

# Understanding Equitable Infrastructure Investment for California

Manuel Pastor, Jr.  
Deborah Reed

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# Introduction

All Californians rely on public infrastructure. It brings the water we drink, the energy that lights our homes, the classrooms where our children are taught, and the roads that take us to work. Public infrastructure provides a building block for education, health, and economic opportunity. Perhaps because of the importance of infrastructure in improving quality of life and opportunity, there has been a growing policy emphasis on equitable infrastructure investments. Indeed, state law clarifies the intent of infrastructure planning priorities to “promote equity, strengthen the economy, protect the environment, and promote public health and safety” (Assembly Bill 857, Chapter 1016, Statutes of 2002).

The primary motivation for concerns about equity is a sense that public investments should be “fair.” Of course, the concept of “fair” has a number of dimensions, and in the next chapter, we develop a conceptual framework for understanding the nature of equity in the context of infrastructure investments. Using this framework, we discuss the relationship between infrastructure investments and economic opportunity. We highlight an emerging body of research and real world examples that suggest that promoting equity is not always at odds with other policy goals but rather, in some circumstances, equitable approaches to infrastructure investment can promote economic growth, fiscal efficiency, and political feasibility.

This report provides a broad overview of equity issues in infrastructure investments in California. In order to illustrate the nature and extent of equity concerns, we focus on four major areas of infrastructure: transportation, K-12 education, higher education, and water resources. We also highlight a significant concern that these investments do not disproportionately create environmental problems for low-income and minority communities; hence, we examine “environmental justice” in the context of infrastructure equity.

Throughout this analysis, we discuss the policy context including recent measures and pending legislation. We believe that equity should be a goal for prioritizing infrastructure investments and we discuss directions for new policies that would promote equity. However, we do not advocate specific policies; our main objective here is to facilitate an open conversation among policymakers, civic leaders, advocates, voters, and residents about how equity should be taken into account as we look toward investing in a vision of California in 2025. Furthermore, we note that while our focus here is on equity issues, policy considerations must take into account a broader perspective and a wider range of goals than are discussed here.

This study is intended as a conceptual framework rather than an exhaustive study of infrastructure and equity. Partly this is due to the overall nature of the project, one that seeks to frame the issues facing the state rather than to prescribe the policies the state should follow. Indeed, this is, as far as we know, the first report to broadly examine the equity aspects of infrastructure in the state and we hope it will contribute to a debate and research agenda that will inform more in-depth work in the future.

This is one of several studies investigating infrastructure and public investments as part of PPIC’s “California 2025” project. Other studies examine population projections, economic

projections, institutional and governance issues, state and local capital finance, infrastructure needs assessments, and public opinion.<sup>1</sup> Throughout, we draw on research from these other studies as well as a wide body of literature on infrastructure at the regional, state, and national levels.

The report proceeds as follows. In the next chapter, we consider the nature of infrastructure equity by describing the dimensions of equity concerns and the criteria for evaluating equity. In the third chapter, we discuss the relationship between infrastructure and economic opportunity as well as the potential for equitable approaches to promote growth, fiscal efficiency, and political consensus. Chapter 4 discusses equity issues and concerns in the context of major infrastructure areas and environmental justice. Chapter 5 describes methods for measuring infrastructure equity. Chapter 6 assesses the conditions and policies shaping infrastructure equity for 2025. We conclude with a brief summary. An appendix describes public perceptions of infrastructure equity.

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<sup>1</sup> These studies are available at [www.ca2025.org](http://www.ca2025.org).

# What is Equitable Infrastructure Investment?

Infrastructure, by its nature, is not distributed equally across communities. Transit service tends to be better in densely populated urban areas where it is efficient to provide. Roads and highways are less expensive and less congested in rural areas. Whereas purely equal investments may not be attainable or even desirable, a notion of “fair treatment” underlies equitable approaches. For example, Senate Bill 115 (1999) calls for “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation and enforcement of environmental laws and policies.” In the context of existing inequalities, equitable investment policies often refer specifically to low-income and minority communities. For the California Department of Transportation (Caltrans), for example, the “policy goal of promoting fair treatment ... means ensuring that low-income and minority communities receive an equitable distribution of the benefits of transportation activities without suffering disproportionate adverse impacts” (California Department of Transportation, 2003).<sup>2</sup>

A useful way of conceptualizing the dimensions of equity issues for infrastructure is by describing the main arenas of the public debate. PolicyLink (2005) has identified seven dimensions of the infrastructure equity debate.

- Resource allocation. What are the broad priorities for public investments? How much should be spent on highways, open space, or schools? How much for health care and adult education services?
- Expenditure type. Within an area such as K-12 schools, which projects have spending priority?
- Distribution across communities. Which neighborhoods or regions receive the benefits of infrastructure investments? Which communities bear the burden of negative effects of infrastructure such as pollution?
- Employment and economic benefits. Capital projects can create jobs and promote economic growth, but for whom?
- Revenue fairness. Who pays for infrastructure and who is able to pay?
- Participation and engagement in policy decisions. Do all communities have an equal voice in setting priorities and making choices about the infrastructure investments?
- Development and investment patterns. Infrastructure is central to the form growth will take – infill, urban, low-density, sprawl – and the form of development has consequences for housing affordability and access to economic opportunities.

We aggregate these seven dimensions of the public debate into four broader categories: access, financing, other costs and benefits, and participation in decisionmaking. Equity of access to public infrastructure encompasses a broad range of issues including the availability, location, and quality of infrastructure. The Caltrans policy of “equitable distribution of the

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<sup>2</sup> For alternative conceptualizations of equity criteria, see Cairns et al. (2003), Bullard and Johnson (1997), and Litman (1999).

benefits of transportation” (California Department of Transportation, 2003) is an example of access equity. Equity of access to funding is an alternative formulation. California’s Critically Overcrowded School Facilities program, which creates a priority allocation of state bond funds for facility needs in districts with overcrowded schools, is an example of a funding policy that promotes access equity. Access issues are often measured at a neighborhood level, such as the quality of the local public school facilities. Other issues are regional in nature, such as open space, or have statewide aspects, such as higher education infrastructure.

Equity of finance asks who bears the financial costs of public infrastructure investments. Equity considerations include whether the financing is regressive, requiring a higher share of income from low-income families, as well as whether low-income families and low-income communities have the “ability to pay.” The Legislative Analyst’s Office (2001), for example, has proposed a financing policy for school facilities that takes into account a community’s ability to pay. This concept is fundamentally different from equity of access to funding which deals with the allocation of funds as opposed to the revenue sources.

Equity considerations must go beyond access and finance because infrastructure investments have benefits beyond their primary goals and costs beyond financing. Many large capital projects create jobs and stimulate economic growth; whether these accrue to those most in need often depends on the nature of employment strategies accompanying the investments. For example, the Alameda Corridor Transportation Authority, partly as a result of negotiations with community groups, worked actively to insure that the jobs created as part of a rail project were available to local low-income residents. Other major capital projects need to be sited on existing residential property; others cause air pollution. Caltrans, for example, has a program to abate adverse environmental impacts. The equity concern is whether some communities bear a disproportionate share of the burden or reap a disproportionate share of the rewards.

Equity of participation considers whether all communities participate in infrastructure decisions. Community participation is the only way to ensure that community needs are met and that the planning priorities and trade-offs are acceptable to affected communities. For example, the proposed expansion of the Los Angeles (LAX) airport involves complex trade-offs for the adjacent neighborhoods with more noise pollution but also growth in local jobs to service the expanded airport. To insure equity, planners need to take into account how residents of these neighborhoods view the trade-offs – and communities must have the organizational strength and technical capacity to voice their concerns. LAX, for example, recently struck a deal with a coalition of community, labor, and environmental groups to insure nearly \$500 million in mitigations and jobs benefits as part of an \$11 billion expansion package. However, that coalition included members experienced in negotiating community benefits packages and not all neighborhoods or regions have that experience. Because infrastructure planning tends to be a long process and may be quite technical in nature, it can require substantial resources for a community or advocacy group to be fully involved and so outreach alone may not be enough to insure effective or meaningful participation. For example, Caltrans offers planning grants to projects that “Identify and engage low income and minority communities early in the transportation planning process” (California Department of Transportation, 2004).

Equity considerations are by their nature comparisons between social groups. Groups are often defined along socioeconomic lines, such as comparisons between low-income and high-income families or between low-skilled and high-skilled workers. Groups can be defined along demographic lines such as gender, race, ethnicity, immigration status, or age. The term “intergenerational equity” refers to equity issues that compare older people to youth or compare today’s population to future populations. Because infrastructure has costs and benefits that are local in nature, groups are often defined by geography – comparing neighborhoods, cities, or regions.

Equitable approaches to infrastructure investment typically consider the needs and resources of communities affected by an investment (or lack of an investment). For example, the Critically Overcrowded School Facilities program prioritizes funding for schools with facility needs. The Legislative Analyst’s Office (2001) school facilities financing proposal takes into account community resources and their ability to pay. Caltrans programs focus particularly on engaging low-income communities in the planning process. Although these policies do not treat communities equally, in the larger context the policies are seen as equitable because they take into account existing inequalities.





## Why Invest Equitably?

We consider three rationales for equitable investments in infrastructure. First, infrastructure investments play a role in shaping economic growth and, through more equitable investments, infrastructure can improve opportunities for low-income families and communities. Second, taking equity into account in investment decisions does not necessarily come at the expense of other communities but in some circumstances may actually promote broader growth and fiscal efficiency. Third, promoting equity in infrastructure investments may help build the political consensus required for large public projects.

### Infrastructure, Opportunity, and Equitable Growth

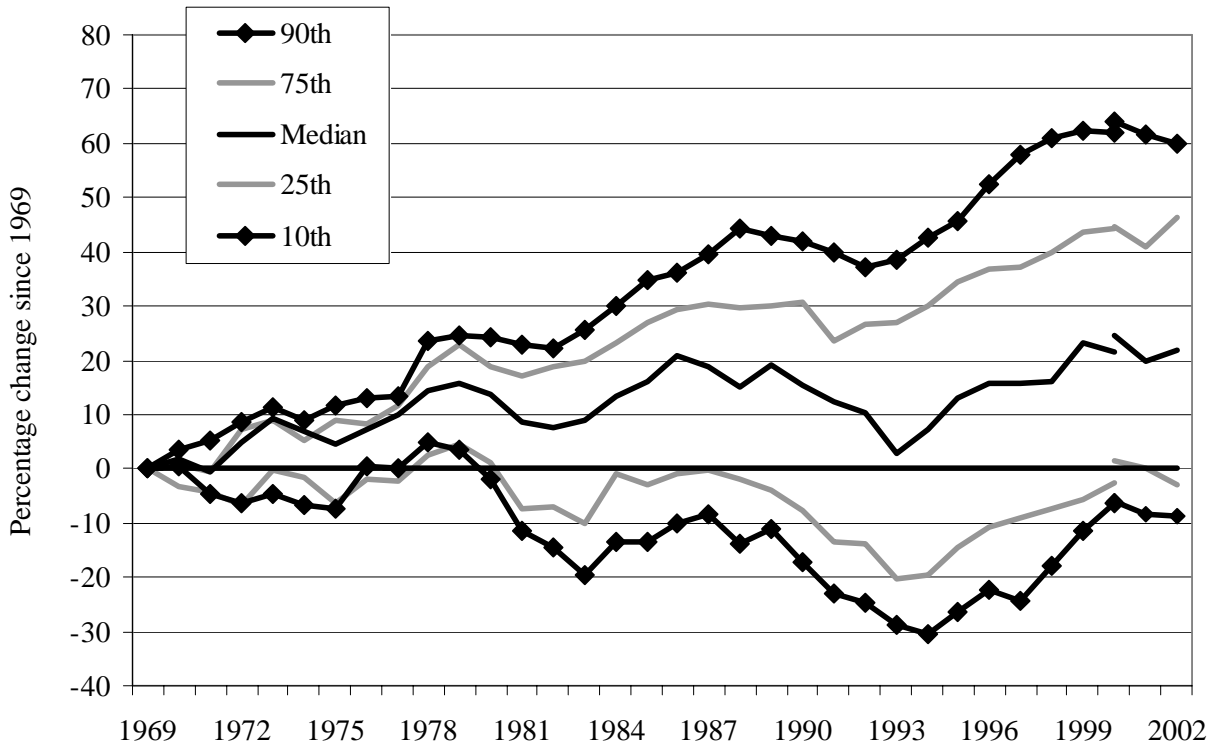
Low-income families have not shared equally in economic growth in California and in the United States. Infrastructure investments play a role in shaping economic growth. The first rationale for equitable infrastructure is that it can create opportunities for communities that have been left behind by California's economic growth.

This rationale takes on more importance when we consider the income patterns in California over the last several decades. In 2002, incomes of low-income families were lower in real terms than incomes of similar families in 1969 (Figure 1). Over the same period, incomes of middle-income families showed a 22 percent gain, and families at the high end of the distribution showed a 60 percent increase. One primary driver of this income pattern has been the growing value of education in the California labor market. California workers with a college education have seen their earnings rise, whereas those with a high school education have lower earnings today than did similar workers three decades ago (Reed, 1999, 2004).<sup>3</sup>

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<sup>3</sup> Education also plays an important role in explaining the lower earnings of Latino workers when compared to white workers in California and, to a lesser extent, the lower earnings of African American workers (Reed and Cheng, 2003).

**Figure 1**  
**Percentage Change in California Family Income Relative to 1969**  
**by Income Percentile, 1969-2002**



SOURCE: Reed (2004) from the March Current Population Survey, 1970-2003.

NOTES: Income is adjusted for family size and for inflation (to 2002 dollars). Because of a change in the survey methodology, two estimates are provided for 2000.

The provision of school facilities, a key infrastructure investment, creates educational and thus economic opportunities. Building and maintaining quality K-12 facilities support children’s learning. As we will describe later in this chapter, there are critical facilities deficits in some California communities, particularly in schools that serve low-income, Latino, and African American children. Furthermore, poor facilities likely limit the ability of these schools to attract highly qualified teachers. A survey of California teachers found that poor school facilities were an important factor in teachers’ decisions about where to teach (Harris, 2002). In the area of higher education, facilities challenges include deferred maintenance and growing enrollments. Improving poor and overcrowded K-12 school facilities and expanding capacity in higher education will likely improve educational opportunities for low-income children and youth.

Highways are another form of infrastructure investment that shapes the pattern of economic opportunity. In a recent survey, scholars ranked the federal highway program as the

most important influence on the American metropolis (Fishman, 1999).<sup>4</sup> By facilitating movement between distant areas, highways spur economic and population growth in areas outside the central cities. Other federal policies have also fueled suburbanization. In the same survey, the second-ranked influence on suburbia was the Federal Housing Administration's low-down-payment, long-term, fixed-rate mortgage. Between 1945 and 1965, these mortgages were restricted to newer housing, mostly on the suburban fringe. Although federal funds have also targeted inner city revitalization, their levels and effects have been minor compared to the various subsidies for suburbanization and sprawl (Dreier et al., 2001; Pastor et al., 2000; Wolch et al., 2004).

State and local policy has also directed economic activity away from the state's urban areas. Faced with limited property tax revenues after the passage of Proposition 13 in 1978, many California cities have adopted land-use policies designed to promote retail and raise local sales tax revenue. Insofar as this "fiscalization of land use" has pushed residential development beyond city limits, it has led to sprawl and may exacerbate spatial mismatches between jobs and housing (Lewis and Barbour, 1999; Little Hoover Commission, 2002). In addition, educational policy has not been able to redress the large differences in quality between schools that serve central city neighborhoods and those that serve suburban neighborhoods (Betts et al., 2000; Sonstelie et al., 2000). As a result, many young families with the means to do so have moved to the suburbs. So have many employers: Between 1990 and 2003, total nonfarm employment in Los Angeles County fell by 3.5 percent but grew by 21.6 percent in Orange County and by 52.6 percent in the Riverside-San Bernardino area.

The pattern of residential and economic growth in outlying areas has coincided with a concentration of low-income families, as well as Latino, African American, and Asian families, in more densely populated areas and central cities (Figures 2 and 3).<sup>5</sup> Interestingly, the most dense areas do see an uptick in income and the share white. This partly captures the phenomenon of young professionals and empty nesters returning to central city locations, a pattern made clear when we chart median household income rather than per capita income and note that it flattens as we move from the ninth to tenth density decile rather than increasing as is the pattern for per capita income. Essentially, in the top density decile, households are smaller and so per capita income rises even as median household income stays the same.<sup>6</sup>

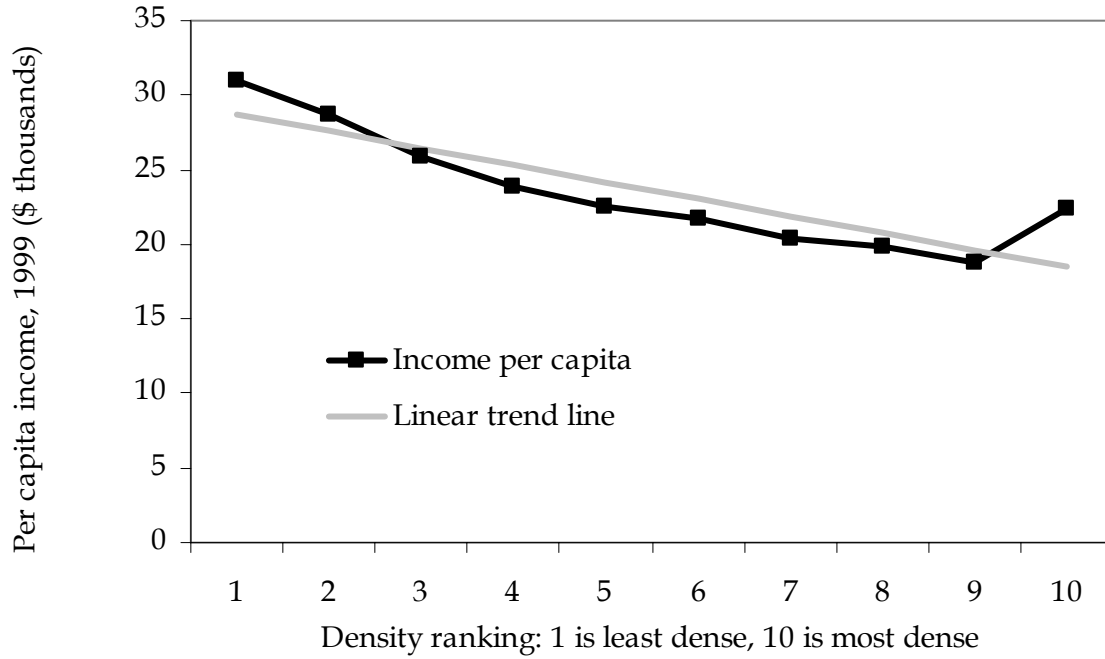
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<sup>4</sup> See also Boarnet and Haughwout (2000) for empirical evidence that highway investments shift economic activity within a region.

<sup>5</sup> Analysis based on authors' calculations from 2000 census data and residential land use maps of California. Although census tract boundaries are not the same as neighborhood boundaries, tracts are the lowest level of geography available statewide for measurements of population, income, and race.

<sup>6</sup> The pattern is also driven by the fact that we are controlling for the degree of residential land in the areas under consideration. As compared to calculating density based on all land in an area — in which the divisor could include stores, roads, parks, farms, and even forests — this calculation of density leads to a higher density ranking for some higher-income and less minority coastal areas (many of which are also filled with commercial uses) as well as a higher ranking for certain suburban neighborhoods which may be on the edges of open space but are themselves filled with housing. Nonetheless, simply using land area (including non-residential uses) as the divisor yields very similar patterns, albeit patterns that are more monotonic in declines in the share white and in income as we move from less to more dense. The differences in the patterns yielded by controlling and not controlling for the degree of residential land also shrink if we shift to using five rather than ten categories.

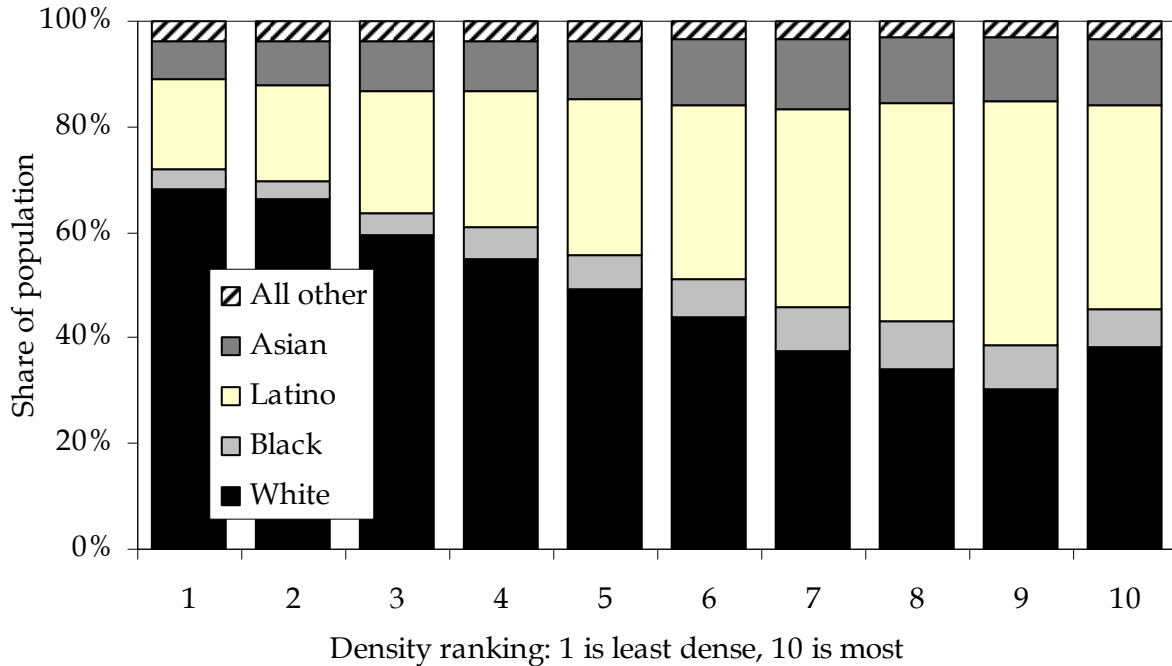
**Figure 2**  
**Neighborhood Density and Income in California, 2000**



SOURCE: Authors' calculations from 2000 census data.

NOTE: Density is measured by persons per square mile of residential land and is divided into deciles.

**Figure 3**  
**Neighborhood Density and Racial and Ethnic Make-up in California, 2000**



SOURCE: Authors' calculations from 2000 census data.

NOTE: Density is measured by persons per square mile of residential land and is divided into deciles.

In light of this pattern, many analysts have concluded that, on balance, suburbanization has worsened social equity (Orfield, 1997, 2002). Investments in highway infrastructure and other public policies have contributed to a “spatial mismatch” between urban areas with high concentrations of low-income and minority residents and outlying areas with strong job growth (Wilson, 1987; Kain, 1992). In the California context, Raphael (1997), for example, shows that African American males in the San Francisco Bay Area tend to live in areas with weak or negative employment growth and that differential access to employment explains up to 50 percent of the neighborhood employment rate differences between white and African American youths. Similarly, Pastor and Marcelli (2000) gauge the difference between a neighborhood’s skill base and the educational requirements of proximate employment for Los Angeles County and find a downward effect on wages for full-time male workers, especially African-Americans.

One infrastructure-based approach to bridging the spatial divide is to expand transit routes from central cities to suburbs. The federal Job Access Reverse Commute (JARC) program was established in 1998 to address the transportation challenges of low-income workers including reverse commutes from cities to suburbs. The JARC program has not been comprehensively evaluated (Multisystems, 2003), but research for California finds that

improving job accessibility for transit users significantly augments the employment prospects of low-skill workers without cars in San Francisco and Los Angeles (Kawabata, 2002; see also Blumenberg, 2002).

Another approach to improving opportunities in central cities is to promote economic development in low-income communities. Infrastructure investments could play a role in attracting employers, for example, by providing better road conditions and transit for the movement of goods, workers, and consumers (California Department of Transportation, 2003). Improved schools and open space infrastructure could help attract and retain higher-income families which, in turn, might promote further economic development.<sup>7</sup> One concern with development in central cities is that it not further exacerbate pollution and other adverse environmental conditions. We return to this concern in a later section on environmental justice. Another concern with this approach is that a wave of gentrification could displace current residents (Wyly and Hammell, 2000). Thus, refocusing investment on central cities in an equitable fashion might also require policies and tools to limit or ameliorate the effects of displacement. Such anti-displacement policies include assisting community development corporations, creating collective land trusts, temporary rent control, and individual development accounts (Kennedy and Leonard, 2001).<sup>8</sup> “First source agreements” by firms agreeing to hire neighborhood residents and job training programs can help ensure that existing residents benefit from newly created jobs. With these and other protections in place, public and private investment in central city neighborhoods may tend to promote asset acquisition and opportunity.

The expanding trade infrastructure in Los Angeles is an example of one policy area in which equity considerations have become an element in arguments both for and against certain kinds of public investment. Proponents, for example, argue that improving the trade and logistics infrastructure will create jobs that are well suited to the educational and skill levels of Southern California’s existing labor force. Traditionally, that labor force has relied on manufacturing jobs, but that sector has been shrinking rapidly since 1990 (Los Angeles County Economic Development Corp., 2004). The Southern California Association of Governments (SCAG) has suggested that trade-related logistics can fill the gap: Training is often provided on the job, starting wages are relatively high, and upward progress is possible. By contrast, some have argued that furthering trade in Southern California could have adverse consequences for mid-wage manufacturing employment because of crowded roads and rails and increased foreign competition for local firms (Haveman and Hummels, 2004); critics have also pointed to the environmental consequences of increased truck traffic.<sup>9</sup> Pastor (2001) suggests a way to

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<sup>7</sup> Through the Silicon Valley Manufacturing Group, civic and business leaders have been willing to work for higher taxes in order to expand transportation and improve housing opportunities, as well to partner with community groups to facilitate the zoning and density necessary for affordable housing (Pastor et al. 2000, p. 136).

<sup>8</sup> See McCulloch (2001) for a discussion of “resident ownership mechanisms.”

<sup>9</sup> We focus here on the equity issues associated with job creation. The development of trade infrastructure in the Los Angeles area is rich with other complex equity issues including the environmental costs on low-income neighborhoods of increased air pollution from diesel emissions and increased noise pollution from airport expansions. In addition, Haveman and Hummels (2004) note an important interstate equity concern: These investments may benefit the entire country by lowering the

resolve the dilemmas on the job side, noting that local manufacturing might be able to become part of the “trade train” through investments in infrastructure such as local rail connections known as “spur lines” and other means of facilitating local transfers, thus combining the promotion of mid-wage jobs in both local industry and logistics.

Which of all these arguments is correct is a matter of research and debate; our point here is simply that there are complex equity consequences, intended and unintended, of infrastructure investments, and these can and should be taken into account. After all, infrastructure is a public choice that helps structure the nature of educational and employment opportunities in a region and these critical decisions should be made against a backdrop of increasing income inequality and with equity in mind.

## **Infrastructure Equity, Growth, and Fiscal Efficiency**

The notion of strengthening infrastructure investments in the neediest communities and in low-income, central city communities may raise concerns about whether these investments will come at the expense of other communities. Our second rationale for these investments is that such a trade-off is not always present; indeed equitable investment may, in some circumstance, actually promote broader economic growth and fiscal efficiency.

The evidence for this claim comes from a variety of emerging streams in the research literature. For example, comparative studies of economic growth across nations have found that countries with lower income inequality tend to have more economic growth (see Thorbecke and Charumilind, 2002, for a review of this research).<sup>10</sup> Research comparing regions across the United States has found that reducing gaps in the distribution of income is associated with improvements in regional growth (Voith, 1998; Pastor et al., 2000). This regional research also concludes that investments that lead to reduced poverty in central cities may actually promote region-wide growth, thus providing broad benefits.<sup>11</sup> Other work on U.S. regions indicates that the stability of city finances affects the economic well-being of surrounding areas (Haughwout and Inman, 2002).

The potential for broad economic gains from improving conditions in central cities has been of recent interest to private business leaders. Johnson (2002) maintains that enlightened self-interest has driven business leaders to tackle inner city problems and that doing so has

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cost of trade, but the pollution costs from increased traffic and commerce will, in large part, be borne locally.

<sup>10</sup>See also Birdsall and Londoño (1997) and Alesina and Drazen (1991). Thorbecke and Charumilind (2002) and Alesina and Drazen (1991) show that more equitable nations invest more in education. While we do not have specific evidence on this at the regional level within the United States, Pastor et al. (2000) use case studies to suggest a connection between regional commitments to equity and regional commitments to an educational system that effectively serves a broad range of the public.

<sup>11</sup> See also Ledebur and Barnes (1993) and Savitch et al. (1993). Similar to densely populated neighborhoods, central cities have a higher proportion of non-white residents (61 percent compared to 47 percent in other areas) and a higher proportion of low-income residents (36 percent compared to 28 percent in other areas). These statistics are based on the authors’ calculations from 2000 census data. Low-income is defined as income less than twice the federal poverty threshold. The percentages given underestimate the true differences between central cities and other areas because some central city residents are not identified as such in the data and are thus included in “other areas.”

become a strategic imperative in the global marketplace.<sup>12</sup> In Charlotte, for example, business leaders focused on highway, rail, and airport infrastructure that would position their city as the anchor of a regional distribution system and ensure that the urban core would not hollow out; as part of this, they launched an innovative focused effort to alleviate poverty in the city's lowest-income neighborhoods (Pastor et al., 2000). The Bay Area Council, a leading business group in the San Francisco area, has identified poverty as one of the top five challenges to doing business in that region. The council has worked with environmental and social equity advocates under the umbrella of the Bay Area Alliance for Sustainable Development. It has also taken a lead on the Community Capital Investment Initiative, an effort to encourage business investment in impoverished communities in the Bay Area – partly to develop under-recognized market opportunities but also because of a sense that full inclusion of lower-income workers and families in the regional economy will actually improve the business climate.

MetroBusinessNet is an alliance of business-based civic collaboratives, including the Bay Area Council as well as similar organizations in Chicago, Washington, St. Louis, and Austin. The collaborative supports more equitable strategies in order to improve economic outcomes for the private sector. Some of these groups, like the ones in St. Louis and Austin, are following the Bay Area lead with programs to steer investment to neglected lower-income areas. In Chicago, broader policy has been the focus: Chicago Metropolis 2020 has argued that inequity and the desire to separate by race and income have resulted in a costly jobs-housing mismatch and that the remedy is for business to lobby for affordable housing near transit – a strategy that implicitly favors lower-income areas (FutureWorks, 2003, 2004).

Another line of research studies the advantages of investing in densely populated areas – sometimes described as a form of “smart growth.” Investments in dense areas are likely to be equity-enhancing because low-income families tend to live in dense communities (see Figures 2 and 3). For example, scenario models for the San Francisco Bay Area find that smart growth strategies of focusing investments in dense areas yield an increase in housing and jobs in impoverished communities (Association of Bay Area Governments, 2002).

Proponents of the sort of smart growth investments that could improve equity also suggest that such investments could have positive impacts on fiscal efficiency. Muro and Puentes (2004) argue that a more compact style of development over the period 2000-2025 could reduce road-building costs at the national level by nearly 12 percent, save 6 percent on water and sewer spending, and save 4 percent on annual spending for operations and service. For these and other reasons, Michigan Governor Jennifer Granholm has created a statewide leadership council on land use, arguing that the current approach to infrastructure investment supports sprawl and impedes the efficient provision of public services.

An emerging literature is considering whether smart growth investments will foster economic growth. Conceptually, the hypothesis is that with dense development, businesses are located closer to consumers and closer to each other, which will lead to gains from greater specialization, division of labor, and lower input prices. Several studies suggest that such “economies of agglomeration” tend to support aggregate growth (Boarnet, 1998; Haughwout, 1999; but see also Garreau, 1991). Haughwout (2001) argues that research that looks for a

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<sup>12</sup> See also Porter (1995), Weissbourd (1999), and Wilkerson (2003) on the gains from business opportunities in the central cities.



relationship between state-sponsored investment in infrastructure and state growth fails to account for the more direct impact of these investments on the local sub-state region. Taking this into account, decentralized or sprawl-style investments may be problematic precisely because they tend to forgo the agglomeration opportunities that would be available from investing in dense neighborhoods and can therefore have a negative impact on state-level growth.<sup>13</sup> Nelson and Peterman (2000) conclude that regions that employ growth management techniques saw a gain in their share of income relative to other regions, controlling for other factors that affect growth.<sup>14</sup>

But if more compact growth and central city development is more efficient than urban sprawl, why do more metropolitan regions not choose it? One answer lies in the split between private and public costs. Whereas compact development might be better for the metropolitan region or state as a whole, building in outlying areas is often easier and more profitable for developers. Reversing this incentive structure has been the logic behind Maryland's smart growth initiative, which seeks to reduce or eliminate state infrastructure spending outside designated "Priority Funding Areas."<sup>15</sup> A newly adopted proposal in Contra Costa County also restricts funding for new roads to areas within an existing urban area.

Taken together, these lines of research highlight the potential for broad economic advantages from equitable investments. Some of the research demonstrates a correlation between equitable approaches and more sustainable economic growth. Work evaluating smart growth has suggested potential fiscal and other advantages; whereas the research on smart-growth-type investments in dense areas has not generally been conceived within an equity framework, given the demographic profiles of California's dense areas, these sorts of infrastructure investments could also promote equity for low-income and minority residents. Using equity as one yardstick by which to assess infrastructure investment can be consistent with the goals of economic development and fiscal health.

## Equity and Political Consensus

A third rationale for promoting equity in infrastructure investments is that equity may help build the political consensus required for large public projects. Basic political logic suggests that investments with broad benefits have more popular appeal. Beyond the simple logic of broad benefits, perceived inequities in the costs and benefits of public investments may erode public support, with literature from the field of experimental economics suggesting that potential deals, even ones with mutual gains, can be derailed by perceptions of extreme inequity (Guth, 1988). Because the empirical work around the potential role for equity in

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<sup>13</sup> See also Ciccone and Hall (1996) on the economic benefits of density and Cervero (2000) on the gains from more compact cities, including in the San Francisco Bay Area. See also Anthony (2004) on how effective state-level growth management regulations are on reducing sprawl; the basic answer is that they do tend to lead to improvements in density (actually less reduction in density which seems to be a general trend); while the effects are not present in a multivariate regression, the use of zoning to protect agricultural lands, a key strategy in the smart growth toolbox, is very significant.

<sup>14</sup> The results are from a regression analysis of 192 mid-size metropolitan areas, 26 of which employed some form of growth management.

<sup>15</sup> Because of opposition by Maryland's counties to losing local control, there are loopholes that allow local authorities to designate broad swaths of their territory as "priority." See Gurwitt (1999).

promoting political consensus is still in its infancy, we illustrate our point with three case studies from Southern California: the Nueva Azalea power plant, the Alameda Corridor, and the LAX expansion

In 2000, California's energy crisis created considerable pressure to expand the power grid quickly. Sunlaw Energy approached the city of South Gate with plans to build a natural-gas-powered power plant, poetically named Nueva Azalea. To assuage fears about air pollution, the company promised to use a new pollution-control system that had been deployed only in mini-generators. Because this was to be the first test of this technology at a larger scale, many environmentalists supported the project, as did the county's central labor council. The combined support of environmentalists, labor unions, and business interests seemed to make the project a political as well as an economic winner.

Some community members and city leaders of South Gate, however, were less enthusiastic. They argued that a new plant, no matter how clean, was too large a burden in a community that already hosted numerous pollution-emitting facilities as well as heavy truck traffic from both its own industrial sites and a nearby freeway. Eager to move forward, Sunlaw Energy proposed a citywide referendum and underwrote a campaign that included ads, community picnics, and a float in the city's Christmas parade. In the end, however, roughly two out of three city voters opposed the project, and the company withdrew its plans (Martin, 2001a, 2001b).

Why was the plant defeated? The overriding issue for voters was equity. They were persuaded that the solution to a general problem—namely, a statewide shortage of electricity—would impose disproportionate costs on their community. Indeed, they rejected what might have been a win-win outcome, as the plan's failure left in place a truck terminal and its associated diesel emissions. Still, the perceived sense of inequity drove both public sentiment and eventually decisionmaking.

In contrast to the Nueva Azalea case, the development of the Alameda Corridor shows how incorporating community concerns facilitated progress on public infrastructure and secured a broader distribution of its benefits. Originally conceived in the 1980s, the Alameda Corridor is a high-speed, below-grade rail line designed to transport goods from the Los Angeles ports to transfer stations and then to consumers in the rest of the country. Proponents argued that the project would have long-term positive environmental impacts in poorer areas of the Los Angeles region, primarily because rail traffic was causing truck delays at nearly 200 grade crossings and thereby increasing air pollution (Erie, 2004, p. 151).

However, the project raised equity issues that focused mostly on job creation. The project was of particular interest because the corridor ran through the "rust belt" area of Los Angeles, whose shrinking manufacturing base had worsened employment prospects for low- and mid-skilled workers. Moreover, those worsening prospects were associated, both statistically and in the popular mind, with the international trade that the corridor was meant to facilitate (Pastor, 2001). Proponents predicted that the investment would generate 10,000 construction jobs and at least 70,000 new jobs throughout the United States in trade-related industries, but many officials in the cities adjoining the corridor were concerned that their constituents would not fill those jobs. They filed a 1995 lawsuit centering on environmental and other concerns, but the underlying tensions arose because the Alameda Corridor project

had, in the words of UCLA planning professor Goetz Wolff, “no explicit linkages between the construction of the corridor and actual job creation and business development in the corridor cities” (Ohland, 1995).<sup>16</sup>

The Alameda Corridor Transportation Authority sought to defuse the tensions by working with developers, municipalities, and community groups to allocate 30 percent of the total hours on the project to new hires. One such community group was the Alameda Corridor Jobs Coalition, a group that was initially spearheaded by a church-based community development corporation and eventually included 60 community and labor organizations spanning 11 cities. Once demands were heard and negotiated, conflicts gave rise to consent and collaboration, including a key role for the community organizations in terms of recruitment of residents for the new training and employment programs.

In the end, the project was completed on time, under budget, and with an impressive level of community and municipal support. As noted earlier, SCAG is now arguing for expanded trade infrastructure, not only because it will facilitate growth but also because it will create jobs that are well suited to the region’s workforce. Again, there are reasonable disputes as to whether the SCAG strategy will worsen environmental disparities or come at the cost of other manufacturing jobs, but the fact that SCAG leaders are now explicitly including equity considerations when proposing new infrastructure suggests that lessons around the benefits of community inclusion have been incorporated into their thinking.

The lessons also seem to have been applied in the recent agreement between a coalition of community groups and Los Angeles World Airports (LAWA), the government entity that operates LAX. Proposed expansion plans at LAX have been the subject of significant conflict for years, with neighboring cities worried about additional noise and air pollution, and nearby low-income minority residents critical of the fact that they were likely to receive the environmental burden without necessarily benefiting from any increases in airport employment.

Seeking to put the controversy behind and move forward with the project, LAWA entered into negotiations with a coalition of 25 community groups, including environmental justice and neighborhood groups that had lobbied hard against earlier expansion proposals. Led by several highly capable organizations on the community side (a fact which points to the need for technical capacity in the community, as we stressed earlier), LAWA and the coalition agreed to a \$500 million community benefits package that includes increased funding for soundproofing the homes of local residents, “first source” hiring for local residents and a \$15 million fund for job training, new business opportunities for minority and local businesses, improved soundproofing and ventilation at local schools, and commitments to reduce emissions. The community benefits deal helped pave the way for approval by the Los Angeles City Council of the \$11 billion expansion plan.

One leader from Inglewood, a city adjoining LAX, said, “the coalition gave standing and a seat at the table for people who for years have been complaining about the negative impacts of the airport and have opposed past airport-expansion plans.” Meanwhile, airport authorities are happy, with one LAWA official noting, “We feel very good about the agreement . . . Here we

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<sup>16</sup>The suit was dismissed in October 1996, a decision which was allowed to stand by the State Supreme Court.

were, a team of airport personnel and typical opponents coming together with an approach, rather than waiting for litigation and the same groups appearing in court.”<sup>17</sup> Our point is simple: paying attention to issues of fairness on both economic and environmental sides can help forge the political consensus necessary to move large infrastructure projects forward.

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<sup>17</sup> Both quotes in this paragraph were reported in Muto (2004).

# Equity Issues in California's Large Infrastructure Sectors

In this chapter, we turn to equity issues in the state's largest infrastructure sectors: transportation, K-12 school facilities, higher education, and water.<sup>18</sup> Together these four areas constitute 86 percent of state infrastructure planning under California's most recent five year plan (from 2003).<sup>19</sup> In addition, we discuss environmental justice issues because of their importance as an infrastructure equity concern. We describe equity-related policies within each infrastructure sector and document major equity concerns, relying primarily on existing studies. We do not provide a comprehensive analysis of equity measures in each sector. Such analysis is highly valuable and might allow for measurement of the degree of progress toward equity, comparisons between regions and across states, and broad evaluation of specific policies intended to improve equity. However, in light of the paucity of available data and the breadth of equity issues that we seek to address, our discussion is based on equity measurements and concerns raised by existing studies.

## Transportation

We begin with transportation, a key infrastructure investment that has shaped economic development and helps determine economic opportunities. The policy context for transportation has been formed by a series of federal policies mandating equitable investments. Title VI of the 1964 Civil Rights Act requires that the Federal Highway Administration and the Federal Transit Administration ensure that any programs and agencies that receive their financial assistance do not exclude, deny benefits, or discriminate on the basis of race, color, national origin, age, sex, disability, or religion. The Federal-Aid Highway Act of 1970 requires equitable treatment of communities affected by transportation projects including effects on residences, businesses, the tax base, and other resources. In 1994, President Clinton signed an executive order for environmental justice mandating that federal agencies address "disproportionately high and adverse human health or environmental effects ... on minority populations and low-income populations." In 1997, the U.S. Department of Transportation issued an order explicitly extending the environmental justice issues beyond health and environment to include community economic vitality, employment effects, and displacement.

All state and metropolitan transportation agencies receive federal funding and are bound by these federal mandates. Studies by these agencies as well as independent researchers generally find that public transit service tends to be better in low-income and minority neighborhoods (Metropolitan Transportation Commission (MTC), 2001a; Center for Urban Transportation Research, 1998). One reason for this is that these groups are more likely to live in densely populated urban areas, which lend themselves to efficient public transit. A fuller analysis of equity concerns would compare transit service between high-income and low-income neighborhoods that were similarly situated in dense, urban areas. Furthermore, analysis should consider whether transit service is sufficient to meet the needs of low-income

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<sup>18</sup> For an assessment of infrastructure needs and financing, see Hanak and Barbour (2005). For a discussion of public perception of infrastructure equity, see the appendix and Baldassare and Cohen (2005).

<sup>19</sup> The state infrastructure plan for 2004 has been deferred one year by the current administration in order to allow for a comprehensive review.

neighborhoods whose residents have limited access to vehicles. For example, a recent study found limited transit access to health facilities and supermarkets for low-income communities in the San Francisco Bay Area (Transportation and Land Use Coalition of the Bay Area et al., 2002; see also Bailey, 2004).<sup>20</sup>

In the area of public transit, an important equity concern is whether expensive public investments serve high- and low-income communities equally. Two commuter rail projects – the extension of Bay Area Rapid Transit to the San Francisco Airport and the extension of the Metro Gold Line in Los Angeles – have absorbed a large portion of federal transit money coming to California. For low-wage transit riders who do not commute from outlying suburbs to a central business district, bus systems are often more useful than commuter rail. For example, the NAACP Legal Defense Fund filed a high-profile civil rights lawsuit against Los Angeles County’s Metropolitan Transportation Authority (MTA) on behalf of a group called the Bus Riders’ Union (BRU). The BRU argued that rail commuters, representing only 6 percent of the overall public transit ridership, were receiving 70 percent of the MTA’s spending (Pastor et al., 2000, p. 61). Some have argued that investments in commuter rail can actually increase the time and money costs of existing transit users when bus lines are eliminated (Garrett and Taylor, 1999; DeLong, 1998). On the other hand, commuter rail can also have positive equity impacts; for example, the Pasadena to Los Angeles Metro Gold Line, while criticized by some for diverting resources from bus services, actually runs through the heavily immigrant neighborhood of Highland Park and offers residents convenient access to downtown employment and retail in the downtowns of both Pasadena and Los Angeles. In addition, planners have tried to spur nearby development, utilizing the rail as a potential engine for local economic growth.

Current policy tends to focus on an equitable distribution of transportation funds across regions, such that suburban transit operators have been highly favored on a per capita ridership basis (Taylor, 1991, 1992; National Research Council, 1991). Recent efforts to use “system performance measurement” techniques that prioritize transit needs may be more likely to lead to more equitable transit investments. Additionally, transit-oriented development strategies, such as MTC’s Transportation for Livable Communities program, support mixed-used and affordable housing developments such as the Fruitvale station in Oakland – an example of how a transit hub can be turned into a local development opportunity.

The tradeoff between highway and public transit investments also raises equity concerns (Sanchez et al., 2003). Because higher-income people are more likely to own and drive cars, the concern is that highway investments disproportionately serve their needs.<sup>21</sup> Furthermore, the general emphasis on driving has disproportionately adverse effects on low-income and minority communities. Urban highways are more likely to be located in low-income residential neighborhoods and vehicle emissions are a major source of ground-level ozone that can cause asthma. Indeed, inner city children have the highest rates for asthma prevalence, hospitalization, and mortality (Centers for Disease Control and Prevention, 1995).

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<sup>20</sup> In addition to transit policies, some programs promote accessibility through car ownership (see Goldberg, 2001).

<sup>21</sup> The highway versus transit trade-off is more complex than discussed here because highways move goods as well as people. Indeed, vehicle miles traveled is expected to grow faster for trucks than for autos.

On the finance side, federal and state fuel taxes collected at the pump are a major source of transportation funding for highways, roads, and transit (Wachs, 2003). Some have argued that fuel taxes are regressive because low-income drivers pay a higher share of income per mile driven. However, low-income people tend to drive few miles, and fuel taxes make up a lower share of household expenditures for low-income families (Poterba, 1991).<sup>22</sup> Local sales taxes, a major source of funding for transportation, are regressive because low-income families spend a higher share of their income on taxed items. Other user fees, such as toll roads, also create equity concerns because they typically do not consider users' ability to pay and are thus likely to be regressive and potentially limit access. The Legislative Analyst's Office (1998) suggests measures for subsidizing low-income drivers. On the other hand, the benefits of toll roads may be widespread including less congestion on traditional roads as well as potential for tolls to be used for general road improvements.

## **School Facilities**

Although equitable educational investments are critical for increasing economic opportunities for disadvantaged populations, California schools that serve low-income, African American, and Latino students tend to have lower-quality resources, including more uncertified teachers and curricula that offer fewer college preparatory courses per student (Reed, 2005; Betts et al., 2000). The evidence on school facilities shows a similar pattern. Overall, 17 percent of California public school students are in "critically overcrowded" schools, which the California Department of Education (CDE) defines as those with more than 90 students per usable acre for high schools and middle schools or more than 115 students for elementary schools. About 5 percent of white students are enrolled in such schools whereas the comparable figure for African American, Latino, and low-income students is about 25 percent (Table 1). The problem is particularly acute in the Los Angeles Unified School District, where almost 80 percent of students are in critically overcrowded schools.

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<sup>22</sup> See Chapter 5 for a discussion of measurement issues related to the equity of transportation financing.

**Table 1**  
**Critically Overcrowded and Multitrack School Facilities in California, 2003**

	Percent in Critically Overcrowded Schools	Percent in Critically Overcrowded or Multitrack Schools
All	17	24
White	5	11
Latino	25	34
Filipino	14	20
Other Asian	14	19
African American	24	34
Pacific Islander	12	20
American Indian	6	12
Multirace	6	12
Students on meal program	25	35
Los Angeles Unified	79	80

SOURCE: Authors' calculations from data provided by the California Department of Education.

As a measure of overcrowding, number of students per usable acre is not ideal because *classroom* crowding can occur in schools with acres devoted to fields or large common areas. However, comprehensive data on classroom overcrowding are not available for California schools. As an alternative, we examined the use of multitrack scheduling, which allows schools to enroll more students by staggering student vacations throughout the year. Statewide, 24 percent of students are in schools that are either critically overcrowded or have multitrack schedules. Among white students, the share is 11 percent; the comparable figure for Latino, African American, and low-income students is close to 35 percent.<sup>23</sup>

Schools also differ in the quality and upkeep of facilities as well as in the provision of specific facilities, including computers, Internet access, libraries, laboratories and other specialized classrooms (e.g., woodshop), and sports and exercise facilities. Although the CDE has data for some of these facilities, such as computer availability, there are no systematic data that would support a comprehensive equity study of school facilities.

The plaintiffs in *Williams vs. California*, a class-action lawsuit filed in San Francisco Superior Court in May 2000, argued that schools in low-income communities and communities of color are more likely to have extremely hot or cold classrooms, unkempt or inadequate bathroom facilities, and unrepaired and hazardous facilities such as broken windows, vermin infestations, leaky roofs, or mold. In settling the case in August 2004, the state agreed to

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<sup>23</sup> For further discussion of school overcrowding including issues related to student busing and portable facilities as well as information on the distribution of recent state bonds for school facilities, see PolicyLink and MALDEF (2005).



funding for emergency repairs and a facilities assessment for schools with low academic performance as well as the development of further facilities guidelines, assessments, and funds.

Local bonds remain a major source of school facilities funding, and under this system, a district with high property values can raise substantially more revenue than a low-wealth district, even with the same tax rate. With a 0.06 percent tax rate (the maximum allowed with any single ballot measure), school districts with rich property tax bases can raise an average of \$1,340 per student, whereas the lowest-wealth districts can raise an average of \$106 per student (Legislative Analyst's Office, 2001).<sup>24</sup> To address this, the Legislative Analyst's Office (LAO) has suggested an "ability-to-pay adjustment program" whereby the state would make up the difference between a district's maximum potential revenue (calculated from the property tax base) and a set standard for local financing of school capital.

Recent state bonds providing \$21.4 billion for K-12 schools have several equitable aspects. First, they are paid back through California's progressive state taxes. Second, they spread out the payment over future populations, which will also benefit from the investment, and thereby promote intergenerational equity. Third, school districts can reduce or eliminate the need for a local contribution, which most state bonds require, based on hardship conditions. Fourth, the bonds set aside over \$4 billion to target critically overcrowded schools, allowing for preliminary apportionment in advance of meeting all state regulations. Preliminary apportionment, as opposed to "first come, first served" allocation, improves equity for schools in urban areas because of the lengthy time required to find suitable land for new construction.

Despite these virtues, there remains concern that the state bond funds will not be allocated to address the most critical school facilities needs. For example, PolicyLink and MALDEF (2005) estimate that addressing current overcrowding would cost as much as \$18 billion; substantially more than the current allocation of \$4.1 billion. In addition to overcrowding, schools need to address repair, renovation, and modernization issues for which there is no system in place to assess priorities and target school facilities most in need. Almost \$9 billion in state bond revenue is allocated to new school construction related to growth. Many growing districts face substantial facilities challenges, but it is important to ensure that this policy does not put the needs of "projected" neighborhoods yet to materialize above those of students already in schools with inadequate facilities. In addition, almost \$5 billion is allocated to projects that were already in the pipeline in 2002 but do not necessarily represent the neediest schools.

Perhaps the most fundamental barrier to an equitable distribution of school bond funds is the lack of a comprehensive school facilities assessment. The state simply does not have the information to compare schools and identify the greatest facility needs. Several recent reports have called for a statewide inventory and prioritization of need including the Legislative Analysts' Office (2001), the Little Hoover Commission (2000), the Joint Legislative Committee to Develop a Master Plan for Education (2002), and PolicyLink and MALDEF (2005). It is too early to tell the extent to which these issues will be addressed by new guidelines, assessments, reporting, and complaint procedures put in place by the Williams settlement.

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<sup>24</sup> See also, Brunner and Rueben (2001).

## Higher Education

With economic forecasts suggesting that the demand for skilled workers will continue to rise, a college education is especially important to economic opportunities in California's labor market (Neumark, 2005). In addition to preparing a more qualified workforce, increased educational attainment can reduce income gaps, especially for Latinos, who are substantially less likely than other racial and ethnic groups in California to advance into higher education. Over the next decade, higher education facilities must address a backlog of deferred maintenance as well as expand to accommodate growing enrollment. As the children of baby boomers reach college age and college participation rates continue to improve, this will produce a "Tidal Wave II" of new college enrollments.

Recent state bond measures provide almost \$4 billion for higher education facilities. The situation for California Community Colleges (CCC) has improved dramatically since the passage of Proposition 39, which decreased the supermajority requirement for local school bonds from two-thirds to 55 percent. Since that time, voters have passed about \$9.1 billion in local bonds for CCC. One equity issue is whether these funds are available to the community colleges with the greatest facilities needs. About half of community college districts have passed local bonds since 2000, but we know of no analysis that compares bond financing with facility needs at the local level. If low-wealth districts are indeed less able to raise adequate funds through local bonds, the state should consider prioritizing these districts in the allocation of state bond funds.

Several strategies look beyond simply increasing funding to focus on using existing capacity more efficiently. One option is to increase the use of current facilities during summer (Legislative Analyst's Office, 1999). If adopted, such a policy must ensure that low-income students who work during summers are not penalized. Furthermore, financial aid programs would need to consider the greater per year expenses and the diminished work opportunities and perhaps provide incentives for accelerated studies. Another strategy is to encourage students to move through the system faster (Dowall and Whittington, 2003). To encourage students to finish within four years, the University of California (UC) system could follow the University of North Carolina by increasing fees for extended enrollment.<sup>25</sup> However, these additional fees may be disproportionately borne by low-income students who work while attending university as well as by those who require remedial coursework. A scholarship linked to degree progress could relieve the need to work as well as promote four-year graduation.

Distance learning is another strategy that helps relieve facilities constraints. The term refers to courses that can be taken without traveling to traditional classrooms, usually by using the Internet. The California State University (CSU) system in particular has been moving toward distance learning approaches. Distance learning increases accessibility by allowing students to complete their coursework conveniently, but concerns about the quality of instruction remain. Although many distance learning courses offer real-time interaction with

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<sup>25</sup> To the extent that availability of required courses contributes to delayed graduation, simply providing fee incentives is not likely to fully address the problem. Mentoring and advising may also be key to moving students more efficiently and quickly through programs.

instructors and other students, they do not compare well with traditional courses in this area. In addition, low-income and minority students in California may have less access to the technology (e.g., a home computer) as well as less experience with the technology (Fairlie, 2003).

Another means of increasing the efficiency of the higher education system is to rely more heavily on the CCCs for lower-division instruction. This strategy would reduce per student facility and operating costs. One concern with this approach is whether it would adversely affect the traditional CCC student body, which has a relatively higher proportion of low-income, Latino, and African American students. The CCCs have a broad mission to provide workforce training, vocational or occupational education, and remedial education. From an equity perspective, it is important that an increased role for CCCs in lower-division instruction not put at risk these other functions. In addition, there are concerns about whether the CCC is adequately successful in its transfer function (California Postsecondary Education Commission, 2002; Shulock and Moore, 2004). If the transfer function is not successful, it creates a challenge to the Master Plan's promise of access and affordability in postsecondary education.

A final equity issue concerns the location of higher education institutions. A local college is likely to promote educational attainment in nearby neighborhoods, lead to job growth, and attract educated workers who can facilitate further economic growth. For example, the potential for regional economic development inspired the siting of the next UC campus in Merced (University Committee of Merced, 1997).

To meet the access, quality, and affordability goals of the Master Plan, the state's higher education system must expand. The capital funds for facilities appear to be in place for the next few years, although they may not be available to the neediest CCC districts. In this current period of fiscal crisis, financing operating costs may constitute the major challenge to access to public higher education (Hayward et al., 2004).

## **Water Supply and Quality**

The passage of Proposition 50 in November 2002 authorized the sale of \$3.44 billion in bonds for water-related programs and affirmed a commitment to "provide a safe, clean, affordable, and sufficient water supply." To meet these goals in all communities requires consideration of several equity issues.

A widespread approach to water conservation and pricing is "demand management," whereby consumers face price incentives to reduce water use. Because water is a basic human need, access and affordability are critical. To ensure both, many California water districts use block pricing to keep prices low for the first units consumed by a household and raise prices as consumption increases (Hanak, 2005). Another approach to insuring affordability for basic usage is to offer discounts for low-income or medically needy populations, as found in other utilities.<sup>26</sup> Such lifeline discounts could be creatively combined with block-rate pricing to provide affordability in the context of incentives to save water.

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<sup>26</sup> PG&E has CARE pricing for consumers with high usage rates due to medical needs. Telephone companies offer "lifeline" discounts to low-income households.

Another equity issue concerns the development of water markets, which allocate water to users willing to pay the highest rate.<sup>27</sup> When selling water leads to fallowing land, communities may face job loss, lower sales of services and other goods, and reduced local tax revenue. Because the source communities tend to be in high-poverty, largely Latino, rural regions of the state, these so-called “third party” issues have social equity components. Although there is no comprehensive state policy to mitigate the impact on communities, several recent water deals provide examples of agreements that include earmarked funds to benefit the source communities. Examples include the Palo Verde Irrigation District (selling to the Metropolitan Water District of Southern California) and the Imperial Irrigation District (selling to San Diego).

Legislation passed in 2001, Senate Bill 610 and Senate Bill 221, requires most large development projects to comply with a new set of rules intended to assure that the project will have an adequate water supply. This legislation represents the utilization of infrastructure policy to influence land use and the regional shape of development. SB221 has direct equity components as the requirements are waived for affordable housing and infill developments (developments in or near densely populated areas).

One major issue facing California is drinking water contamination. The most common contaminant identified as exceeding maximum levels was arsenic, which is associated with lung and bladder cancer (California Department of Health Services (DHS), 2004). Problems with arsenic are concentrated in communities that use wells, typically small, rural communities. Although information on the demographics of affected communities is not currently available, small, rural communities tend to have greater shares of low-income and Latino residents.<sup>28</sup> With new federal standards, these communities are faced with expensive arsenic clean-up projects.

For low-income communities, especially those faced with arsenic clean-up or major system upgrades, financing may pose a significant problem. Small communities may be most at risk, especially in the area of wastewater treatment, which is particularly expensive when implemented at a small scale. State and federal programs do offer support for water in low-income communities, however, and the state Revolving Fund gives higher priority for drinking water systems. The U.S. Department of Agriculture provides targeted financial assistance to rural communities for drinking water and wastewater. California also has a small grants program for wastewater systems.

More could be done, however. The Legislative Analyst’s Office (2004) suggests consideration of legislation that would target Proposition 50 bond funding to water systems in disadvantaged communities.<sup>29</sup> In addition to aid for low-income and high-need communities, the federal and state government could offer subsidies directly to rate-payers in low-income households (Congressional Budget Office, 2002). This approach would support low-income

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<sup>27</sup> See Hanak (2003) for analysis of water markets in California.

<sup>28</sup> DHS has funded a study of the demographics of affected communities.

<sup>29</sup> The Legislative Analyst’s Office (2004) recommends that Proposition 50 bond funds be made available to private, for-profit water utilities that serve about 23 percent of the population, including small and low-income communities. This allocation could be made without increasing the profitability of these companies, since their profits are regulated.

households living in communities where most ratepayers could afford higher costs without subsidizing high-income ratepayers in low-income communities.

Community participation and representation in water resource management appear to be particularly poor. In some agricultural areas, landowners alone elect the board members of special water districts (California Senate Local Government Committee, 2003). The Latino Issues Forum (2003) has noted that of 68 regional water quality control board members, only one was Latino and only 11 were minorities. In Rialto, where the poverty rate is 20 percent, the Santa Ana Regional Water Control Board held a closed-door hearing and rescinded its own order to have polluters pay for clean-up of perchlorate, an industrial contaminant. A clean-up settlement has been reached with only one of 30 responsible parties (Jahagirdar, 2003).

Looking toward 2025, California's population growth will continue to increase demand for drinking water and wastewater services. At the same time, the demand for water for environmental purposes is also expected to grow. These demand pressures, combined with the need to address system upgrades and contamination, will force water prices upward. As prices rise, it may become increasingly important to address water affordability for low-income families and small communities.

## **Environmental Justice**

How does California perform on measures of the equitable distribution of the environmental burdens of a modern society? National studies have given mixed answers, with some showing patterns of inequity and others providing little evidence of significant disparity (Anderton et al., 1994a, 1994b; Been, 1995; Bowen, 2001; and Lester et al., 2000). In contrast, California studies consistently find evidence of disparities. For example, one study in Los Angeles County found that African Americans were about 50 percent more likely than whites to be living in neighborhoods directly proximate to hazardous waste treatment storage, transfer, and disposal facilities. Latinos were twice as likely as whites to be living near these facilities. These differences diminished but did not disappear when other factors, such as population density and even local land use, were taken into account (Boer et al., 1997). The disparities appear to be due to disproportionate siting of facilities in minority neighborhoods rather than to the move-in of minorities to neighborhoods that became affordable after facilities were sited (Pastor et al., 2001).<sup>30</sup>

Another study of Southern California found that relative to whites, African Americans were a third more likely and Latinos were twice as likely to be living in a neighborhood with a facility that emits high-priority pollutants listed in the federal Toxic Release Inventory. The racial differences in exposure persisted even when controlling for income, land use, and manufacturing presence (Sadd et al., 1999). Statewide analysis using recent census and environmental data finds that relative to whites, African Americans were one-third more likely and Latinos were two-thirds more likely to be living within one mile of a facility reporting toxic air emissions. Disparities diminished but still persisted when controlling for home-ownership, population density, and whether the community is rural or urban (Pastor et al., 2004b).

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<sup>30</sup> See Chapter 5 for an example of measurement issues for environmental justice for landfills and waste transfer sites.

Some air toxins result from the location of private industries and public facilities, but much of this risk is from vehicular sources, and the implications for freeway expansion are significant. A study of Southern California ranked neighborhoods by cancer risk from all airborne toxics. The authors found that whites made up roughly two-thirds of the population in the least risky third of census tracts, whereas in the riskiest third of tracts, two-thirds of the population was African American, Asian, or Latino (Morello-Frosch et al., 2001). Even after controlling for income differences, African Americans, Latinos, and Asians generally faced a 15 to 25 percent higher risk of cancer from airborne toxics.

Perhaps because of the substantial evidence of environmental disparities in California, the state has recently become a leader in environmental justice legislation.<sup>31</sup> Senate Bill 115, signed into law in 1999, required that the California Environmental Protection Agency (Cal/EPA) and related agencies to administer and enforce programs in a way that "ensures fair treatment." In 2004, Cal EPA Secretary Terry Tamminen (who is currently serving as Governor Schwarzenegger's Cabinet Secretary) announced an action plan to address four priority areas: precautionary approaches to limit adverse environmental impacts, reduction of cumulative health impacts, development of community capacity and public participation, and ensuring environmental justice considerations in the Governor's Environmental Action Plan (California Environmental Protection Agency, 2004). At least seven other pieces of legislation have raised environmental justice concerns, and several focused on landfills and other solid waste facilities (Bonorris, 2004). Other legislation has aimed to ensure that schools are not built too close to freeways and other busy roads, particularly in light of research suggesting a connection between exposure to heavy traffic and respiratory problems, including the triggering of asthma attacks. Caltrans has had an environmental justice policy since 2001 that includes context-sensitive planning to mitigate environmental disparities. New legislation is in the works to require that landfill operators analyze the impacts of their facilities in terms of cumulative risk imposed on nearby communities, at least when considering expansion of current operations.

Environmental justice considerations can be particularly challenging for at least two reasons. First, protecting the environment often means limiting infrastructure and economic investments. In some cases, such as the redesign of roadways to reduce diesel traffic on local streets or the development of "brownfields," the new infrastructure may improve environmental conditions.<sup>32</sup> However, many other cases do involve trade-offs and the imperatives of environmental protection have to be measured against the need to generate the economic benefits. The second challenge is that many projects provide broad regional economic benefits but also cause sharp, localized environmental degradation. In these cases, planners may seek to compensate the community with the creation of new employment opportunities and other economic development. But environmental costs have a high degree of uncertainty and potentially severe personal costs. For example, diesel fumes increase the risk of cancer and respiratory disease, but the probabilities are not well understood and depend on individual

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<sup>31</sup> See Kelly (2003) for a discussion of the momentum for environmental justice in California on both the policy and community side. Federal legislation on environmental justice is described in the discussion of transportation infrastructure.

<sup>32</sup> Of course, brownfields development does not necessarily guarantee equitable outcomes. In Emeryville, for example, the conversion of industrial land to an IKEA store brought employment and housing to an area in need of both but also drew criticism on the grounds that benefits could have been more broadly shared (Greenwich and Hinckle, 2003).

biology as well as actual levels of pollution. In some cases, the harm done by contaminants is not discovered until years later (as was the case with asbestos). The Nueva Azalea plant in South Gate is an illustrative example of a project that was rejected largely on the grounds that it might exacerbate cumulative exposure and worsen the state of environmental inequity, despite a significant amount of promised employment and economic compensation.

In the face of these challenging tradeoffs, ensuring environmental justice may require new strategies. One possibility is to require community participation and engagement in infrastructure decisions when a project is expected to exacerbate existing environmental inequalities. Another possibility is to require a publicly available environmental justice analysis for infrastructure projects. Alternatively, environmental quality could be regulated as a binding constraint rather than traded for economic opportunities.





# Measuring Equity in Infrastructure

When it comes to infrastructure investments, equity cannot be measured with a single, comprehensive index. First, the term “infrastructure” incorporates a broad range of investments, each of which should be separately evaluated (e.g., public transit versus school facilities). Second, even within an infrastructure area, the multiple dimensions of infrastructure equity need to be measured separately. Furthermore, equity can be measured at the individual, neighborhood, city, regional, or more aggregated level. For these reasons, studies of infrastructure equity tend to be limited to a single infrastructure investment and, sometimes, to a single dimension such as access.

In this chapter, we illustrate methods of equity measurement. We organize our discussion around the four broad criteria for evaluating equity of infrastructure investment described in Chapter 2: access, financing, other costs and benefits, and participation. Our goal is to demonstrate that equity assessments of separate dimensions are feasible. When combined across infrastructure areas and multiple dimensions, assessments provide a comprehensive portrait of infrastructure equity. Although “one size fits all” measurement strategies do not work for infrastructure equity, this should not be a deterrent to developing assessments that can form the basis of evaluating the equity impacts of new investments.

## Measuring Equity of Access

Public transit is an area in which there have been many studies of equity of access. Here we describe two common approaches: analysis of service provision and household surveys.<sup>33</sup>

Metropolitan transportation planning agencies are required by federal law to evaluate the equity of transportation plans. To evaluate equity of access, they first determine neighborhoods of interest and then analyze transportation options from those neighborhoods. Neighborhoods of interest include neighborhoods with high concentrations of low-income households and neighborhoods with high concentrations of “minority” households where minority is defined by federal law to include Latinos, African Americans, Asians, and Native Americans. Transportation options include both auto and transit and consider travel time to work and non-work destinations.

*The 2001 Regional Transportation Plan: Equity Analysis and Environmental Justice Report* by the Bay Area Metropolitan Transportation Commission (MTC, 2001a) provides an example of equity of access analysis. The MTC chose 42 target communities based on high poverty (over 30 percent of households below 200 percent of the federal poverty line) or high minority (over 70 percent minority). These communities were compared to the rest of the Bay Area in terms of the number of jobs accessible within 15, 30, and 45 minutes by auto and transit, the travel time to work and non-work, and the transit travel time to major job centers. The MTC evaluates the transportation plan by comparing forecasts of these elements under the plan to forecasts without the plan. The MTC concluded that low-income and minority communities fared as well or better than other communities under the plan.

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<sup>33</sup> Fleissig and Gayk (2003) offer a third approach – considering the equity of access to transportation funding for road maintenance between urban and rural counties in California.

A related study, *Lifeline Transportation Network Report* (MTC, 2001b), identified existing transit routes that originated in low-income neighborhoods with destinations in areas that had high concentrations of essential amenities as well as those that linked to other key regional transit lines. The report concludes that “transit agencies are already providing adequate spatial coverage for low-income communities” with relatively few spatial gaps. The main area of concern is the frequency and schedule of service, including gaps in weekend and night service.

One limitation of service provision analysis is that it typically cannot account for all of the travel needs of a community. For example, the number of jobs within 30 minutes by transit may not be indicative of the number of jobs available for a particular community given the occupations and skills of the residents. Travel needs are based on the location and quality of stores, hospitals and doctors’ offices, schools, and other amenities relative to where people live. For example, it is feasible to map the location of a grocery market and transit access to that market, but it is more difficult to determine the share of local residents who find that market meets their needs. Furthermore, analysis of service provision typically doesn’t take into account whether residents feel transit is safe and reliable and whether the schedules suit their particular needs such as weekend work shifts.

Household surveys are a means of evaluating whether community residents perceive transit to meet their transportation needs. The MTC conducts the Bay Area Transportation Survey primarily to evaluate transportation demand and develop models; however, such surveys can also be used to investigate equity of access issues. For example, the 1995 Nationwide Personal Transportation Survey (NPTS), a large telephone survey of over 60,000 households, collected information on perceived availability and proximity of public transit, transit use, perceptions of transit quality and safety, and transit characteristics such as distance, travel time, waiting time, and transfers.<sup>34</sup> Surveys of this type can be analyzed for low-income or minority groups or with a particular focus on low-income and minority target neighborhoods.

In analysis of transit access, it is important to take into account the role of population density. Public transit is more viable in densely populated areas where a single transit stop can serve a large number of people. Low-income families are more likely to live in high-density areas. In light of this, the finding that low-income people are better served by transit is not particularly surprising. However, transit service is inequitably distributed if low-income neighborhoods have less service when compared to high-income neighborhoods of the same density.

## **Measuring Equity of Finance**

A standard approach to measuring equity of finance is to compare the burden of costs of infrastructure (or expenditures on infrastructure) to family and community resources available. A financing structure is considered “regressive” if low-income families pay a higher share of their income than do high-income families or if low-income communities pay a higher share of their resources than do high-income communities.

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<sup>34</sup> This section draws on Center for Urban Transportation Research (1998).

One example of this type of analysis is study of fuel taxes, collected to pay for highway and road infrastructure. Some have argued that fuel taxes are regressive in that low-income drivers will pay a higher share of income per mile driven. For example, two drivers who drive 15,000 miles annually and have average fuel efficiency will pay state and federal fuel taxes of roughly \$280 per year, which implies a 2.1 percent tax on a full-time worker earning the minimum wage and a 0.3 percent tax on someone earning \$100,000 per year.<sup>35</sup> Alternatively, fuel taxes do not appear to be regressive if we take into account that low-income people tend to purchase less fuel, primarily because they are less likely to own a car and tend to drive less. Poterba (1991) shows that as a share of all expenditures, fuel taxes are lower for low-income people.

Another approach to evaluating the equity of finance is to directly consider the “ability to pay.” Local contributions to infrastructure financing typically come from local sales taxes, local property taxes, or developer fees. For each of these funding sources, analysts can measure the “ability” of the community to generate these revenues. The Legislative Analyst’s Office analysis of school district revenue potential is an example of such a study (Legislative Analyst’s Office, 2001). The LAO used measures of the property tax base in each school district to evaluate the revenue the district could achieve if local bonds were passed at the maximum level.

These two approaches could be combined in a study of the ability of communities to generate revenues through local taxes of a progressive or regressive nature. For example, LAO assumed a “flat tax” on property values (an equal percentage paid by high- and low-value property owners) but could also consider a more progressive tax structure. More importantly, when the local tax revenue is generated through a sales tax, such as for local transportation measures, it is valuable to consider not only the communities’ ability to generate the sales tax but also which residents of the community bear the burden of the sales tax. Sales taxes are typically regressive because low-income families spend a higher proportion of their income on items covered by local sales taxes.

Understanding equity of finance often requires investigating specific tax and financing structures in the context of the larger tax and transfer system. For example, a fuel tax might be considered advantageous because it provides incentives for people to drive fewer miles and forces drivers to incur more of the costs of driving (e.g., road or environmental costs). Equity concerns could be addressed by providing subsidies to offset costs for low-income drivers.

## **Measuring Environmental Justice**

Many infrastructure investments provide additional benefits (such as job creation) or impose additional costs (such as pollution) in the community in which they are located. Analysis of these costs and benefits, particularly on the environmental side, is often based on the geographic location of the infrastructure and the characteristics of proximate communities.

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<sup>35</sup> State and federal fuel taxes in California sum to 50.8 cents per gallon (American Petroleum Institute, 2004). At 27 miles per gallon, 15,000 miles implies gas taxes of \$282. Minimum wage in California is \$6.75, which implies annual earnings of \$13,500 for working 2,000 annual hours.

The Center for Justice, Tolerance, and Community's (2004) analysis of California's landfill and transfer station sites, conducted for the California Integrated Waste Management Board (CIWMB), provides an example of geographic-based measurement. The study first geocoded all active and permitted facilities. Neighborhoods falling within a one mile radius of the facility were assumed to be adversely affected by the facility.<sup>36</sup> Simple comparisons of the characteristics of affected neighborhoods suggest that transfer sites were more common in minority and low-income neighborhoods whereas landfill sites were not more common in these types of neighborhoods.

However, transfer sites tend to be located in urban areas and landfills tend to be located in rural areas. Urban areas tend to have more low-income people and more minorities. Therefore, a proper evaluation of environmental justice needs to consider whether low-income and minority communities are more likely to have these facilities than other communities in the same rural or urban context. Using a modeling framework to control for rural/urban and population density, the study found that transfer stations are indeed more common in low-income and minority neighborhoods. Landfills are more common in minority neighborhoods, but there is no strong relationship between neighborhood income and landfills.

We mention this study not because of any particular concern about landfills but rather to stress that there are relatively straightforward ways for state agencies, like CIWMB, to measure the environmental equity outcomes of their decisions. In conducting such analyses of environmental justice, it is important to include measurement of the particular set of health hazards associated with an infrastructure investment in order to help decisionmakers distinguish among the severity of problems posed by different plans or projects. Additionally, it is not only the location of facilities but also their size or intensity of use that matters for environmental quality. For example, a study of airport expansion plans in Southern California showed that the impact of noise pollution needed to take into account the expanded number of flights and thus the frequency of impact (Pastor and Sadd, 2000).

Another important consideration is whether negative infrastructure is actually sited in minority and low-income neighborhoods or whether the building of the infrastructure later caused land prices to fall and thus encouraged the move-in of lower-income residents. This issue is important because it suggests that even if infrastructure investments take into account environmental equity at the outset, years later the environmental burdens may be disproportionately borne by low-income populations. The few studies that have investigated move-in versus siting issues have found no evidence of a move-in effect and some evidence of disproportionate siting (Been and Gupta, 1997; Oakes, Anderton, and Anderson, 1996; Pastor, Sadd, and Hipp, 2001). Furthermore, this issue can be partially addressed by using a model to control for income -- since the usual move-in story involves the notion of lower-income residents moving in to capture lower housing prices. After taking income into account, if negative environmental impacts are more common in minority neighborhoods, the siting explanation seems more credible than a move-in explanation.

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<sup>36</sup> A one-mile radius has become a standard in environmental justice measurement. "Neighborhoods" were operationalized by using census block groups - the lowest level of geography for publicly available decennial census information.

The field of environmental justice has been moving rapidly on both the policy and research fronts. Increasingly sophisticated mapping programs, advances in spatial statistics,<sup>37</sup> and availability of government-collected data on hazards all make it more feasible to do regular assessment of the environmental equity impacts of particular investments or portfolios of infrastructure spending.

## Measuring Equity of Participation

There are many ways to gauge civic participation such as including participation questions on public opinion surveys, discussing civic participation with focus groups, and evaluating exit polls and voting behavior surveys. However, in planning infrastructure investments, it is important to measure community participation in plans for the specific investment.

The Bay Area MTC has implemented a participation evaluation strategy for community-based transportation planning pilot programs in minority and low-income neighborhoods. The plan calls for documenting results of outreach efforts using meeting attendance, size of mailing lists, number of website visits, number of phone calls received, number of surveys collected, and number of residents interviewed with attention to “participation levels of traditionally under-represented groups” (MTC, 2002).

In addition to the data collection suggested in the MTC strategy, questionnaires or evaluations that focus on the participation experience (as opposed to opinions about the infrastructure plan) can be distributed at meetings and to those accessing a website, phoning a planning agency, or being interviewed about planning options.

There are several additional elements to evaluating participation in planning.<sup>38</sup> In each of these steps, community participation is important for reducing an “us versus them” perception of the relationship between infrastructure planners and community members. First, participation goals should be explicitly set forth for later comparison to measures of participation. These goals should actively seek participation by a diverse group of residents of the community. Specific objectives could include increasing institutional trust, building community capacity, empowering the community, building awareness, and building consensus.

Second, the methods of evaluation should be determined and may include consensus evaluation by participants and/or independent evaluation. Third, a baseline evaluation should be done to set up measures by which later progress can be assessed. Fourth, gauging participation and progress throughout the process as well as setting smaller, short-term goals will allow for identifying strategies that work for increasing participation and adaptation to changing project circumstances. Lastly, the final analysis of participation should be discussed with community members and other stakeholders to ensure that it is consistent with the perceptions of participants.

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<sup>37</sup> See Mennis (2002).

<sup>38</sup> This discussion draws on a report by the Center for Justice, Tolerance, and Community (2004).

Pressure has built in recent years to have increasingly open government processes. The issue now is how to measure progress and, in particular, how to develop metrics that allow us to gauge not just the number of residents involved in a process but the range of participation and the reach of public agencies. The potential for assessing progress in this regard is there, and keeping score on this front will help push policy makers toward engagement with a broader and more representative audience.

# What Will It Take to Improve Equity by 2025

In this chapter, we consider the forces shaping the future of infrastructure equity and the broad policy directions that would promote more equitable investment. In particular, we address five components of equitable infrastructure investment: equity-based infrastructure assessment, equitable funding, community participation, innovative integrated policies, and public will and leadership.

## Equity-Based Infrastructure Assessment

If infrastructure investments are to target the communities with the greatest needs, California must develop a strategy for assessing needs. Since 2002-03, the governor has been required to present a statewide five-year infrastructure plan, but that plan has not been clear on how priorities were implemented within or across departments, and some departments lack the basic data from which to assess needs (Legislative Analyst's Office, 2003b; State of California, 2004). State law clarifies the intent of planning priorities to "promote equity, strengthen the economy, protect the environment, and promote public health and safety in the state" (Assembly Bill 857, Chapter 1016, Statutes of 2002). These priorities were to be implemented with the 2004 five-year infrastructure plan, which was put on hold by the current administration. It remains to be seen how the state plan will promote equity, but substantial infrastructure investment also occurs at the local level, and thus evaluation of priorities would need to go beyond the state plan (Center for the Continuing Study of the California Economy, 1999).

## Equitable Funding

Most infrastructure investment is funded through bonds. Bonds have equitable aspects including that payments are spread over future generations who will be the users of today's new infrastructure. Furthermore, general obligation bonds are paid back through California's progressive state taxes.<sup>39</sup> Recent school bonds further promote equity by prioritizing critically overcrowded schools. However, as the case of schools facilities illustrates, bond funding can be unstable and delayed until problems become acute. In contrast to bonds, sales tax add-ons, such as those used to finance local transportation projects, are regressive because low-income families tend to spend a larger share of their income on taxed items.

User fees have been gaining momentum in California and elsewhere. The advantage of user fees is that a higher burden of the cost of provision is borne by those who use the infrastructure services. However, user fees are sometimes regressive and may create barriers to access to important infrastructure services. For example, substantial growth in transit fares could limit access to jobs, health services, and other amenities for some poor families.<sup>40</sup> In principle, this concern could be addressed by combining higher user fees with expanded

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<sup>39</sup> An interesting feature of bonds and general revenue is that the state income taxes that support these funds are deductible from federal taxes, meaning that the federal government pays close to one-fourth of the total (California Budget Project, 1999). Property taxes are also deductible from federal taxes whereas user fees are not and sales taxes are refundable only for taxpayers not deducting state income taxes.

<sup>40</sup> See Rice (2004) for a discussion of transportation spending by low-income households in California.

subsidies for low-income families. For example, the Legislative Analyst's Office (1998) suggests toll subsidies for low-income drivers. Fee increases for higher education could be combined with increased financial aid, perhaps even reducing the costs for low-income families to below today's levels. However, this approach could also diminish popular support for the subsidy, especially among those who must pay more for the same service. As with user fees, impact fees for new homes pay for infrastructure including sewage lines, roads, and schools, but they also increase the cost of new homes. One strategy to promote equity is to reduce or remove the impact fee for affordable housing projects.

In October 2003, California voters rejected Proposition 53 to create an infrastructure fund from general revenue fund transfers. This initiative would have provided a "reliable and significant source of funds for state infrastructure needs" (Legislative Analyst's Office, 2003a) and it would have required that half of the fund be allocated to local government infrastructure. This type of funding would provide a means of moving forward on the highest-priority projects and of coordinating state and local priorities.

## Community Participation

Developing investments equitably also requires seeking participation in decisionmaking from affected groups. Infrastructure investments inherently involve tough choices about how to allocate resources and how to weigh opportunities and costs that can be hard to quantify. Federal statutes, which apply particularly in the case of transportation because of the high degree of federal funding, require opportunities for community input (U.S. Department of Transportation, 2002). Public involvement is also a part of Caltrans policies and the California Environmental Quality Act.

Because infrastructure planning tends to be a long and technical process, full community participation may entail proactive policies on the part of public agencies, including both innovative research and investments in improving the technical capacities of community groups (Pastor et al., 2004a, O'Rourke and Macy, 2003).<sup>41</sup> For example, the Metropolitan Transportation Commission provides grants to community organizations to co-sponsor workshops on its major regional *Transportation 2030* plan. As the Alameda Corridor example shows, those who worry that community voices may disrupt a smoothly running technical process should consider the importance of consensus and other benefits from effective participation.

## Integrated Policies and Approaches

In Chapter 4, we described policy efforts within specific infrastructure sectors, but many policies address equity issues across infrastructure areas. For example, cooperation at the regional level is an approach to growth planning that potentially leads to more equitable infrastructure development and financing (Pastor et al., 2000). Regional cooperation can reduce the concentration of poverty by opening up affordable housing possibilities throughout the region. Regional approaches to development can seek to locate employment opportunities, community colleges, shopping, and other amenities near underserved populations or near

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<sup>41</sup> See Chapter 5 for a discussion of evaluating community participation.



transit hubs. Regional tax-sharing schemes can allow for more equitable sharing of the costs of public investments.

To increase financing for infrastructure and development projects in disadvantaged communities, State Treasurer Phil Angelides has launched the “Double Bottom Line” initiative to direct state investment programs and pension investments into needy communities. The first bottom line is fiduciary responsibility to ensure a strong rate of return (with limited risk) on taxpayer and pensioner investments. The second bottom line is to invest in broadening economic opportunities in low-income communities. The plan calls for investment of over \$8 billion in pension and state program investment funds toward economic growth and development in California communities. Thus far, the plan has led to investments in affordable housing, home mortgages, community development, and private businesses in underserved communities (California State Treasurer, 2004).

Another integrated approach is to provide incentives or remove barriers for local development plans when the plans address equity concerns. An example of providing incentives is the Metropolitan Transportation Commission’s program to provide transit funding to cities and counties that address housing affordability issues. An approach to removing barriers is reduction of the voter threshold for new local infrastructure resources (special taxes and bonds) from two-thirds to 55 percent when projects provide for a balanced mix of investments in neighborhoods and transportation, affordable housing, open space, and general infrastructure.<sup>42</sup> By lowering the voter requirements and by requiring that various constituencies work together to form a comprehensive, balanced plan, these constitutional amendments would help local communities to address infrastructure equity concerns (PolicyLink, 2003).

Another approach is to encourage project assessments and agreements that incorporate equity. One form of such assessments for large private investments already exists in the emergence of Community Benefits Agreements (CBAs), legally binding documents that set out arrangements between developers and affected communities in order to ensure positive local impacts and hence secure political consensus on the large subsidies such developments sometimes require (Gross, 2002).<sup>43</sup> Public infrastructure projects above a certain size could require a “Social Impact Review,” akin to an Environment Impact Report (Pastor et al., 2000). Such reports would help ensure that equity considerations were integrated into the decisionmaking process for large public investments in infrastructure.

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<sup>42</sup> This approach has been proposed in pending legislation, Senate Constitutional Amendment 11 and Assembly Constitutional Amendment 14. In 2000, Proposition 39 lowered the threshold to 55 percent for school facilities bonds.

<sup>43</sup> There has been significant controversy about CBAs, partly because businesses do not wish additional regulatory obstacles and partly because the project-by-project nature of such agreements can complicate planning. Still, the experience of the expansion of the Staples Center in Los Angeles has led to increasing interest in a broader policy with regard to the use of public subsidies. For the Staples Center, developers seeking to expand this regional attraction agreed to \$1 million worth of parks improvement, \$100,000 in seed funding to create job training programs through community organizations, local hiring, and construction of 160 affordable housing units -- thereby crafting a win-win coalition that led to quick approval of the project. A similar positive result seems to be emerging in the case of LAX expansion as delineated in the example given earlier in the text.

## **Public Will and Leadership**

Public will is an important component of any successful major infrastructure effort. According to the PPIC Statewide Survey, Californians are attuned to the equity issues that accompany these efforts. When asked whether school facilities in low-income and minority neighborhoods are more likely to be in need of repair and replacement, 72 percent of adults agreed (see the appendix for related survey results). When asked, “Should school districts in low-income and minority neighborhoods receive more public funding for school facilities, even if it means less funding for other school districts?” 56 percent of respondents said “yes” (Table 2). Republicans were the only group strongly opposed to this approach, with 37 percent responding “yes” and 57 percent responding “no.” Of adults who said that school facilities in low-income and minority neighborhood were more in need of repair and replacement, 67 percent agreed with more public funding for these districts.

**Table 2**  
**Californians' Willingness to Provide More Public Funding for School Facilities, Roads, and Transportation in Low-Income and Minority Neighborhoods, 2004**

	School Facilities			Roads and Transportation		
	Yes (%)	No (%)	Don't Know (%)	Yes (%)	No (%)	Don't Know (%)
All adults	56	38	6	49	44	7
Registered voters	53	41	6	46	47	7
Likely voters	52	43	5	45	49	6
Regions						
Central Valley	47	48	5	40	55	5
San Francisco Bay Area	60	33	7	50	43	7
Los Angeles County	64	30	6	57	36	7
Orange and San Diego Counties	52	41	7	45	48	7
Inland Empire	51	45	3	49	47	4
Party registration						
Democrat	62	31	7	55	37	8
Republican	37	57	6	33	62	5
Independent	58	39	4	52	43	5
Self-identified ideology						
Liberal	67	27	6	60	34	6
Moderate	54	38	8	44	49	7
Conservative	48	46	6	43	51	6
Age						
18 to 34	62	34	4	55	39	6
35 to 54	54	39	7	47	47	6
55 and older	49	41	10	43	48	9
Race and ethnicity						
White	48	46	6	39	54	7
Latino	67	27	6	62	31	7
Asian	59	30	11	50	36	14
African American	67	28	5	66	30	4
Noncitizen	72	21	7	59	33	8
Education						
High school or less	58	35	7	53	39	8
Some college	50	42	8	45	48	7
College graduate	58	37	5	47	47	6
Annual income						
<\$40,000	60	31	9	55	36	9
\$40,000 to \$79,999	55	40	5	48	47	5
\$80,000 or more	51	46	3	41	55	4
Has children	56	39	5	50	45	5
Does not have children	55	37	8	47	44	9

SOURCE: PPIC Statewide Survey, May and June 2004. See Baldassare (2004).

NOTE: See the text for wording of the survey questions.

For roads and transportation infrastructure, 61 percent of adults responded that low-income and minority neighborhoods had worse conditions (Baldassare and Cohen, 2005; see also Baldassare 2002a, 2002b). When asked, “Should low-income and minority neighborhoods receive more public funding for roads and other transportation infrastructure, even if it means less funding for projects in other neighborhoods?” 49 percent of respondents said “yes” and 44 percent said “no.” Among likely voters, only 45 percent said “yes.” Liberals, African Americans, and Latinos favored more funding, whereas most Central Valley respondents, Republicans, conservatives, and whites were opposed. However, of those who said that transportation infrastructure was worse in these neighborhoods, 65 percent agreed with more public funding.

These findings suggest that Californians are more likely to favor additional public funding for low-income and minority school facilities rather than additional funding for transportation infrastructure in low-income and minority neighborhoods. This preference may reflect a willingness to invest more equitably in sectors that have a clear effect on broad opportunities and/or a stronger perception of inequities in existing school infrastructure. The results also suggest that the supermajority requirement for local bonds may very well impede infrastructure investments that address equity concerns aside from K-14 schools.

The public will to fund infrastructure, as an investment in the future, may be driven by a sense of common destiny. In his account of California’s recent political and economic history, *Paradise Lost*, Peter Schrag (1998) wonders whether older, whiter, wealthier voters will share a sense a common destiny with younger, minority, and poorer future residents. Here the issue is one of “intergenerational equity” – is the older generation (those who control resources through voting) willing to invest in the future for the younger generation?

The potential role of demographic diversity is especially salient in California. According to the 2000 census, 71 percent of Californians ages 65 and older are white, 48 percent of Californians ages 18 to 64 are white, and only 36 percent of children in California are white. The youth composition mirrors the future: By 2025, only 32 percent of the California population is projected to be white (Johnson, 2005). Consistent with Schrag’s hypothesis, public opinion data suggest that willingness to invest additional funds in low-income and minority schools and neighborhoods is highest among the youngest cohorts and declines with age (Table 2). For example, 62 percent of people ages 18 to 34 years said that low-income and minority schools should get more money for facilities. Among people ages 35 to 54 years, the share responding this way was only 54 percent and it was only 49 percent among people 55 years and older.

Spending trends provide mixed evidence on the relationship between demographic diversity and public investment in the future. In the period analyzed by Schrag, up until the mid-1990s, public investment had indeed declined as demographic diversity increased. However, in more recent years, public investment as measured by capital outlays is similar in real, per capita terms to levels of the 1960s, when the state was far less racially and ethnically diverse. Furthermore, there has been a shift in capital outlays away from transportation and toward education.<sup>44</sup> This shift and the recent passage of over \$21 billion in new statewide

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<sup>44</sup> See Rueben and deAlth and (2005) for a discussion of capital spending trends.

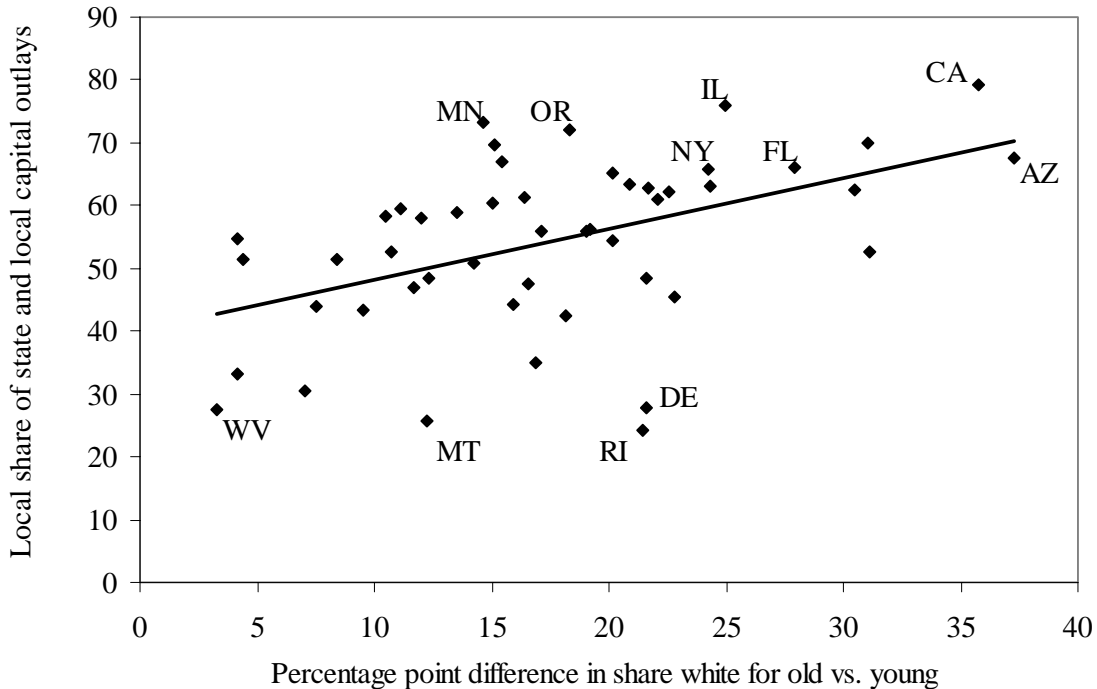
bonds for K-12 school facilities demonstrate that Californians are willing to make large capital investments in children.

Cross-state spending patterns also provide mixed evidence on public will for investments in demographically diverse states. We assessed the cross-state relationship between per capita capital outlays and the difference between the demographic composition of children and elders.<sup>45</sup> Comparing states, we find that capital spending does not have a strong relationship to demographic divergence by age (with and without controls for state per capita income). On the other hand, the larger the difference in the ethnic composition of the old and the young, the more likely it is that states will have a substantially higher share of outlays at the local level as opposed to the state level (Figure 4). The finding is consistent with the hypothesis that demographic divergence will lead communities to invest locally, where the demographics may be more uniform, rather than statewide. Of course, further analysis is needed to identify whether demographic divergence influences preferences for local spending. We need, moreover, to go beyond simply whether the funds are spent by local governments and begin to assess the source and allocation of local funds. For example, in California, some local capital outlays for school facilities are raised and allocated at the state level. In addition, one could explore the time trends in demographic divergence and the local share of capital outlays as well as the demographic and spending relationship controlling for other factors such as state size and population growth. Alternatively, one could explore whether school bonds are less likely to pass in California districts that are more demographically divergent by age. In any case, the relationship in Figure 4 is intriguing, and suggests a number of avenues for further research.

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<sup>45</sup> Data on capital spending were from the U.S. Census of Governments for 1999-2000 in order to match with demographic and income data from the 2000 census. Capital spending was measured as the sum of state and local capital outlays. Demographic diversity was measured by the percentage point gap in the share white among those ages 65 years and older compared to those ages 17 years and younger.

**Figure 4**  
**Demographic Divergence and Local Preference for Capital Spending**



SOURCE: Authors' calculations from Census Bureau data for 1999-2000.

Why is the localized nature of infrastructure investments an issue? After all, some have argued that local investments are efficient in that residents will sort themselves into communities that reflect their own preferences for taxes and public services (Tiebout, 1956). Recent research, however, suggests that constraints (such as housing discrimination and affordability) rather than preferences may drive the sorting (Kelleher and Lowery, 2001; Bayer, 2000; Musso, 2001). Even in the case of sorting based on preferences, an emphasis on local rather than statewide direction of investments will likely imply that poorer (and needier) jurisdictions will invest less in infrastructure than wealthier (and less needy) jurisdictions.<sup>46</sup> Funding infrastructure at a regional or state level could allow for more equitable distribution of investments (Oates, 1972). The recent voter approval of over \$21 billion in new statewide bonds for K-12 school facilities represents a substantial move towards statewide funding for school capital outlays.

But it is not simply a matter of following current public will - there is a crucial role for leaders to take on the task of elevating equity as a concern for policy. State Treasurer Phil Angelides, for example, has changed policies to favor more "Double Bottom Line" investments

<sup>46</sup> Banerjee and Verma (2001) argue that sorting in the Los Angeles region has led to segregation by income and race. They use this to explain why Southern California has seen re-segregation and widening income differentials. See also Ethington, Frey, and Myers (2001).

and he has also convened public officials, private investors, and community leaders to find opportunities for working together on investments in neglected areas. In her previous role as head of the Bay Area Council, the state's new head of Business, Transportation, and Housing, Sunne McPeak, pushed hard for reforms that would favor business development, but she also constantly reminded the businesses she represented that investments in the poor would pay off for society. Carol Whiteside, former Director of Intergovernment Affairs under Governor Pete Wilson and now head of the Great Valley Center, has helped craft a new economic vision for the San Joaquin Valley and also created a leadership development program that is cultivating talent in emerging Latino and lower-income communities. The task of connecting people across social, economic, and geographic divides into a sense of common destiny is crucial to furthering equity and it requires leaders willing to put out a vision as well as a plan.





## Conclusion

As California plans for public investments in infrastructure, it is important to consider the potential role these investments can play in creating a more equitable society. Infrastructure investments create opportunities for improved economic outcomes. School and higher education infrastructure creates opportunities for people to develop skills and further training. Transportation infrastructure enables people to seek a broader range of employment opportunities. Moreover, infrastructure is a factor in determining the very nature of economic growth and influencing the direction of the economy.

Is California on a path that will lead to equitable infrastructure investments? Equity and environmental justice have emerged as major themes in infrastructure policy, but it remains to be seen how these new policies will be implemented and whether the cumulative effects will be substantial. We believe that several structural impediments to addressing equity issues persist. First, there is only limited evaluation of infrastructure needs and investment decisions are not generally linked to meeting the most urgent needs. Second, the projected future budget gap and the unstable nature of past infrastructure financing create challenges for addressing equity priorities. Finally, we must enhance the ability of low-income and minority communities to participate in decisions about infrastructure investments that affect them.

Moving on all these fronts will require public will and public leadership. In particular, we must weave a political narrative that connects Californians across generations, regions, and economic and ethnic divisions. We believe that addressing equity and interconnection across generations, races, and regions can be part of that new narrative, and that it is both possible and imperative to do this as the state plans for its next 20 years.



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## Appendix. Public Perception

In this appendix, we explore whether Californians perceive infrastructure inequities in their regions. We rely on results from a PPIC Statewide Survey in May 2004 and previous surveys. For details on survey methods and additional survey results, see Baldassare (2004) and Baldassare and Cohen (2005).

When asked, “Are low-income and minority neighborhoods more likely than other neighborhoods in your region to have school facilities that are in need of repair and replacement?”, 72 percent of adults replied “yes” (Table A.1, first panel of columns). Consistently, across major regions, political parties, racial and ethnic backgrounds, and socioeconomic conditions, a clear majority of Californians responded that school facilities are in worse repair in low-income and minority neighborhoods.

When asked, “Do you think that low-income and minority neighborhoods are more likely than other neighborhoods in your region to have roads and other transportation infrastructure that are in need of repair and replacement?”, 61 percent of adults replied “yes” (Table A.1, second panel of columns). “Yes” was the majority response across major regions, racial and ethnic backgrounds, and socioeconomic conditions. However, among Republicans, only 52 percent responded “yes” – not a clear majority given the margin of error of the survey.

The results of this recent survey are consistent with results of surveys in 2002 (Baldassare, 2002a, 2002b) when Californians reported that lower-income and minority neighborhoods have lower-quality infrastructure investments including roads that are more likely to be in need of repair (64 percent, see Table A.2), fewer parks and recreational facilities (64 percent), residential and commercial areas that receive fewer government resources for revitalization (61 percent), less new housing and commercial development (68 percent), and more problems with toxic waste and polluting (58 percent). A somewhat larger share of Californians reported that school facilities in low-income and minority neighborhoods are more likely to be in need of repair and replacement (71 percent).

**Table A1**  
**Californians Perceptions of Infrastructure Equity, 2004**

	School Facilities			Roads and Transportation		
	Yes (%)	No (%)	Don't Know (%)	Yes (%)	No (%)	Don't Know (%)
All adults	72	21	7	61	32	7
Registered voters	72	21	7	62	32	6
Likely voters	71	23	6	61	33	6
Regions						
Central Valley	67	25	8	59	36	5
San Francisco Bay Area	75	19	6	64	30	6
Los Angeles County	80	15	5	67	27	6
Orange and San Diego Counties	71	22	7	60	34	6
Inland Empire	63	26	11	60	34	6
Party registration						
Democrat	80	15	5	71	25	4
Republican	61	29	10	52	40	8
Independent	74	22	4	63	32	5
Self-identified ideology						
Liberal	83	12	5	71	26	3
Moderate	71	22	7	57	35	8
Conservative	63	28	9	56	37	7
Age						
18 to 34 years	76	18	6	68	28	4
35 to 54 years	71	22	7	59	36	5
55 years and older	66	23	12	56	33	11
Race and ethnicity						
White	69	24	7	56	37	7
Latino	72	20	8	64	31	5
Asian	77	12	11	63	24	13
African American	90	9	1	86	13	1
Non-citizen	65	25	10	55	36	9
Education						
High school or less	68	23	9	59	33	8
Some college	71	21	8	61	33	6
College graduate	75	19	6	64	31	5
Annual income						
<\$40,000	71	20	9	63	31	6
\$40,000 to \$79,000	75	20	5	64	32	4
\$80,000 or more	72	22	6	59	35	6
Has children	72	21	7	61	33	6
Does not have children	72	21	7	62	31	7

SOURCE: PPIC Statewide Survey, May and June 2004.

NOTE: See the text for wording of the survey questions.

**Table A2**  
**Californians Perceptions of Infrastructure Equity, 2002**

	Yes (%)	No (%)	Don't Know (%)
Do you think that low-income and minority neighborhoods are more likely than other neighborhoods in your region to have roads and other transportation infrastructure that are in need of repair and replacement? (November 2002)	64	30	6
How about when it comes to government efforts to revitalize the residential and commercial areas in your region – would you say that low-income and minority neighborhoods get fewer resources than other neighborhoods? (November 2002)	61	29	10
In your region, are low-income and minority neighborhoods less likely to have new housing and commercial development than other neighborhoods? (November 2002)	68	26	6
Do you think that low-income and minority neighborhoods are more likely than other neighborhoods in your region to have school facilities that are in need of repair and replacement? (November 2002)	71	23	6
	Agree (%)	Disagree (%)	Don't Know (%)
Some people say that when it comes to where toxic waste and polluting facilities are located in the state, lower-income and minority neighborhoods have more than their fair share compared to other neighborhoods. Do you agree or disagree with this statement? (June 2002)	58	30	12
Some people say that lower-income and minority neighborhoods have less than their fair share of well-maintained parks and recreational facilities compared to other neighborhoods. Do you agree or disagree with this statement? (June 2002)	64	29	7

SOURCE: PPIC Statewide Survey, survey dates shown in table.





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**PUBLIC POLICY INSTITUTE OF CALIFORNIA**

500 Washington Street, Suite 800 • San Francisco, California 94111

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