack system, students and teachers typically are assigned to one of either three or four "tracks." There are a variety of methods for assigning students to tracks including: (a) geographically (that is, by address), with entire blocks, sides of streets, or apartment buildings assigned to the same track; (b) randomly (for example, alphabetically); (c) by ability grouping (for example, by a student's proficiency with English); (d) self-selection; and (e) individually (that is, a one-by-one placement to customize the characteristics of each track).

Most districts offer parents the opportunity to indicate a preferred choice of tracks, and also provide for students from the same family to be

Chart 1

Attendance Patterns
Traditional, Single-Track and Multitrack Calendar Programs[a]
For A School Which Can Accommodate 600 Students At Any Time



[a] For purposes of illustration, we have assumed: (1) a "60-20" calendar (60 school days – or about 3 months – on and 20 days – or about one month – off); (2) that school starts September 1 and ends June 1, (3) no winter vacation, and (4) that full capacity increase can be obtained.

assigned to the same track. Similar variations occur regarding the assignment of teachers to tracks, although generally a much larger degree of self-selection is available (providing that each track yields the necessary number of teachers for each grade level).

Shared Classrooms. Because a classroom remains in use when one track goes on vacation, teachers are generally grouped so that four teachers share three classrooms. Teacher grouping is generally made on the basis of grade level, so that similar supplies and equipment can be shared.

By necessity, the sharing of rooms requires a revised system for the storage of teacher and classroom materials during the "off-track" period. Most multitrack programs have developed some type of modular or portable storage system that can be moved between classrooms and storage areas. Innovative designs in schools specifically designed and built to accommodate year-round programs provide a central teacher storage/workspace area linked to several classrooms.

Year-Round Education in California

According to the SDE, there are currently an estimated 69 California school districts operating year-round school programs, with about 360,000 students (about 8 percent of pupils statewide) attending such programs. Thirty-five of these districts operate multitrack programs, with an estimated 300,000 students enrolled in such programs. A review of districts operating multitrack year-round programs indicates that the majority of these programs–approximately 90 percent–are operated at the elementary school level, with the remainder operated at the junior high or senior high school level. For the most part, multitrack programs have been implemented for the sole purpose of relieving either site-specific or districtwide overcrowding.

Table 1 identifies the 10 districts which have the greatest number of students attending multitrack year-round programs. It shows that during the current year, the 10 largest multitrack year-round programs include approximately 234,000 students, or about 25 percent of the districts' overall enrollment. Of these programs, the Los Angeles Unified School District (LAUSD) operates the largest program, with an estimated 135,000 students participating, and the Oxnard Elementary School District operates the most extensive program, with *all* of its students attending year-round programs.

Table 1
Ten Largest Multitrack Year-Round Programs
(by district)
1988-89

	Enrollment		
		Year-Round	
District	*Districtwide*	*Number*	*Percent of Total*
1. Los Angeles Unified	594,000	135,000	22.7%
2. San Diego City Unified	117,000	17,700	15.1
3. Fresno Unified	65,500	17,900	27.3
4. Santa Ana Unified	40,000	12,000	30.0
5. Montebello Unified	31,600	8,200	25.9
6. Lodi Unified	22,500	9,900	44.0
7. Fontana Unified	22,300	7,600	34.1
8. Rialto Unified	17,300	7,700	44.5
9. Oxnard Elementary	11,800	11,800	100.0
10. Hesperia Unified	10,900	6,200	56.9
Totals	932,900	234,000	25.1%

Of the 10 largest school districts in California, six currently operate multitrack year-round school programs, with a range from between 5 percent to 35 percent of students attending a year-round program.

Variation of Calendars. Our review indicates that there are four basic calendars used by the districts in the state which operate year-round programs. The calendar adopted by a school district for its year-round education program determines the frequency and length of the instructional blocks and vacation periods that students and teachers will receive. Generally, the type of calendar selected does not affect the extent to which a facility will be able to accommodate additional pupils; rather, it only affects the number of transitions students and teachers have to make between periods of instruction and vacation.

The majority of students attending multitrack year-round programs are accommodated by some variation of the following four basic calendars:

- ***"90/30."*** On the "90/30" calendar, each track of students and their teachers are present in school for 90 days (18 weeks), and then recess for 30 days (6 weeks). This calendar is similar to a "two semester" school schedule in that instruction occurs during two 18 week blocks, each separated by a six-week break.
- ***"60/20."*** On the "60/20" calendar, each track attends school for 60 days (12 weeks), and then recesses for 20 days (4 weeks). On this type of calendar, students/teachers are present in school during three three-month blocks, each separated by a one-month break.
- ***"45/15."*** On the "45/15" calendar, students/teachers are present in school for 45 days (9 weeks), and then recess for 15 days (3 weeks). This calendar involves four transitions–the most of any of these calendars–between instruction and vacation during an academic year.

- *"Concept 6."* This calendar provides for only 163, rather than 180 days of instruction; however, the school day is lengthened by 25 to 38 minutes, depending on the grade level. Consequently, over an academic year students still receive the same amount of instructional time as their counterparts in a traditional-calendar school.

The "Concept 6" calendar divides the year into six instructional terms (each about two months long), with students required to attend four of the six terms (for an eight-month school year). This calendar allows a district to accommodate the greatest percentage increase in additional students (up to 50 percent). Despite this, Concept 6 has not been used by many districts. This is because, prior to July 1, 1988, school districts (with the exception of the LAUSD) were prohibited from offering students fewer than 175 days of instruction per academic year. This made the Concept 6 calendar difficult to implement. From July 1, 1988 through July 1, 1995, however, current law authorizes *all* school districts to offer a Concept 6-type calendar, provided that the total amount of instructional time provided to students meets existing statutory requirements.

Table 2 provides a comparative summary of these four basic year-round calendars with that of the traditional-calendar school. It shows that, although the length and number of instructional terms vary among the different calendars, all but the Concept 6 calendar provide students with the same number of instructional days–generally 180–per academic year. Table 2 also shows that, although the length and number of vacations vary between the different calendars, all students receive approximately 12 weeks of vacation, except for Concept 6 students, who receive approximately 16 weeks of vacation.

Table 2
Comparative Summary
Traditional and Year-Round School Calendars

	Calendar				
Features	*Traditional*	*90/30*	*60/20*	*45/15*	*Concept 6*
Number of instructional days	180	180	180	180	163
Number of instructional terms	1	2	3	4	4
Length of term	180 days (36 weeks)	90 days (18 weeks)	60 days (12 weeks)	45 days (9 weeks)	41 days (8.2 weeks)
Number of Vacations	1	2	3	4	2
Length of Vacation	12 weeks	6 weeks	4 weeks	3 weeks	8.1 weeks
Maximum percent capacity gain	–[a]	33%	33%	33%	50%
Number of Tracks	–[a]	4	4	4	3

[a] Not applicable.

As mentioned above, districts often modify a particular basic calendar format in order to meet their individual needs. For example, one school with a typically low enrollment during January arranged its calendar so that the school was closed that month. Other districts that wanted to provide a slightly longer vacation period during the summer months

lengthened the vacations falling during this period and commensurately shortened other breaks. Our review of California school districts which operate a year-round program indicates that no two districts have identical calendars; in fact, it is not uncommon for a single district to operate several different calendars.

No "Best" Calendar. Our review indicates that, although there are virtually an unlimited variety of calendars that can be implemented for year-round education, *there is no single "best" calendar.* For example, a school needing to accommodate only 20 percent more students may not want to implement the Concept 6 calendar, which provides for increasing student capacity by up to 50 percent. Similarly, a district with a larger degree of overcrowding might determine that it makes more sense to operate one or several Concept 6 calendar schools, rather than an increased number of "45/15" or "60/20" schools, each of which individually affords a smaller capacity increase. A district with overcrowding only at the high school level might elect to implement the Concept 6 model, as it provides the greatest flexibility for scheduling classes where students rotate among teachers because it has fewer but larger tracks. On the other hand, a district with overcrowding only at the elementary level might opt for a calendar which allows for the easiest transition for students from a year-round calendar elementary school to a traditional-calendar secondary school. In sum, our review indicates that the "best" calendar is the one that fits a particular district's (and its community's) needs.

Capacity. As illustrated above, most multitrack calendars allow for a 33 percent increase in capacity. Most schools, however, achieve a *lower* capacity increase for several reasons.

First, not all classrooms that are available on a traditional calendar can be maintained as classroom space in a year-round calendar program. For example, because generally one quarter of the teachers are not present at any one time, space needs to be allocated for the storage of these teachers' materials and as a workroom in which they can prepare upcoming materials during their "off-track" time. Second, because the school site is in continual use, such necessary maintenance and upkeep activities as cleaning and painting are difficult to perform unless some classrooms are periodically "cycled out" and kept empty and available for such services. Finally, in order to operate "intersession" programs–the year-round school equivalent of summer school–additional classroom space must also remain unoccupied.

Uses of Increased Capacity. The increased capacity that results from a multitrack system may be desirable for reasons other than providing space for unhoused students. For example, where overcrowding has already been accommodated through other means–such as using libraries,

computer labs, special education or multipurpose rooms as classroom space–the conversion to multitrack may simply allow a school site to again "free up" these areas for their originally designated educational purposes.

Where overcrowding is unique to a particular site or sites, rather than districtwide, the increased capacity can be used to reduce or eliminate the need for busing students from a crowded site to one that has available space or for altering individual school site attendance areas.

The increased capacity also can be used to integrate selectively a school that is segregated racially, socially, or by ability. For example, the increased capacity generated at a racially segregated school can be filled with students of underrepresented races.

Finally, a change to a year-round calendar could be made to reduce class sizes without having to expand the facility. For example, a school with an enrollment of 480 students and an average class size of 30 students requires 16 classrooms. To reduce the class size by 20 percent (to 24 students per class), four additional classrooms (a total of 20 classrooms) would normally be required. By converting to a multitrack schedule, however, the school could make five additional classrooms available, thereby avoiding the costs of constructing any additional classroom spaces.

Advantages and Disadvantages

There are both benefits and costs–monetary and otherwise–associated with operating multitrack year-round educational programs. Below, we focus on two of the more significant areas of state concern–the costs and savings associated with year-round schools and its impact on students' academic achievement. In addition, we summarize other advantages and disadvantages of a multitrack calendar.

Costs and Savings. In the area of *capital outlay,* the use of multitrack year-round programs could result in major state and local savings in school construction and rehabilitation costs. For example, our analysis indicates that, on average, it costs almost $5 million to purchase acreage and build a new elementary school to house 500 California students, for a per-student cost of about $10,000. Thus, each unhoused student who is accommodated through the use of a year-round schedule saves the local district a significant amount of capital outlay funds. For the state, the implementation of year-round programs in lieu of constructing new facilities would reduce the demand for state school facilities aid funds by potentially hundreds of millions of dollars.

These savings would be offset by certain capital and one-time costs to operate year-round schools. For example, many schools would require air conditioning and added insulation to operate during summer months, and almost all schools would have additional storage needs. Our review

indicates, however, that these one-time costs are fairly small in comparison to the capital savings.

In the area of *operating expenditures,* we are aware of only two in-depth financial analyses which compare the costs of year-round and traditional schools: one by the Oxnard Elementary School District and the other by the San Diego City Unified School District.

The Oxnard district is an entirely year-round district serving approximately 11,800 K-8 students. In a study conducted in 1986-87, the district compared actual per-pupil costs over a four-year period (1981-82 through 1985-86) of operating its year-round schools to its costs of operating traditional-calendar schools. The study found that the annual per-pupil cost of maintaining year-round schools averaged about 5.5 percent (or $123) *less* than what the district paid for traditional schools. The district attributes the overall savings primarily to economies of scale–that is, the additional enrollment permitted by a year-round program did not require a proportionate increase in expenses. In addition, the study identified four specific factors which contributed to these operational savings:

- Sharing of classroom and reference materials since four classes of students share three sets of materials.
- Avoiding the cost of additional benefit packages, as staff extended from 10-month to 11- or 12-month contracts did not require additional benefits.
- Reduced student and teacher absenteeism.
- Reduced school site burglary and vandalism.

The San Diego Unified School District is a K-12 district serving approximately 117,000 pupils. Of these, almost 18,000, or 15 percent, attend year-round schools. In a study focusing on the 1987-88 school year, the district compared the ongoing operational costs of accommodating excess enrollments through year-round schools to those of traditional schools. The district determined that, on an ongoing, per-pupil basis, there were *no increased costs* when capacity was increased by 20 percent and there were *savings of $8.92 per pupil per year* when capacity was increased by 25 percent. (The district's analysis also identified $400,000 in one-time costs associated with the conversion to year-round operations.)

Thus, while there currently is limited information on this issue, the evidence from these two studies indicates that, *on a per-pupil basis,* the operational costs of year-round schools are slightly *less* than those of their traditional calendar counterparts.

Academic Achievement. In evaluating year-round education, a critical concern is its impact on academic performance. The field of literature

addressing this issue is quite limited. Following are the conclusions of several of the studies that have been conducted:

- A 1979 study of the Pajaro Valley Unified School District conducted by the Stanford Research Institute indicated that its year-round school program had little impact on a student's achievement test scores.
- A 1984 study conducted by the Los Angeles Unified School District concluded that its year-round programs relieved overcrowding without reducing educational quality or negatively affecting student's academic performance.
- The authors of a 1986 study of proficiency scores in the Oxnard Elementary School District found that year-round students outperformed traditional students in math, but the reverse was true in reading–although the differences in performance in both cases were small.
- The SDE, in a 1987 report on year-round education, analyzed test scores of students attending traditional, single-track, and multitrack calendar schools. Allowing for the special needs and demographics of the communities in which multitrack year-round schools have been placed, SDE concluded that the year-round calendar is a viable educational option "that can be associated with achievement at or above predicted levels."

Thus, a review of these studies suggests that students in year-round programs generally do no better or no worse than their counterparts in traditional calendar schools. We also discussed the issue of academic achievement with various practitioners during the course of our review. There appears to be a general consensus among principals and teachers in year-round schools that students' retention of subject matter is greater, thereby leading to a reduction in the amount of time that must be devoted to reviewing old material and enabling more new material to be covered.

Other Considerations. Chart 2 highlights many of the advantages and disadvantages associated with multitrack year-round education programs. Specifically, the chart indicates that year-round education can increase both the supply of substitute teachers and teachers' overall earnings to the extent that "off-track" teachers make themselves available as substitute teachers during some or all of their vacation time. Our visits to districts operating year-round programs indicate that almost all offer off-track teachers first priority for substituting at their home school during their vacation periods. Multitrack programs generally also offer the opportunity for classified personnel (for example, maintenance and cafeteria workers) to increase their overall earnings by converting from 10- or 11-month contracts to full-year contracts.

Chart 2

Multitrack Year-Round Schools Advantages and Disadvantages

ADVANTAGES

Fiscal:

- Is a cost-effective alternative to constructing or modernizing a new facility.
- Can reduce per-pupil operating costs.
- Reduces student and teacher absenteeism.
- Reduces school site burglary and vandalism.

Facility Utilization:

- Generally increases school site capacity up to 33 percent depending on the calendar selected, number of tracks, and other facility needs. Alternatively, allows for a reduction in class size, without adding additional classroom spaces.
- Acts as an alternative to busing, double sessions, or extended day schedules when overcrowding is present.
- Increases both school and community facility use.
- Allows more students to attend neighborhood schools.
- Increases flexibility for meeting district desegregation needs.

Academic/Instructional:

- Reduces the amount of remedial review done each September after the traditional vacation period learning regression.
- Encourages/requires teaching staff to be better organized.
- Enables intersessions to be offered for enrichment/remediation programs at more frequent intervals than summer school.

Employment:

- Increases availability of substitute teachers to the extent that year-round teachers elect to substitute during some or all of their "off-track" periods, and also increases salary opportunities for those teachers electing to substitute.
- Provides the opportunity for year-round employment for both support service personnel and educators.
- May provide secondary students with greater opportunities for vacation employment.

Other:

- Allows staff and families the opportunity to take vacations during "nonpeak" times.

DISADVANTAGES

Fiscal:

- May present large initial implementation costs for building renovation (for example, the addition of air conditioning or storage facilities).

Administrative:

- Increases difficulty in scheduling schoolwide educational and extracurricular activities because one group of staff/students is always absent.
- Makes it difficult to communicate with "off-track" students and staff.
- Increases scheduling problems with transportation, central supply, and maintenance.
- Presents storage difficulties for "off- track" teacher's and classroom materials.
- Generally requires an increased level of coordination with ancillary community service organizations that provide recreational and child care services to vacationing students.
- May be difficult to schedule children from the same family that are in different grades.
- Becomes more difficult to regroup students once they are assigned to a track.

Employment:

- May reduce staff professional development opportunities, to the extent that courses are offered only in the summer.

Other:

- Parents have difficulty adjusting to a change in the traditional school calendar.
- Periodic vacations may create baby- sitting/ child care problems.
- May be difficult for families to coordinate vacations where children attend different schools that do not use the same calendar.

Chart 2 also indicates that there are many administrative difficulties associated with operating a multitrack year-round program, such as communicating with off-track students and staff, and scheduling such activities as maintenance, transportation, staff development and school-wide events. In addition, discussions with school district personnel indicate that parents frequently resist attempts to convert to a year-round education program until many of the advantages and disadvantages can be identified and thoroughly discussed.

Legislature's Interest in Year-Round Education

State School Building Lease-Purchase Program. As noted earlier, the state currently has an estimated $800 million in bond funds available to finance $4.3 billion in requests from school districts under the State School Building Lease-Purchase program. This aid is provided primarily in the form of grants. To the extent that school districts file additional requests for aid between now and the next time additional funds could be made available to the program–either July 1989 (an appropriation in the Budget Act) or June 1990 (bond funds provided at the next statewide election)–the disparity between requests and availability of funds will continue to grow.

In addition to aid provided through the Lease-Purchase program, the Legislature also has enacted two year-round school "incentive" payment programs–SB 813 (Ch 498/83) and SB 327 (Ch 886/86)–which provide approximately $30 million annually to eligible school districts operating year-round programs. [A detailed discussion of these programs appears in our *1987-88 Analysis* (please see page 1008) and *1988-89 Analysis* (please see page 889).]

There is one low- or no-cost method through which the Lease-Purchase program could promote the use of year-round schools, thereby increasing the number of pupils that can be housed with available state revenues. Specifically, the Legislature could revise the funding allocation formulas to reflect year-round school operations.

Revise Funding Formula. Under current law, school districts qualifying for the new construction program are awarded a total amount of funds based on a complex funding formula. This formula assumes that the new school to be constructed will operate on a traditional nine-month calendar, rather than on a multitrack year-round calendar. However, if the facility to be built were to operate on a year-round basis, the same number of students could be accommodated in a smaller facility at a significantly lower cost. To the extent that the state were to allocate funds on this multitrack basis (assuming a minimum 20 percent capacity increase), the $800 million currently available for expenditure could finance the equivalent of $935 million (an additional $135 million) in new

facilities construction. (The savings is less than 20 percent because there are certain fixed costs–such as basic acreage allotments and administrative facilities–that do not vary with the incremental addition of students.) To the extent that the state were to allocate funds on the assumption that newly constructed schools could accommodate greater than a 20 percent capacity increase (such as the Concept 6 calendar, which yields up to a 50 percent capacity increase), state savings would be even greater.

Summary and Recommendation

We recommend that the Legislature enact legislation requiring Lease-Purchase program funds for new construction to be allocated to school districts as if the facility would operate on a year-round basis.

Our review indicates that multitrack year-round programs greatly reduce the demand for school facilities, are educationally sound and provide a viable alternative to the traditional nine-month calendar educational program. In light of this, and given the state's limited financial resources for constructing new school facilities, our analysis indicates that it is appropriate for the state to promote the use of year-round educational programs in lieu of the traditional nine-month calendar schools. Further, we can find very little analytical justification for the state to continue to provide funds under the Lease-Purchase program for the construction of traditional, rather than year-round schools.

Accordingly, to maximize the number of pupils that can be housed with available state revenues, we recommend that the Legislature enact legislation requiring Lease-Purchase program funds for new construction to be allocated to school districts as if the facility would operate on a year-round basis. In implementing this recommendation, the Legislature would not have to *require* districts participating in the Lease-Purchase program to operate year-round schools. Rather, the funds would be allocated *as if* the school were to be operated on a year-round basis, and the district could retain the option to operate the school on a nine-month calendar basis if locally raised funds were used to construct the larger (and more costly) facility needed to house the same number of students.

State Asbestos Abatement Programs

How Can the Legislature Best Address Asbestos Abatement in State-Owned Buildings and K-12 Public Schools?

Summary

- *Since 1984-85, the Legislature has appropriated approximately $105 million to abate hazardous asbestos-containing materials in state-owned buildings and K-12 public schools. Based on asbestos surveys conducted by various state agencies, the future cost of abating the most hazardous remaining asbestos conditions could exceed $200 million in state-owned/state-supported buildings. Removal of* ***all*** *asbestos in state-owned/state-supported buildings, however, could exceed* ***$1 billion.*** *The future cost of asbestos abatement in K-12 schools is unknown.*
- *We have identified the following problems with current state asbestos abatement programs: (1) no clear basis for determining the health risks of asbestos in buildings; (2) inconsistent criteria for determining abatement project priorities; (3) excessive reliance on removal of asbestos, regardless of its condition; and (4) inaccurate information about the future cost of abatement projects.*
- *The best available evidence indicates that the airborne asbestos concentrations in most buildings are well below the levels for which there is a conclusive health hazard. Given this, and the risks associated with abatement projects, we recommend that the Legislature fund abatement projects only in those cases where concentrations of airborne asbestos are 0.1 fibers per cubic centimeter or higher—the federal regulatory asbestos limit for workers.*
- *If, however, the Legislature on a policy basis decides to continue to fund asbestos abatement, its programs should be guided by four principles: (1) projects should be funded in priority order, by level of hazard to be addressed; (2) removal of all asbestos, regardless of its condition, is not necessary to protect public health and safety; (3) the abatement method adopted for any given project should protect the health and safety of building occupants in the most cost-effective manner; and (4) asbestos abatement work creates hazards which must be carefully controlled.*
- *Based on these principles, we recommend several specific steps the Legislature should take to improve the efficacy of its asbestos abatement programs.*
- *We also identify the future abatement costs the Legislature may face and discuss how those costs can be funded.*

The existence of asbestos in public buildings has recently received a great deal of public attention, in part because of the uncertainty surrounding the health risk of exposure to low concentrations of asbestos in buildings, and in part due to the high cost and high risk of asbestos abatement efforts. Over the past five fiscal years, the state has spent $105 million to identify and remove asbestos in buildings owned by state agencies, in state-supported higher education facilities, and in K-12 public schools. Over the next several years, the Legislature could receive requests to fund asbestos abatement projects totaling hundreds of millions of dollars more.

In this analysis we provide background on the problem of asbestos exposure and summarize the state's response to asbestos in state-owned/state-supported buildings and K-12 public schools. We then review certain problems with the state's current abatement programs, and offer recommendations as to how to improve those efforts.

BACKGROUND

What Are the Health Risks of Asbestos Exposure?

From the mid-1940s to the mid-1970s, materials containing asbestos were widely used for insulation, fireproofing and acoustical purposes in the construction of buildings. Under certain conditions, these materials are or may become *friable*—that is, when dry they may be crumbled or broken by hand pressure. Once crumbled or broken, these materials *may* release asbestos fibers into the air.

Risks to Workers. Sustained, long-term breathing of high concentrations of asbestos fibers, as a result of working directly with asbestos-containing materials, is a known, quantifiable health risk. It significantly increases the risk of lung cancer. Long-term exposure in occupational settings can also lead to mesothelioma, a rare cancer of the lung and abdominal membranes, and asbestosis, a chronic and progressively restrictive lung disease. Workers in the construction, automotive repair, and shipbuilding industries are considered particularly vulnerable because they frequently come into contact with high concentrations of airborne asbestos in the course of their work. The removal or repair of asbestos-containing materials poses a health risk to construction and maintenance workers because high concentrations of asbestos fibers are generally released into the air by such work. These workers are protected by a variety of state and federal regulations concerning the conduct of work which involves disturbance of asbestos-containing material. For instance, federal regulations require workers dealing with asbestos to take specific, protective actions (such as training and periodic medical exams) when airborne concentrations reach 0.1 fibers per cubic centimeter (cc).

Risks to Building Occupants. In contrast, the health risk posed to building occupants by aging materials that contain asbestos is uncertain, and is the subject of controversy. There are no medical reports of deaths resulting from exposure to *low* concentrations of airborne asbestos in buildings. According to the U. S. Environmental Protection Agency (EPA), asbestos-containing materials, left in good condition and undisturbed, most likely pose a negligible risk to health. In fact, the best available evidence indicates that average concentrations of airborne asbestos in buildings, even in areas with significantly damaged asbestos-containing material, are 100 to 1,000 times lower than the aforementioned federal exposure limit for asbestos workers (0.1 fibers/cc of air). Neither EPA, nor medical researchers, however, have shown that there is some "threshold" concentration of airborne asbestos at which exposure poses no health risk. Consequently, EPA regards the presence of asbestos-containing materials in buildings as a *potential* health risk.

Why Is Asbestos Abatement a Concern of State Government?

There are currently thousands of state and public school buildings in California, many of which have some asbestos materials in them. For purposes of this analysis, we categorize these facilities in two groups:

- ***State-Owned/State-Supported Buildings.*** We use this definition for buildings that are either owned by or whose operations are supported by the state. These include facilities occupied by state agencies as well as campuses of the University of California, the California State University and the community colleges. This does not include private buildings leased by the state or public K-12 schools.
- ***Public K-12 Schools.*** Although these schools are state-supported, we consider them separately because asbestos abatement in the public schools is currently conducted under a unique set of state and federal statutes and regulations.

State-Owned/State-Supported Facilities. Table 1 shows that the state owns and/or supports approximately 19,000 buildings (containing about 192 million gross square feet of building space). Many of these were built during the 1950s and 1960s, when use of asbestos in building materials was common. Consequently, the vast majority of these buildings probably contain some asbestos.

Table 1
State-Owned and State-Supported Facilities

Agency	*Number of Buildings*	*Gross Square Feet (in 000s)*
Non-Education	10,600	60,000
Higher Education:		
University of California	3,800	60,900
California State University	1,195	27,350
Community Colleges	3,420	44,000
Subtotals	(8,415)	(132,250)
Totals	19,015	192,250

Public K-12 Schools. The State Department of Education indicates that there are about 7,100 K-12 public schools in California. Many of these schools were built between 1946 and 1972, a period during which asbestos-containing building materials were in common use. Federal law and regulations have required K-12 schools to take asbestos abatement measures since 1982. The state funds two programs to help school districts bear the financial burden of this abatement.

How Much Has the State Spent on Asbestos Abatement?

Although the state is not *required* to take any abatement actions, it has in recent years funded asbestos abatement programs for state-owned/state-supported buildings and K-12 public schools. Since 1984-85 approximately $105 million has been appropriated to identify and abate asbestos. Almost half of this amount was provided from the General Fund (including tidelands oil revenue). The rest was provided from bond revenues and the State Transportation Fund. Chart 1 shows the distribution of these funds. It indicates that almost half of the funds have been spent on state higher education facilities, about one-third on non-education state agencies and almost one-quarter on K-12 schools. The specific abatement programs are discussed in more detail below.

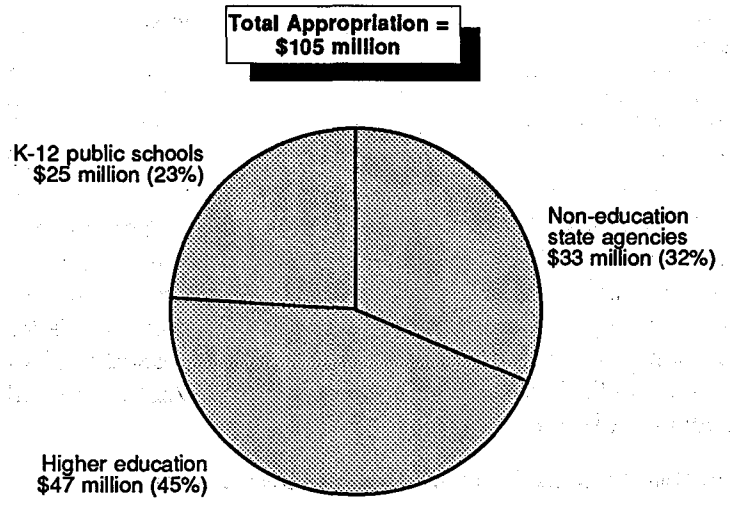
THE STATE'S RESPONSE TO ASBESTOS IN STATE-OWNED/STATE-SUPPORTED BUILDINGS

What Does Federal and State Law Require?

Neither California nor federal law requires state agencies which own buildings to undertake asbestos abatement measures within the buildings. Moreover, neither California nor federal law contains standards for identifying an indoor asbestos hazard (except in K-12 schools—see below) other than disturbance of asbestos-containing materials during repair or renovation of a building.

Chart 1

Funds Appropriated for Asbestos Abatement
1984-85 through 1988-89



The EPA, however, *recommends* that all building owners take actions to prevent conditions which may lead to release of asbestos fibers within a building. A recently enacted state law (Chapter 1502, Statutes of 1988, Connelly) requires building owners who know of asbestos-containing construction material in their buildings to notify their employees of the nature and location of the material. Building owners must also inform employees about the health risks of asbestos and proper procedures for handling asbestos-containing materials.

Federal and state laws make specific provision for controlling the release of asbestos fibers during repair, renovation or demolition of a building. Regulations established pursuant to these laws define maximum permissible levels of asbestos exposure for employees engaged in such work, establish licensing and registration procedures for contractors permitted to do asbestos-related work, and govern the work and safety practices of such contractors.

Although the state is not *required* to take any specific abatement actions, it has in recent years established and funded several programs to address asbestos in its buildings.

Department of General Services Asbestos Abatement Program

An asbestos abatement program was established in the Office of the State Architect (OSA) in 1986-87. This program, which has received appropriations of approximately $19 million, is part of a larger effort to

control or eliminate toxic substances in state facilities. These funds have been used for the following purposes:

- ***Surveys ($4.5 million)***. OSA recently completed, under contract, asbestos surveys of all state-owned buildings other than higher education facilities. The surveys rank the hazard posed by asbestos-containing material according to friability of material, asbestos content, condition of material, accessibility of material, and level of human and mechanical activity near the material. OSA conducted its asbestos surveys in two phases. The first, covering approximately 20 million square feet, was completed in 1987-88. The second phase, covering approximately 40 million square feet, was completed in November 1988.
- ***Asbestos Removal ($12.5 million)***. The program also funds asbestos abatement projects for buildings owned by General Fund agencies. OSA plans to spend $10.5 million (some work is complete, all contracts to be awarded by June 30, 1989) for the removal of asbestos-containing material judged to require immediate action (friable and damaged). In addition, OSA plans to spend about $2 million (all contracts to be awarded by June 30, 1989) for removal of asbestos-containing material identified during 1987-88 and judged to require action within two years of identification (friable with potential for damage).
- ***Administrative Costs ($2 million)***. These costs have been incurred for OSA staff (currently eight personnel-years), operating expenses and equipment.

The OSA estimates that it will need an additional $63 million to remove all remaining asbestos-containing material judged to require action within two years.

In addition to funds appropriated to the OSA asbestos abatement program, $1.7 million has been appropriated directly to General Fund agencies for asbestos-related repair and maintenance projects. OSA has handled the contracting for most of this work, as well as the design work, where necessary.

Asbestos Abatement Programs of Special Fund Agencies

Buildings owned by the Department of Transportation (Caltrans) and other special-funded agencies, including the California Highway Patrol (CHP) and the Department of Motor Vehicles (DMV), were included in the OSA asbestos survey of state buildings. These agencies fund their abatement programs through their own budgets, rather than through the OSA program. Caltrans has allocated $12.2 million in State Highway Account Funds since 1985-86 to remove asbestos-containing material in district headquarters facilities. Not all of the material removed was

identified by OSA as requiring immediate or short-term action. In addition, DMV has spent $300,000 in Motor Vehicle Account funds for similar purposes.

The OSA estimates that the future cost of addressing immediate and two-year projects in buildings owned by special fund agencies is $21 million. Staff at Caltrans and DMV indicate that they will immediately seek funds to abate asbestos conditions identified as needing immediate attention. Caltrans staff also indicate that they will propose removal of *all* asbestos-containing building material identified in Caltrans facilities by the OSA survey, regardless of whether the asbestos is friable or damaged. The DMV and CHP have not yet developed long-term plans for asbestos abatement.

Higher Education Asbestos Abatement Programs

The Legislature first appropriated funds for asbestos-related work in higher education facilities in the 1984 Budget Act. Since then, the Legislature has appropriated over $47 million from the General Fund or from bonds whose debt service is paid by the General Fund to the California State University ($21.5 million), the California Community Colleges ($18.7 million), and the University of California ($6.9 million) for each system to operate an independent asbestos assessment and abatement program.

The California State University. The CSU initially surveyed its facilities for asbestos-containing materials in 1984-85, and resurveyed these facilities in 1987-88. Using a hazard ranking system, CSU distinguished between materials (1) to be removed as soon as possible, (2) to be isolated and removed when feasible, (3) to be repaired and maintained, (4) or simply to be monitored and maintained. In 1988 Budget Act language, the Legislature specified that money appropriated to remove asbestos at CSU campuses be spent only on projects in the first two categories. The 1987-88 survey consultant estimated that asbestos removal work in these categories will cost a total of $52 million. This estimate, however, significantly underestimates the full cost of this work because it does not count the cost of replacing asbestos-containing material that has been removed. The CSU has allocated a total of $16.6 million (all of its 1987-88 and 1988-89 asbestos abatement appropriations) to projects in categories (1) and (2).

Community College Districts. At the direction of the Legislature (1985 Budget Act language), each district conducted an asbestos survey of its buildings. Surveys were conducted by district employees using a ranking system similar to the system used by CSU in its first asbestos survey. The Chancellor's Office compiled district reports to create a statewide ranking of asbestos conditions by severity. The Chancellor's Office policy,

however, is to remove, as soon as possible, *all* asbestos-containing material identified in the survey, regardless of its condition on the threat it poses to occupants. The Chancellor's Office estimated that it would cost $25 million to remove all the identified asbestos. Between 1985-86 and 1988-89, the state has appropriated $18.7 million (General Fund) to the community colleges for asbestos abatement.

Staff in the Chancellor's Office now indicate that the $25 million of work identified in the survey significantly understates the cost of removing *all* asbestos-containing material in the community college system, for two primary reasons. First, many districts did not include the cost of replacing asbestos-containing material after it has been removed. Second, some districts have subsequently hired an asbestos consultant to resurvey their buildings. The consultant has discovered more than twice the amount of asbestos-containing material identified in the original survey.

University of California. All UC campuses have recently completed asbestos surveys of state-supported facilities. The surveys, based on a procedure developed by the Berkeley campus, classify asbestos-containing materials into one of three categories: (1) materials that now present an active and serious hazard, (2) materials with damage and potential for further deterioration into a serious hazard, and (3) materials presenting little or no active hazard. Language in the 1985 Budget Act required that the University allocate all asbestos abatement funds for projects in the first category, before addressing any lower priority project. University staff indicate that they continue to follow this guideline in allocating asbestos abatement funds. The state has appropriated $6.9 million to UC since 1984-85 for these activities. Based on a preliminary analysis of asbestos surveys, University staff estimate that the future cost of abatement work in the first category exceeds $75 million.

THE STATE'S RESPONSE TO ASBESTOS IN K-12 PUBLIC SCHOOLS

What Do State and Federal Law Require?

Federal Law. The federal Asbestos Hazard Emergency Response Act (AHERA) is the most recently enacted (1986) and the most stringent federal legislation concerning asbestos in K-12 schools. The EPA regulations (published in October 1987) established pursuant to the Act require each K-12 school to:

- Identify and assess the condition of all asbestos-containing material in school buildings;
- Develop an asbestos management plan based on this assessment prior to October 12, 1988 (or prior to May 9, 1989, if an extension is granted);

- Inform all parent, teacher and employee organizations that an asbestos management plan exists and is available to the public for inspection; and
- Begin implementing responses to asbestos-containing material (including abatement, employee training, and monitoring and maintenance), as recommended in a management plan, by July 9, 1989. The AHERA regulations set no deadline for completion of asbestos abatement actions.

These regulations permit *broad local discretion* in choosing responses to asbestos containing material, in order to protect human health and the environment. A school may choose the least economically and operationally burdensome action from a range of alternative responses. Alternatives include removal, repair, encapsulation, enclosure, and/or monitoring and maintenance, depending on the type and condition of asbestos-containing material identified.

The fiscal effect of AHERA on K-12 public schools includes the cost of: developing management plans (including an asbestos inspection), providing special asbestos maintenance training and programs, and taking asbestos abatement actions specified in management plans. Based on EPA cost estimates, and assuming that all 7,100 California public K-12 schools contain some friable asbestos-containing material, the cost of developing management plans could total $20 million to $30 million statewide. At this time, the cost of providing AHERA-required training and maintenance programs, and taking asbestos abatement actions for school districts statewide cannot be estimated. The Office of Local Assistance (OLA), within the Department of General Services, should be able to estimate these costs after it has received asbestos management plans from all schools in early May 1989.

The AHERA requires two things of the states. Each state must adopt an accreditation program for asbestos professionals and workers which is at least as stringent as the EPA model program. In addition, a state agency designated by the Governor must receive all management plans. A school district must implement its plan if that state agency does not disapprove the plan within 90 days after receipt. In California, the Governor designated OLA as the agency which will receive these plans. The 1988 Budget Act includes a General Fund appropriation of $1.1 million (19 personnel-years) to OLA for review of asbestos management plans from K-12 schools. As discussed in the *Analysis* (Item 1760-001-001), OLA is not conducting a substantive review of these plans. Instead, it has contracted with the Franchise Tax Board to perform an essentially clerical verification that required forms have been completed.

State Law. Chapter 1751, Statutes of 1984, created the Asbestos Abatement Fund. Under this statute, monies in the fund, which is

supported entirely by the General Fund, must be distributed by the State Allocation Board to match local funds for the containment and removal of hazardous asbestos materials in public K-12 schools. The statute requires a dollar-for-dollar match of state and local funds, but permits the board to increase the state share of the match where necessary to complete critical abatement projects. The policy of the board is to provide 50 percent of the cost of qualifying abatement projects in large districts, and 75 percent in small districts. Subsequent legislation set the following criteria for determining eligibility for grants from the fund:

- The asbestos must be friable or potentially friable, as identified through visual inspection and laboratory analysis of samples; and
- The airborne concentration of asbestos within a building must exceed either 0.01 fibers/cubic centimeter (cc) or the airborne concentration of asbestos in the outdoor air immediately adjacent to the school, whichever is higher.

State Funding of Asbestos Abatement in K-12 Public Schools

Asbestos Abatement Fund. The Legislature has appropriated a total of $24.75 million from the General Fund to the Asbestos Abatement Fund between 1984-85 and 1986-87. There have been no appropriations to the fund since that time. The State Allocation Board has set aside *$24.4* million for asbestos abatement projects that qualify under the program. OLA estimates that it has received an additional *$5.6* million in applications which qualify for a grant from the Asbestos Abatement Fund, but for which no funds are available.

By November 1988, OLA had released only *$16.2* million to school districts because several districts had not completed the necessary project documents. In order to hasten the undertaking of qualified projects, the State Allocation Board adopted a policy in March 1988 of rescinding apportionments over one year old where the applicant has not submitted the documentation necessary for release of funds. In October 1988, the board initiated this policy by rescinding and reapportioning $3.3 million.

Proposition 79. The 1988 School Facilities Bond Act was approved by the voters on November 8, 1988. This Act authorizes the State Allocation Board to apportion up to $100 million of the $800 million in bond proceeds for identification, assessment and abatement of asbestos in K-12 public schools. The measure specifies no further criteria for allocation of these monies. The current policy of the board is to allocate these monies only where a school has been closed because of an asbestos hazard, either by order of a court or by the Department of Industrial Relations. In addition, the board requires school districts to pay 25 percent of the cost of removing asbestos in each eligible project, and *all* of the cost to replace asbestos-containing material with non-asbestos material.

WHAT ISSUES AND PROBLEMS ARE RAISED BY STATE ASBESTOS ABATEMENT PROGRAMS?

Five basic questions should be answered in determining the state's approach to asbestos in its buildings:

1. What degree of hazard is posed to building occupants by asbestos in building material?
2. In what priority order should asbestos hazards be abated?
3. What methods of asbestos abatement are the safest and most cost-effective?
4. What is the full cost of asbestos abatement proposals?
5. What procedures should be established for handling asbestos permitted to remain in the buildings after abatement projects have been completed?

Our review of state-funded asbestos abatement programs, based on these questions, raises the following issues and problems which warrant consideration by the Legislature.

1. There Is No Clear Basis for Determining When Asbestos in Buildings Constitutes a Health Hazard

As discussed above, EPA reports that the best available evidence indicates that average concentrations of airborne asbestos in buildings, even in areas with significantly damaged asbestos-containing material, are 100 to 1,000 times lower than the aforementioned federal asbestos exposure limit for workers. Moreover, there is no *known* health hazard associated with exposure to airborne asbestos at such low concentrations — the levels most likely to be encountered by building occupants. Concerns about exposure to low concentrations of asbestos are based on *extrapolations* from the documented adverse health effects of exposure by workers to high concentrations of asbestos over a period of years. Research, however, indicates that such extrapolations are not reliable because they are based on too many unproven assumptions. Thus, the state has undertaken multimillion dollar abatement projects involving low-level concentrations of airborne asbestos for which there is no known health risk.

2. Asbestos Abatement Projects Are Not Proceeding on a Priority Basis

Asbestos abatement work is going forward on projects ranked under five different procedures using inconsistent criteria. Moreover, in some cases, the ranking of projects is based on incomplete information. The Legislature, therefore, does not have consistent data on which to base decisions about the relative priority of abatement projects proposed by various agencies.

Inconsistent Criteria. OSA, CSU, and the community colleges use different criteria for setting priorities, but at least the criteria are somewhat similar and compatible with the criteria established in the EPA AHERA regulations. The University of California uses an independently developed set of criteria. Due to data limitations, we have been unable to assess the compatibility of UC's criteria with those used by other agencies. The criteria used to set priorities for allocating state asbestos abatement funds to K-12 public schools are not compatible with the criteria used in any of the other state programs. In fact, the air monitoring and school closure criteria used in the K-12 program are so restrictive that they would result in the denial of state support for school projects which would be funded under other state-funded asbestos abatement programs.

Incomplete Information. The University of California, the Community Colleges and OSA have not yet ranked all asbestos abatement projects on the basis of a comprehensive asbestos survey. Consequently, neither these agencies nor the Legislature can judge the priority of projects currently submitted by them for funding.

3. Alternatives to Removal Are Not Fully Considered

The EPA recommends that decision makers carefully weigh the cost *and hazards* of removal against the cost and hazard of leaving asbestos-containing material in place and controlling it by an alternative method (repair, monitoring and maintenance, enclosure, or encapsulation).

State agencies, however, have adopted a very limited range of abatement methods. At one extreme, some state agencies have adopted a policy of removing *all* asbestos from their facilities. Others, while permitting some asbestos materials to stay in place, do not consider options to removal of asbestos in the abatement projects they do undertake. Caltrans and the Community Colleges for example, see removal as the *only* means of control for asbestos containing material. By contrast, OSA and CSU acknowledge that under certain conditions, asbestos-containing material is best managed through a regular program of observation and maintenance until it can be removed in the course of building renovation or demolition. Neither OSA nor CSU, however, consider the choices of repair, encapsulation, or enclosure over removal on a project-by-project basis.

4. Existing Estimates May Significantly Understate the Future Cost of Asbestos Abatement

Based on our review, we conclude that asbestos abatement proposals received by the Legislature often understate the full cost of the projects. For example, the estimated future costs of asbestos removal projects at CSU and the Community Colleges do not include the cost of replacing asbestos-containing material after it has been removed. Moreover, none

of the available estimates under any of the abatement programs include the potentially significant costs of displacing building occupants during asbestos abatement projects.

5. There Are No Statewide Standards for Conducting an Asbestos Monitoring and Maintenance Program

Asbestos consultants hired for every major survey of state-owned facilities recommend monitoring and maintenance as a means of controlling certain asbestos-containing material. There are, however, no statewide standards for determining the components of such programs:

- What activities are required, and how often?
- Which maintenance staff and supervisors should get state and federally required training for handling asbestos?
- How much special equipment is necessary?

The Legislature needs such standards to make informed decisions about funding requests from state agencies to establish and operate asbestos monitoring and maintenance programs.

HOW CAN THE LEGISLATURE IMPROVE ITS ASBESTOS ABATEMENT PROGRAMS?

As discussed above, the EPA and other experts generally agree that asbestos in buildings is clearly a health hazard when airborne concentrations reach levels of 0.1 fiber/cc. Where airborne concentrations of asbestos in buildings reach this level, asbestos abatement should be undertaken. The best available evidence from EPA, however, indicates that concentrations of airborne asbestos in most buildings are *well below* levels for which there is any conclusive evidence of a health hazard. As such, there is currently no clear analytical basis to justify the expenditure of funds on virtually all proposed, state-supported abatement projects. Moreover, the pressure to remove asbestos in buildings because of potential health hazards needs to be weighed against the potential for leaving workplaces and schools in *worse condition* as a result of abatement projects. Accordingly, *we recommend that the Legislature fund abatement projects only in those cases where concentrations of airborne asbestos are 0.1 fibers/cc or higher.* Should the Legislature decide to take this action, it would defer action on the majority of proposed asbestos abatement projects. In addition, the state would still need to spend some money on periodic surveys and monitoring and to finance abatement in those cases where asbestos would be disturbed during the course of a renovation or repair project.

The suggested airborne concentration standard should be modified in the future based on the advice of researchers and other experts on the health risks associated with exposure to low concentrations of airborne

asbestos. In order to ensure this input, we recommend that the Department of Health Services, in cooperation with the Department of Industrial Relations, assemble and summarize the best available evidence concerning the health risks of exposure to low concentrations of asbestos and the risks associated with asbestos removal. The departments should present this information to the Legislature during the fall of 1989 and periodically thereafter.

If the Legislature, however, decides as a matter of policy to continue its current approach to asbestos abatement, we recommend that it use the following principles as a guide to develop a statewide program that will address the most serious *potential* asbestos hazards in state-owned/state-supported buildings and K-12 schools:

- ***Asbestos abatement projects should be funded in priority order, by level of potential hazard.*** The potential hazard posed by asbestos-containing materials varies with the location and condition of the material. EPA regulations (under AHERA) explicitly acknowledge that under some conditions, asbestos-containing materials present a serious active or potential hazard, while these materials under other conditions present little chance of releasing asbestos fibers.
- ***It is not necessary to remove all asbestos-containing materials, regardless of condition, in order to assure the safety of building occupants.*** Materials that do not pose a hazard can be left in place and monitored and maintained according to appropriate procedures. Such materials can then be removed either (1) after all hazardous conditions are abated or (2) during the normal course of building renovation.
- ***The method of abatement adopted for any given project should protect the health and safety of building occupants in the most cost-effective manner.*** The federal AHERA regulations recognize a broad range of alternatives to asbestos removal (repair, encapsulation, enclosure, and monitoring and maintenance) as potentially sufficient to protect building occupants.
- ***Asbestos abatement work creates hazards and therefore must be carefully controlled.*** The Legislature should assure that all state-funded agencies which administer asbestos abatement programs take adequate precautions to protect the health and safety of workers and building occupants exposed to abatement projects.

Using these principles, we make the following recommendations (except where otherwise noted, the Legislature could carry out these recommendations as part of the budget process):

1. ***The Legislature should only fund abatement of the following asbestos conditions (including those in K-12 schools) in the priority listed:***

(1) The asbestos is friable, exposed to building occupants, *and* airborne asbestos concentration exceeds 0.01 fiber/cc, unless the concentration in the air outside the building is greater than 0.01 fiber/cc. (In the latter case, abatement should be considered only if airborne asbestos concentration inside the building exceeds the level in the outside air. Otherwise, air from external sources would recontaminate the building as soon as abatement is completed.)

(2) The asbestos is friable, damaged, and exposed to building occupants, but the airborne asbestos concentration does not exceed the specified limits.

(3) The asbestos is friable and undamaged, but is very likely to incur damage that would expose building occupants to asbestos fibers.

(4) The asbestos is friable and damaged, but airborne transmission of asbestos to occupied building space is highly unlikely.

With the exception of the air monitoring standard, these criteria are consistent with the criteria used in the CSU and OSA asbestos surveys and in AHERA regulations to identify the highest priority asbestos abatement projects in a building. The air monitoring standard is recommended to give highest priority to situations in which release of asbestos fibers has actually occurred. While we have no analytical basis for using the 0.01 level as a standard, it is the level currently specified in statute for state funding of asbestos abatement in K-12 public schools. The Legislature should reevaluate this standard as more conclusive information about the risk of exposure to low concentrations of asbestos becomes available.

Application of these criteria to a state program for asbestos abatement in public K-12 schools would require a change in existing statutes. This is because current law permits state funding *only* if airborne concentration of asbestos exceeds the 0.01 fibers/cc level.

If the Legislature were to use these criteria, it would exclude many projects state agencies now propose to fund (for example, Caltrans plans to eliminate *all* asbestos — even if it is not friable). Thus, adoption of these criteria would reduce the demand for state abatement funds.

2. ***The Legislature should create a Task Force on Asbestos Abatement Priorities and Procedures.*** This task force should include representatives from OSA, UC, CSU, the community colleges, OLA, and the K-12 public schools. The task force should accomplish the following and report to the Legislature in the fall of 1989:

- Review the criteria used by these agencies to place projects in priority order for consistency with the criteria listed above;

- Recommend a statewide standard for the conduct of asbestos maintenance and monitoring programs, including training of maintenance employees, critical tasks, essential equipment, and program organization; and
- Recommend statewide standards for the qualifications and responsibilities of asbestos project inspectors employed on state-funded projects.

3. ***The Legislature should expand the OSA asbestos abatement program to include immediate and short-term abatement projects identified by the OSA asbestos survey in special funded agencies.*** The Legislature should not fund independent asbestos abatement programs for each of these special fund agencies. Budgeting and administering their abatement projects instead through the OSA program would provide the following benefits:

- Abatement projects identified in the OSA surveys would proceed in priority order, statewide, regardless of fund source;
- Special fund departments could take advantage of OSA's experience in contracting and monitoring asbestos abatement work; and
- The Legislature would know the full cost of asbestos abatement activity.

In addition, special fund agencies should be required to identify the cost of planned asbestos abatement activity in the Budget Bill and to transfer those funds to OSA.

Because of the practical difficulties of undertaking the higher education programs through OSA, the systems should continue to identify and fund abatement costs in their individual Budget Bill items. They should, however, conduct their asbestos abatement projects in accordance with the funding criteria established by the Legislature and the findings of the task force.

4. ***The Legislature should require the State Allocation Board to develop a program for allocating Proposition 79 asbestos abatement funds according to the criteria outlined above.*** The OLA should report to the Legislature in the fall of 1989 concerning its policies and procedures for reviewing applications under this program. Moreover, OLA should provide the Legislature with quarterly reports on the status of these applications.

5. ***The Legislature should require every funding proposal for an abatement project to include an analysis showing how the recommended abatement action assures the safety of building occupants in the most cost-effective manner.*** Such an analysis would assure the Legislature that state asbestos abatement programs are considering alternatives to asbestos removal. State agencies should consider such

alternatives as encapsulation, enclosure, repair, or monitoring and maintenance, where they assure the safety of building occupants. In addition, cost estimates should include the costs of displacing building occupants while abatement work is in progress and the cost of replacing asbestos materials with non-asbestos materials.

6. ***The Legislature should require before-and-after air sampling for all state-funded asbestos abatement projects.*** Budget Act language currently requires asbestos abatement contractors working for OSA, CSU, UC, and the community colleges to leave a facility at least as free of airborne asbestos as when they start work. This assures that state-funded abatement projects will mitigate, not aggravate asbestos hazards. This requirement should be extended to *all* state-funded projects, including K-12 schools.

WHAT FUNDING ALTERNATIVES EXIST FOR FINANCING ASBESTOS ABATEMENT IN STATE-OWNED/STATE-SUPPORTED BUILDINGS AND K-12 SCHOOLS?

Future Costs

Table 2 shows that the estimated future cost of asbestos abatement in state-owned/state-supported buildings, under the guidelines recommended above, is $231.4 million. This estimate assumes that funding is restricted to projects which meet the four funding criteria we recommended above. The estimate includes state-owned non-education facilities ($84 million) and state-supported higher education facilities ($147.4 million). In contrast, OSA indicates that the cost of removing *all* asbestos from state-owned, non-education facilities would exceed $1 billion.

Table 2
Future Cost of Asbestos Abatement in State-Owned and State-Supported Buildings: Projects That Meet LAO Recommended Funding Criteria (dollars in millions)

Agency	*Future Cost*
Non-Education:	
General Fund (OSA Program)	$ 63.0 [a]
Special Fund Agencies	21.0 [a]
Subtotal, Non-Education	($ 84.0)
Higher Education:	
Community Colleges	$ 37.0 [a]
California State University	35.4 [a,b]
University of California	75.0 [a]
Subtotal, Higher Education	($147.4)
Total	$231.4

[a] Does not include potential costs of displacing employees and/or students.
[b] Cost of asbestos *removal* only. Does not include replacement of asbestos-containing material with non-asbestos material.

The future cost of asbestos abatement in the public K-12 schools is uncertain. However, the $100 million potentially set aside for asbestos abatement under Proposition 79, if allocated to public K-12 schools on a dollar-for-dollar matching basis (see below), may be sufficient to abate all *friable* asbestos. This conclusion is based on EPA cost estimates of asbestos abatement in K-12 schools, the average cost of asbestos abatement projects funded since 1985-86 from the Asbestos Abatement Fund, and information concerning the average cost of abatement projects noted in the few asbestos management plans already received by OLA.

Funding Alternatives for State-Owned Buildings

The Legislature has three alternative means of funding the future cost of asbestos abatement:

- General Fund and various special funds;
- General obligation bond financing;
- Redistribution of tidelands oil revenues.

Factors which the Legislature should consider in deciding on a method of funding for asbestos abatement include:

- Over what period of time should projects be completed?
- What effect will use of funds for asbestos abatement have on the availability of funds for other state programs?

For example, if the Legislature decides that abatement of the most serious asbestos hazards should occur within five years, it will require an immediately available source of funds which can support appropriations of about $46 million annually. The use of General Fund or special fund appropriations or redistribution of tidelands oil revenues (to the extent they are available) in such amounts would have significant immediate effects on the availability of funds for other programs. As an alternative, the Legislature could propose a bond measure for voter approval. While approval of a bond measure could require a year or more, the annual impact on the General Fund would be much smaller, as costs would be distributed over a period of up to 20 years. The *total* cost of using bonds, however, would be higher, because of interest payments and finance charges.

On the other hand, if the Legislature decided that asbestos abatement could occur over a longer period of time, the annual level for asbestos abatement expenditures would be smaller, and the need for an immediate, large funding source (such as a bond measure) would not be so important.

Bond Funds for Asbestos Abatement in K-12 Public Schools

We recommend that the Legislature enact legislation to allocate Proposition 79 bond funds according to the matching formula now used for the Asbestos Abatement Fund monies.

Under the current formula for grants from the Asbestos Abatement Fund (AAF), the state pays half or more of the total cost of an eligible project, depending on the size of the district responsible for it. The total cost includes asbestos removal, if necessary, *and* replacement with non-asbestos material. Under the State Allocation Board's current policy of allocating Proposition 79 bond funds, however, the state pays *75* percent of abatement removal costs and none of the costs of replacement.

We find no basis for having these inconsistent funding allocations. Consequently, we recommend that the Legislature specify in statute that all state funds for asbestos abatement in K-12 schools be allocated according to the matching formula now used for the AAF. The higher local match required for the AAF would help assure that school districts choose the most cost-effective means of asbestos abatement when designing a project eligible for state funding.