

# UC Berkeley

## Earlier Faculty Research

### Title

Regionalism in Transportation and Air Quality: History, Interpretation, and Insights for Regional Governance

### Permalink

<https://escholarship.org/uc/item/0ng8f1v7>

### Authors

Wachs, Martin  
Dill, Jennifer

### Publication Date

2002-03-07

**Regionalism in Transportation and Air Quality:  
History, Interpretation, and Insights  
for Regional Governance**

Martin Wachs, Director  
University of California Transportation Center, and  
Professor of City & Regional Planning and  
Civil & Environmental Engineering,  
University of California, Berkeley

and

Jennifer Dill  
Environmental Planner,  
Bay Area Air Quality Management District and  
Doctoral Student, Department of City & Regional Planning,  
University of California, Berkeley

Prepared for the  
Committee on Metropolitan Governance  
National Academy of Sciences

*September, 1997*

UCTC No. 355

The University of California Transportation Center  
University of California at Berkeley

## **The University of California Transportation Center**

The University of California Transportation Center (UCTC) is one of ten regional units mandated by Congress and established in Fall 1988 to support research, education, and training in surface transportation. The UC Center serves federal Region IX and is supported by matching grants from the U.S. Department of Transportation, the California Department of Transportation (Caltrans), and the University.

Based on the Berkeley Campus, UCTC draws upon existing capabilities and resources of the Institutes of Transportation Studies at Berkeley, Davis, Irvine, and Los Angeles; the Institute of Urban and Regional Development at Berkeley; and several academic departments at the Berkeley, Davis, Irvine, and Los Angeles campuses. Faculty and students on other University of California campuses may participate in

Center activities. Researchers at other universities within the region also have opportunities to collaborate with UC faculty on selected studies.

UCTC's educational and research programs are focused on strategic planning for improving metropolitan accessibility, with emphasis on the special conditions in Region IX. Particular attention is directed to strategies for using transportation as an instrument of economic development, while also accommodating to the region's persistent expansion and while maintaining and enhancing the quality of life there.

The Center distributes reports on its research in working papers, monographs, and in reprints of published articles. It also publishes *Access*, a magazine presenting summaries of selected studies. For a list of publications in print, write to the address below.



### **University of California Transportation Center**

108 Naval Architecture Building  
Berkeley, California 94720  
Tel: 510/643-7378  
FAX: 510/643-5456

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the U.S. Department of Transportation. This report does not constitute a standard, specification, or regulation.

## Introduction

Transportation and air quality are areas of public policy in which there is a tradition of thinking, planning, and acting regionally, and we may well ask whether this tradition offers any lessons for public policy makers that go beyond the realms of transportation and air quality. While it is clear that the locus of most transportation and air quality policy debates is and probably should be at the regional level, it is not at all clear that regionalism in transportation and air quality has resulted in programs that have been so successful as to provide models for other sectors of public policy making. In this paper we review the evolution of regionalism in transportation and air quality policy making, and then discuss some of the strengths, weaknesses and unresolved issues with respect to the regional basis of policy making in these sectors. We close with some observations on the extent to which our impressions may be generalizable to other sectors.

## Historical Evolution of Regionalism in Transportation Planning

Transportation policy has been treated as a regional issue for so long that transportation planners and managers would be surprised by proposals to consider transportation in other ways. When the exuberant population and economic growth of the decade immediately following the First World War was coupled with even more rapid growth in automobile ownership and use, an extremely progressive federal government took the lead by recognizing that traffic congestion knew few political boundaries. Highways were socially provided and served society primarily by facilitating interjurisdictional flows, so transportation experts in the US government thought they should be dealt with by creating multi jurisdictional plans and programs. Transit at the time was primarily privately owned and generally served local markets, although interurban transit lines were important to regional and inter-regional growth. Although early efforts at regionalism certainly addressed transit needs, they naturally gave greater emphasis to highways.

When the Commissioners of Cuyahoga County, Ohio in 1927 solicited the help of the Federal Bureau of Public Roads to deal with the growing problems of traffic congestion in Cleveland, they wanted to establish a "scientific plan of highway improvement." The Bureau responded that it would cooperate and provide funds for the study only under the condition that it extend to the area principally controlled by the City of Cleveland and surrounding suburban areas *without regard to political boundaries*, and that all governmental agencies in the area having jurisdiction over highways and traffic cooperate in the establishment of a general highway development plan and agree to carry out this plan cooperatively when it is completed. Cleveland was not particularly unique. At exactly the same time a group in Boston under the direction of Robert Whitten was developing a relatively advanced traffic analysis and forecast based on an origin and destination survey that extended to 39 cities and towns of the metropolitan area (Heightchew, 1979). These early efforts were based on voluntary cooperation among cities and towns, and were important precursors to the later metropolitan organizations or special districts with which we are now familiar.

These early plans were regional in scope but relatively narrow in focus in comparison with our current concepts of transportation planning. They dealt primarily with the construction of facilities and not so deeply with fiscal or funding strategies, environmental impacts, growth control or system management, all issues that we today consider critical dimensions in regional transportation planning. The capital investments proposed in many regional plans of the twenties were mostly highways – conventional streets and boulevards that were often broader than and conceived of more systematically as networks and hierarchies of facilities having far greater capacities than street systems of earlier periods in the American metropolis.

The roads that were planned in these early studies were actually implemented to a rather limited extent, primarily for financial reasons. The shortage of funds needed to construct the regional highways envisioned in the plans of the twenties was at least in part due to the long and deep depression that followed almost immediately the development of these plans, and to the enormous financial claims of World War II, which followed the depression. The inability of many regions to fund the highways that constituted these early plans was also attributable to the fact that America had not then (and has not yet today) invented ways in which regions could produce their own funds with which to implement their plans. The regional cooperation among transportation agencies that resulted in these early plans was actually a multi-year project that was temporary in nature. It was accomplished without creating any regional governing body and rested entirely on the voluntary participation of cities, counties and state agencies, though it did set a precedent that later led to arrangements more properly recognized as a kind of regional governance. Fiscal authority for transportation, as for most other types of public expenditures, exists at local, state, and federal levels, and there are few taxing or spending capabilities that are designed to be region-wide. Thus, implementation of the early regional highway projects required commitments of local and state funds. Local funds were, of course, used for those portions of regional networks that clearly benefited the jurisdictions that built them. Funds for state highways at the regional level were scarce because of the competition from intercity highways needed primarily in rural areas in an era when the balance of power in state legislatures was still in the hands of rural representatives.

### **Postwar Highway Planning and Construction**

At the end of World War II, America again turned to regional transportation planning and started to address the enormous backlog of unmet highway needs dating back to the twenties. Regional transportation study agencies were formed in most large metropolitan areas, some of which were divisions of state highway departments, some of which were cooperative arrangements created by compacts among several agencies – occasionally even involving two or three states – and some of which were independent bodies created by state charter. A few of these were overseen by representative boards or commissions, mainly composed of local elected officials, but many were composed almost entirely of technical staffs who were part of state civil service systems. Their advisory committees and public hearing processes constituted in many cases only the most rudimentary efforts at citizen participation or

cooperative governance. Bolstered by improved data collection techniques, the first non-military applications of electronic computers, and planning funds made available by the 1956 and 1962 Federal Highway Acts, metropolitan transportation planners proposed grandiose regional plans featuring systems of radial and circumferential freeways stretching over many jurisdictions.

This time the Federal government exerted its leadership by asserting, much as it had in the twenties, that transportation plans had to be “comprehensive, cooperative, and continuing,” and by writing regulations that required regional transportation planning to meet those requirements in a number of specific ways. The federal government also eventually provided a financial basis for implementing the regional transportation plans. It created the Interstate Highway System, which was first planned to connect major population centers and military bases to one another, leaving the roads within metropolitan areas to the local planners and local financing. But national planners soon realized that the system would carry very light traffic on the rural segments between metropolitan areas. To demonstrate that the Interstates would carry sufficient traffic to justify federal funding, the segments within metropolitan areas were included in the system. This gave regional planners access to rather generous federal funding which provided 90% of the cost of constructing many of the freeways that comprised the regional plans, with states and localities responsible only for ten percent of the initial capital cost plus the majority of the upkeep and maintenance. To insure that the Federal government could provide the vast majority of the funding needed to implement the Interstate System, the Federal Highway Trust Fund was created, into which Federal gasoline taxes and excise taxes on cars, trucks, tires, and batteries were deposited. These funds were understood to be “user fees,” really more like tolls than taxes, in that the extent to which a person contributed to the fund was roughly proportional to his or her use of the system. Trust fund monies could be appropriated for the purpose of building the Interstate system, thus insuring that growth in auto use would be paralleled by the further construction of highways to accommodate that growth.

Brian Taylor (1992, 1995) has interpreted the significant role played by funding decisions in determining the course of history of regional transportation plans. He shows that city and county planners in the period just before World War II had developed a highway plan for the Los Angeles metropolitan area that was surprisingly different from the freeway network eventually constructed. The plan included many highway routes that were similar in location to routes eventually adopted, but rather than very broad, access controlled, and grade separated facilities, the plan in many instances favored “expressways,” which were then conceived of as less than totally grade separated, which had lower design speeds, and which provided for traffic signals at some intersections. The lower design speeds and lesser degree of grade separation meant that the roadways could have sharper turns than the freeways eventually did, and that the roads could be threaded through the urban fabric with far less removal of existing buildings. The high capacity boulevards or expressways that were planned at the time seem to modern observers to be more fully integrated with local land uses than were the freeways that were eventually built. They featured, for example, direct access to the parking areas at major employment sites and

accommodated bus operations including bus stops on the shoulders of the expressways.

Construction of the network of roadways in this plan, which extended over thousands of miles, required enormous sums of money that proved to be far beyond the resources available within the region. In an effort to actually get some roads built in the face of increasing congestion and very limited resources, regional officials turned to the state and federal governments for the capital investment funds that were needed. In exchange for this support, regional officials accepted the design standards associated with state and federal highway programs, and that meant the construction of freeways having broad shoulders, complete grade separation, and the gentle curves implied by design speeds of 70 miles per hour. The acceptance of state and federal funding, then, had changed the basic characteristics of the regional highway network. Taylor and others believe that by adopting the "freeway," which was initially designed for rural areas, Los Angeles accepted a form of highway that was far less suited to its region than the "expressways" that had been planned there earlier. Ironically, as many urban design critics and environmentalists deride the LA freeways as a model not to be emulated elsewhere because of its community impacts and disruption of local circulation patterns, they are hardly aware of the fact that it was a form of network at variance with the hopes and aspirations of regional planners. Rather, it was more or less imposed upon the region as the consequence of compromises that were dictated by funding requirements. It is possible that had Los Angeles been able to more directly pursue its regional highway plans of the late thirties, the region would today have an entirely different character.

The Los Angeles case indicates that at an important stage in the evolution of transportation programs, the region was able to articulate a unique and possibly appropriate concept for transportation investment. The absence of a region-wide body having authority to implement this concept and the absence of fiscal independence at the regional level, however, caused compromises that substantially changed the nature of the plans eventually implemented there. While we may interpret the Los Angeles freeway system as a regional system, it is more correct to see it as a regional manifestation of fiscal and political power brought to bear upon the region from the state and national capitals.

### **The Rise of Public Transit**

The post war regional transportation plans in almost all instances emphasized highway construction. Although public transit was given lip service in each regional report, the facilities that were proposed consisted primarily of freeways and expressways. This may reflect the fact that transit was still largely in the hands of private owners and that it was seen to be in a state of decline. Transit technology was seen as outmoded by many planners, public officials, and lay citizens. Auto ownership and use was continuing to soar, and there was a broad social consensus that autos would become and remain the dominant mode of transportation. The transportation problem was perceived to be one of managing automobile congestion, and transit had a limited role to play.

In political terms, it is also possible to read historical events somewhat differently. The interstate highway building program was funded by the federal government through the states, and at the time neither the federal government nor the states had great interest in public transit, which was primarily of interest in the central areas of the nation's largest cities. By the early sixties, mayors of large cities and their congressional representatives had realized that their transit systems, mostly privately owned, were going into bankruptcy, that federally financed highways were playing a major role in the decline of transit, and that the cities would face difficult choices without federal help for transit. They would have to take over bankrupt transit operations themselves, or face the total elimination of urban transit services. Big city politicians started to urge that there be a federal transit program, and in 1964 Congress finally enacted the Urban Mass Transportation Act, which provided capital grants to enable cities to take over transit operations or build new rail lines and busways.

Interestingly, federal aid to transit was in the mid and late sixties administered in urban areas with little state participation. Transit investment programs were more closely linked with urban renewal programs than they were with the regional highway planning, and the regional highway agencies still played small roles in transit planning, construction, and operation. When, in 1966, Congress added the requirement that transit investments be consistent with regional plans, they *did not* require transit plans to be consistent with the regional highway plans, but rather with the multifaceted metropolitan plans that were being developed by regional "Councils of Government," that had initially been funded under the 1954 Housing Act. Thus, transit plans were to be consistent with planning for urban water and sewer, outdoor recreation, urban renewal and housing, but not necessarily integrated with the regional highway planning process that was described earlier. Highways were funded and overseen by a large state and federal establishment, and transit to be viable and independent was consciously placed under the management of urban political decision making bodies.

The regional highway planning process of the late sixties could be characterized as highly technocratic. It involved a great deal of data collection and analysis, used standardized methods of forecasting and evaluation, and relied heavily on computer modeling. Although public hearings were required, this was a planning process carried out by technical experts with relatively little formal participation from local officials and lay citizens. In contrast, the transit planning process, carried out largely by planners in the employ of cities and of regional "Councils of Government," was overseen by elected representatives of the many cities in each metropolitan area and characterized by a much more open political process of negotiation and bargaining.

### **Merging Highway and Transit Policy Making**

Despite their separate roots and rather different histories, both highway and transit planning were being done at the regional level, and over time the federal government as a condition for continued funding required that the two regional transportation planning processes be merged into one. Major regional highways



were most often built and operated by state highway or transportation departments. Facilities included in regional transit plans were most often built and operated by transit authorities that operated at the metropolitan or county level and that in most cases had much less participation by state officials.

During the seventies and eighties, after the creation of a U.S. Department of Transportation, a series of highway and transit funding laws gradually pushed transportation planning and investment programs toward a more unified model, in which multimodalism became first the ideal and eventually almost a reality. In the early seventies, highway and transit planning was most frequently done by separate agencies in most metropolitan areas, but those agencies were first required to create an "intermodal planning group" to coordinate their separate activities, and that group was required to develop a "unified work program" for the planning of transit and highways. Eventually, transit and highway planning were unified under a single "metropolitan planning organization" in each large metropolitan area. Despite the fact that highway programs had budgets that were orders of magnitude larger than those of transit programs, and although the number of people engaged in highway planning, construction, maintenance, and management was many times greater than those working on transit, the model of regional planning and governance that emerged from the gradual unification of planning for each mode was very strongly influenced by the model that previously characterized transit planning. Although the transit planning process is technically complex and data intensive, as was the highway planning process, it is today typically conducted by a "metropolitan planning organization" that is a council of governments or a representative board of elected representatives of different governments within the metropolitan area. In Los Angeles, for example, the Los Angeles Regional Transportation Study (LARTS), an office within the California Division of Highways, had prepared the regional highway plans of the sixties and early seventies. Its formal planning functions were gradually absorbed by the Southern California Association of Governments (SCAG), the regional COG, overseen by a large board of directors having broad representation of elected officials from several counties and dozens of cities in the metropolitan area. This pattern was repeated in many other metropolitan areas. In fact, during the eighties as federal funding was decreased for most councils of government, their access to transportation funds prevented many of the weaker councils of government from closing down, and transportation planning became their dominant function.

There is now in most metropolitan areas a regional body that focuses on transportation funding, planning, and policy making, while major highways continue to be built and operated primarily by state agencies, local streets and highways by cities and counties, and transit services by municipal or county transit authorities.

Over several decades regional agencies gradually became more and more responsible for planning transportation capital investment programs, but until recently those agencies had relatively little discretion with respect to the allocation of federal and state funds. From the fifties until the early nineties, most transportation funds were generally made available by state and federal governments in the form of "categorical grants," earmarked for specific programmatic purposes, each having its own particular rules and procedures. Interstate highway construction funds were

earmarked for that purpose only, and separate funding was available for bridge replacement, the restoration of older roads, and many other specifically enumerated programs. Transit funds were separate from highway funds and also were categorical, with funding, for example, for new rail system construction, bus purchases, and system operating subsidies made available in separate programs. This complex matrix of different programs for different purposes gave regional authorities relatively little flexibility. Regional transportation plans could be implemented by matching their components with the available federal and state categorical programs, so in reality a regional responsibility for transportation frequently involved adjusting regional preferences and priorities to take advantage of the likely availability of federal and state funds through the mix of available categorical programs. The most successful regional transportation agencies were those that became adept at mixing and matching federal and state categorical funds in order to arrive at a package that enabled them to make reasonable progress toward implementing programs for which there was a high level of regional consensus.

The regional agencies responsible for transportation planning (known widely as the “metropolitan planning organizations, or MPOs) differ in structure from one region to another, depending upon state laws and idiosyncratic histories. Many, but certainly not all, are “councils of government,” and most are overseen by policy boards having members who are elected local legislators – city council members, mayors, county supervisors. These people are usually directly elected by the citizens to their offices in local government and then elected to their positions in the MPOs by their peers or appointed by a superior government. A few metropolitan areas provide for the direct election of regional government representatives, but such organizations are certainly in the minority. Typically, these councils or boards of elected officials meet a few times per year as a “general assembly” to adopt policies and to formally approve elements of work undertaken in response to their formal motions and to approve actions by their staffs and committees. Most of the work, including the preparation of regional transportation plans, is done by committees, task forces, councils, and panels created by action of the larger board, and these groups typically include a few members of the board plus other parties appointed because of their interests or influence. In addition, the regional councils are typified by professional staffs – career civil service professional employees – who do the technical and analytical work of the MPOs, drafting the reports of the committees and of the overall boards. The staffs of the MPOs vary in size from a dozen employees in an agency serving a smaller community, say, in the population range of 100,000 to 250,000; and over 100 staff employees in agencies serving larger metropolitan areas with populations in the range of several million. Most MPOs work cooperatively with other agencies, such as the state highway departments, transit districts, and air quality management districts. Sometimes agencies co-sponsor and even co-author regional transportation and air quality documents, but at the very least other units of government are represented on the MPO committees and spokespersons for other functional governmental agencies testify before their committees and general assemblies.

## **Transportation Policy Under ISTEA**

The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 marked a significant change in the ways in which transportation planning and finance are accomplished. The number of categorical programs was reduced significantly, and at the regional level the designated metropolitan planning organization has for the first time the authority to shift funds from one category to another in such a way that funds may actually be used across several modes. One major funding category, the Surface Transportation Program, makes funds available for roads or transit, and the largest category of highway funding, the National Highway System funds, allows up to half of the allocation to a given area to be shifted to public transit, and even more than half to be shifted with the approval of the Secretary of Transportation. Under ISTEA, regional officials also have greater authority than existed previously to move funds between new construction projects and the funding of maintenance and operations. Underlining the federal commitment to cleaner air in non-attainment areas, ISTEA also provides a special category of funds ("Congestion Management and Air Quality" or CMAQ funds) to non-attainment areas that can be used for projects intended to reduce automobile-generated air pollution. In addition, up to ten percent of the Surface Transportation Funds may be used for what are called "transportation enhancements," a much broader array of projects than had typically been funded in past transportation bills. These projects include pedestrian zones, restoration of historic transportation facilities, the provision of recreational bikeways, and similar projects.

It is clearly too soon to judge the full range of impacts that the ISTEA legislation has had on transportation planning, construction, finance, and governance. Although it would appear to have given more authority to regional agencies, much of what has been built in the last few years was planned, designed, and engineered in the years before the enactment of ISTEA, and many new projects conceived under ISTEA have yet to be implemented. It does appear, however, that stronger Metropolitan Planning Organizations, like the Metropolitan Transportation Commission of the San Francisco Bay Area, have welcomed the increased decision authority and have attempted to use ISTEA as justification for more integrated planning for transit and highways. Some observers believe that weaker MPOs, however, have not yet fully mastered the art of increasing their authority to be more creative, and in some metropolitan areas transportation policy making under ISTEA may differ far less from planning in the seventies or eighties than the legislation allows.

## **Evaluating Regionalism in Transportation Policy**

It is crystal clear that planning and systematic resource allocation to accommodate travel should be addressed at the regional level. The vast majority of Americans travel between activities that span many local political jurisdictions, and it is appropriate that highways and transit systems be coordinated across many jurisdictions. It is less clear that construction or the daily management of physical facilities is best addressed at the regional level, since it is possible that a regional system can function smoothly even if some of these functions are carried out by municipalities and counties.

One of the great strengths of transportation planning is that major capital investment programs are and have for some time been planned at the regional level. The views of central city and suburban constituents are brought to the table and debated as decisions are made regarding investments in new facilities or in the renewal of deteriorated transportation infrastructure. How representative are the deliberative processes that give rise to major transportation policy decisions: whether or not to build a new subway or highway, where it will be routed, whether a facility will be widened or a major bridge reinforced? There is a great deal of debate with respect to this question. Is the distribution of funding undertaken by regional bodies considered to be "equitable?" Indeed, how shall equity be evaluated from the perspective of a regional body? It is also important to recognize that metropolitan areas differ dramatically from one another, and while some concentrate planning at the regional level, the planning bodies often have little implementation authority, and the effectiveness of regional planning differs from one area to another depending greatly upon the extent to which the planning bodies are integrated with implementing and operating authorities.

#### **A) Central City vs. Suburban Interests:**

In most metropolitan areas the central cities constitute the largest and most influential members of the decision making bodies that govern transportation and air quality. Yet, so large a proportion of the population has shifted to suburban areas that in total suburban representation in regional decision making bodies far exceeds central city representation. Of course, not every issue pits central cities against the suburbs, and often different central city communities have conflicting positions as do suburban communities. Yet, many have observed that on many issues the political debates are dominated by broad inner city coalitions in contention with broad suburban coalitions. It would appear that over the past twenty or thirty years, most of the need for new capacity in the form of roads or transit routes is in suburban areas, while there is growing need in the central cities for maintenance and renewal of existing facilities. Many suburban jurisdictions would complain that they have experienced most of the growth in traffic congestion but have not captured sufficient resources through regional decision making to address their burgeoning needs. Central cities, on the other hand complain that their aging infrastructure is in a state of decline and that their resource needs for upgrading older systems have not been sufficiently addressed. Our own view is that these positions, which are heard often, are both partly true but both are oversimplifications.

#### **B) Capital Investments vs. Operations and System Maintenance:**

Most major capital investments in transportation over the past forty or more years have provided more and more capacity to serve peak-hour commuters from outlying suburban areas to downtown cores. Most major freeway investments have been radial, and circumferential beltways have also been justified on their ability to decrease inner city congestion. Similarly, most new investments in commuter rail lines and rail rapid transit lines have served longer trips between outlying residences and inner city employment areas. Despite this investment pattern, it is clear that most

Americans now live and work in the suburbs, and their commutes are made across the grain of transportation system expansions. Central city employment is a small and decreasing fraction of total regional employment. In newer sun belt metropolises, central city employment is typically below five percent of the regional total, and even in established eastern metropolitan areas the proportions are typically in the range of 15 percent. Those who do make long commuting journeys from outlying suburbs to inner city employment zones are disproportionately people of greater than average wealth: professionals and business people (Pisarski, 1996; Federal Highway Administration, 1993).

Because of limited funds to both build and operate transportation systems, and greater availability of funds for capital projects, many jurisdictions have added new capacity to serve longer distance peak hour commuters while decreasing local bus services and decreasing maintenance of local streets and roads. The beneficiaries have been longer distance upper income peak hour commuters. The losers have been both inner city and suburban communities of more modest income, people making more of their trips at non-peak times, and people – including the very old and very young – making fewer of their trips for purposes related to work. In a large number of American regions, we have planned and built suburban to downtown commuter rail lines and major radial highway facilities while raising fares for local transit service and reducing funds for the filling of potholes.

It is important to recognize that in the realm of transportation and most other public systems, there is typically a regional agency responsible for long-range planning and for the distribution of federal and state funds, but no region-wide source of revenue and no regional operating authority. While planning and programming and the allocation of pass-through funds from the state and national governments may take place at the regional level, it is in the nature of regional decision making that policy makers must receive and direct funds made available by others – principally state and federal programs. Transportation funds have almost always been more available from both state and federal sources for capital investments – new roads and train lines – than for maintenance, repair, or system operations. Thus, we believe that the transportation system has been “overcapitalized.” More money has been spent on new facilities and equipment than would have been the case had monies been fungible between capital, operations, and maintenance applications. And, capital investments have been allowed to deteriorate to a far greater extent than would have been ideal, since new dollars were being spent on new capital investments rather than maintenance and operations. Many miles of urban freeways were built because federal dollars for construction matched state and local funds by a ratio as high as ten to one; subways are today replacing bus operations because federal dollars are more readily available for subway construction than for bus operations. In many cases, regions that are hungry for their share of federal dollars that create construction contracts and jobs have extended themselves beyond their own abilities to pay the local contribution required as a condition of the receipt of federal capital funds or for the operation and maintenance of the new systems they have constructed (Wachs and Ortner, 1979).

### C) Equity

Within the context of political debates, the term “equity” can have many meanings. In fact, explicit tensions between competing concepts of equity have been frequently identified in regional transportation planning. An increasing proportion of the support for transportation, especially public transit, has been raised from local property and sales taxes and a decreasing proportion from federal transfers. This causes participants in the regional transportation policy making process to seek “equity” in terms of bringing home to their constituencies at least as many financial resources as are raised there. The bulk of the income derived from transportation related sales and property taxes are attributable to white suburban taxpayers, and the majority of transit riders are inner-city residents who are poorer and increasingly members of minority groups, so it is not surprising that tensions are growing over the distribution of these subsidies. Suburban officials seek equity in the distribution of resources on the basis of returning those resources to the jurisdictions in which they were raised. Inner city representatives argue that greater concentrations of poorer people in central cities demand that equity be measured in terms of the degree to which “need,” is satisfied and that resources should be shifted from communities having higher median incomes to those having lower incomes and greater transportation needs (Wachs, 1997).

Several studies conducted in past decades have concluded that transit subsidies in the aggregate result in a net transfer of benefits from high income to low income groups and from white to minority groups. This occurs because low income inner-city minority groups use transit very much more than others, and it occurs despite greater subsidization, per trip or per vehicle mile of travel, of the types of public transit that suburban, white middle class people are likely to use, such as express buses on freeways or suburban commuter rail systems (Pucher, 1981, 1982).

While in the aggregate more resources may be transferred from suburban communities to inner city transit users, other scholars have focused on the fact that this transfer leaves inner city transit systems poor in relation to their overwhelmingly larger needs, and that suburban, white commuters are subsidized more highly by transit investment programs on a per capita basis. Brian Taylor (1991) has analyzed the distribution of transit operating subsidies in the San Francisco Bay Area. Examining the distribution of the Bay Area’s portion of the proceeds of a statewide sales tax on gasoline, he found, for example that the larger, inner city transit operators in the Bay Area carried the overwhelmingly largest share of the passengers and received a dramatically smaller share of the program’s resources. Conversely, smaller, more localized suburban transit operators received a far larger proportion of the subsidy dollars under this program than their regional share of transit ridership might suggest they ought to receive. While the San Francisco Muni and AC Transit provided about seventy percent of the transit rides in the Bay Area, and their riders paid higher fares than suburban transit users, they received only about forty percent of the proceeds of the Bay Area’s funds under this program. While MUNI and AC Transit received more dollars than did smaller, suburban operators, their riders were subsidized by this particular tax at about 40 cents per boarding. While ten small suburban transit operators collectively provided 2.1 percent of the transit rides in the

Bay Area, their riders were subsidized at a rate of more than two dollars per ride. Over time, regional politics continues to press for expansions of suburban services and the inner city transit operators continue to reduce service and raise fares.

In Los Angeles a law suit was recently filed alleging that the regional approach to transit funding there violated Title VI of the 1964 Federal Civil Rights Act. The plaintiffs, the "Bus Riders' Union," representing poorer, minority, inner-city riders, specifically objected to a proposal by the Metropolitan Transportation Authority to raise fares, eliminate monthly discount fare passes, and decrease local bus service in the inner city. They claimed that at the very same time inner city service was being reduced and fares increased, commitments were being fulfilled to build new rail lines that connected suburban and predominantly white commuters to downtown job locations. They also claimed that the vast majority of transit security costs were being devoted to policing suburban transit services despite higher crime rates on inner-city bus routes. Before this case went to trial, a settlement was reached in which the regional transit agency committed itself to fully serving the needs of inner city transit dependent citizens. The settlement included commitments to increase inner city bus service, slow the pace of transit fare increases, and experiment with new pricing arrangements, such as off-peak fare discounts on inner-city transit routes. The settlement also included a commitment to provide increased transit security in the inner city. Other groups in Philadelphia, Baltimore, and New York City have raised similar objections to transit funding in their regions.

It is difficult to generalize about equity in the provision of transportation services, to arrive at measures of equity in transportation service delivery that can be widely accepted as appropriate, or to understand the extent to which the existence of regional agencies has increased or decreased equitability in the provision of transportation services. It would appear, however, that political disagreements over the fairness of transit funding are very common and often heated, and that the regional agencies are the locus of much of this debate.

#### **D) Lack of Integration of Transportation With Land Use:**

Transportation planning is intimately related to urban form and land use. Economists repeatedly remind transportation planners that the demand for travel is a derived demand, meaning that it is derived from personal needs and desires to participate in activities that are defined in space and in time. Every trip is made from an origin and to a destination that is determined by the spatial distribution of land uses. Transportation planners attempt to manipulate and control transportation facility capacities, but the needs for capacity are the direct result of the spatial distribution of activities. Many planners and environmentalists urge us to address traffic congestion and air quality problems through land use strategies. By creating higher density developments of mixed land uses at transit stations, for example, some believe we can create cities in which people need be less reliant on automobiles and in which they might find transit use more attractive. Similarly, others call for plans to create a greater degree of spatial balance between jobs and housing. By locating new housing developments closer to concentrations of employment, and by locating new

employment centers near housing rich communities, some believe that transportation demand can be managed to reduce traffic congestion and improve air quality.

While we have shown that there is a long history of thinking and acting regionally in the realm of metropolitan transportation, in the United States land use planning, zoning, subdivision regulation, and land taxation remain jealously guarded prerogatives of local governments. Regional bodies make advisory pronouncements about the importance of achieving a jobs-housing balance and transit oriented development, but local governments ignore these pronouncements to make land use decisions that increase local revenues from property taxes in relation to the costs of local service provision. As long as transportation plans and programs at the regional level remain reactive to strictly local land use decision making, transportation investments will be less effective at directing and determining regional form than could otherwise be the case. There are differences of opinion as to whether the ability to more centrally control land use and transportation policy jointly would create more efficient land use and travel patterns (Gordon and Richardson, 1997; Ewing, 1997), but it is clear that in America regional transportation systems have long had and probably will long have the responsibility to respond to and serve local land use policy making rather than to lead or determine it.

### **Historical Evolution of Regional Air Quality Agencies**

As with many aspects of air pollution control, California led the nation in controlling air pollution at the county and regional level. The California State Legislature passed the California Air Pollution Control District Act of 1947 authorizing counties to regulate air pollution, largely in response to the inability of Los Angeles County to control pollution sources in incorporated areas (Bollens, 1957). As a result, the Los Angeles County Air Pollution Control District was formed in late 1947, the first such county agency in the nation. California law also allowed two or more contiguous counties with county air districts to consolidate into a unified district. In 1955, the State took the idea of regional air pollution control further, by passing the Bay Area Air Pollution Control Law, forming the multi-county Bay Area Air Pollution Control District (BAAPCD). The District originally encompassed six counties and expanded to nine in 1971 and was later renamed the Bay Area Air Quality Management District (BAAQMD).

Recognition of air pollution as a regional problem was formalized at the national level starting in 1967. In a message sent to Congress on January 30, 1967, President Lyndon Johnson proposed that "regional air quality commissions should be established, to enforce pollution control measures in 'regional air sheds' which cut across state and local boundaries" (Lieber, 1968). In November of that year, Johnson signed the Air Quality Act of 1967, which required the Department of Health, Education and Welfare to designate Air Quality Control Regions (AQCRs) based on factors such as jurisdictional boundaries, urban-industrial concentrations, and atmospheric areas. President Nixon signed the Clean Air Act Amendments of 1970 that ordered the newly formed Environmental Protection Agency to complete designation of the AQCRs. About 20 percent of the nearly 250 regions crossed state boundaries and nearly all of the AQCRs included at least one and usually extended



beyond a standard metropolitan statistical area (SMSA) (U.S. EPA, 1972 and Altshuler, 1979).

California followed a parallel path. In 1967 the State Legislature passed the Mulford-Carrell Air Resources Act that directed the Air Resources Board (ARB) to divide the state into air basins. The purposes were: "(1) to establish air quality standards that may vary from basin to basin; (2) adopt emissions standards for air pollutants for each basin as found necessary; (3) inventory all sources of emissions for each basin; and (4) provide a mechanism for the establishment of regional air pollution control districts within the basins." The ARB found that the state was "particularly suited to application of the concept of basins because its large valleys, plains and plateaus are in most instances separated by mountain ranges." Eleven basins were established in November 1968 (CARB, 1972).

With the passage of the 1970 Clean Air Act Amendments and the designation of the entire nation into Air Quality Control Regions, regional air quality agencies grew in number and authority both in and outside of California. In addition, planning grants helped fund agency activities. By 1973 there were 16 multi-county air pollution control agencies, up from just two in 1961. During that same period the number of city agencies fell from 64 to 49. In Massachusetts, the state established regional air pollution control districts. The localities within the district then paid the state to operate the control program. There are currently four such districts. New Jersey facilitated the joint operation of programs by combinations of local governments. Ohio made arrangements for each major city air pollution agency to provide services to surrounding counties, acting as agents for the state. The state of Washington designated seven air pollution control regions made up of cities and counties. There are currently three multi-county air districts in Ohio and four in Washington (Schueneman, 1977 and AWMA, 1995). With the ten multi-county districts in California, there are over 20 regional air pollution agencies in the country.

### **Why Were Regional Air Pollution Agencies Formed?**

The idea of controlling air pollution on a regional level evolved in the 1950s, as the focus of air pollution control shifted from controlling smoke to other pollutants, including ozone or "smog". Up until about 1960, cities operated the vast majority of air pollution control programs. However, debate in the 1950s centered on two weaknesses in city and county control: (1) air pollution crosses political boundaries and uncooperative neighbors could counteract city or county efforts; and (2) high costs of technical personnel, equipment, and facilities were often beyond the reach of individual cities or counties. In addition, state control was "opposed as wielding a heavy hand where a more tactful program based on local sentiment is needed" (Berdahl, 1954).

This first reason was key to the formation of the BAAPCD in 1955. At the time, only one of the nine San Francisco Bay Area counties, Santa Clara County, had formed a county air pollution control district. Area politicians felt that State legislation was necessary to hasten the formation of a regional agency, rather than waiting for each county to form a district and then consolidate, and to streamline the consolidated

agency's governing board. There were worries about competition for business between counties; if one or more counties decided not to form a county air district or impose control regulations, businesses might relocate in that jurisdiction.

Acceptance of regional authority was furthered by applying the concept of an air basin. Everyone generally agreed that air quality problems, and particularly that of ozone ("smog") were regional in nature. Air pollution knows no political boundaries and what's generated in one area usually impacted people in another area within the basin. Furthermore, such a basin, within which most pollution was generated and thought to remain, could be "precisely delineated by scientists...The problem of the administrator and the legislator is also simplified when scientific aids can be brought to bear in determining the appropriate jurisdiction" (Joint Subcommittee on Air Pollution, 1955, pages 8, 29). The region could then be defined based upon scientific criteria such as weather and topography, rather than political leanings, demographics, or economics. In California, the Legislature had also already divided the State into water pollution control regions based upon the watershed concept. In fact, one of the major disagreements in forming the BAAPCD was not the boundaries of the region, but representation on the governing board, with cities wanting to assure direct representation, rather than a board made up solely of county supervisors.

Support from a wide variety of interests was also necessary. For example, strong support for the BAAPCD came from the more urbanized counties of San Mateo, Alameda, San Francisco, and Santa Clara where pollution levels were reaching highs of up to three times today's federal standards. In addition, farmers in the region, particularly in southern Santa Clara County, recognized that air pollution generated by northern neighbors was damaging crops (BAAQMD, 1993). Orchid growers reported large losses they attributed to air contaminants. The Bay Area Council, a business organization long active in regional issues, had an air pollution committee and called for regional regulations to prevent serious problems from developing. On a statewide level, a majority of delegates at a California State Chamber of Commerce conference on air pollution voted for regional air districts. The League of California Cities adopted a policy in 1955 that recommended mandatory legislation creating multi-county or regional air pollution control districts with all the necessary legal authority to control air pollution (Joint Subcommittee on Air Pollution, 1955). In addition, air quality impacts human health, thus garnering support for controls from the general public and political leaders. Health advisories were frequent during the period when air districts were formed and gained much of their power.

Another key to formation of regional districts in California was initiation and support from the regions themselves. Prior to 1955, bills were introduced but failed to give the regional water pollution control boards authority to control air pollution and to establish a parallel system of regional air boards throughout the State. There are currently ten multi-county air districts in the State, but only three of these were established by special State legislation. The remainder were formed by county districts agreeing to consolidate, often in more rural areas such as the north coast, northern Sierra region, and the Great Basin east of the Sierra Nevada mountains. The need for regional consensus to form an agency covering an entire air basin is

evidenced in the Sacramento Valley basin where nine separate air districts govern. While the State Legislature did establish the Sacramento Metropolitan Air Quality Management District, it currently only includes the County of Sacramento. Neighboring Placer County was given an option to join, but has declined.

### **Regional Air Pollution Agencies: Authorities and Activities**

In California, most of the regional air districts were formed by combining county districts. Therefore, the governing boards are made up entirely of county supervisors. In the three districts formed by State legislation, the board structure varies. The boards of the BAAQMD and San Joaquin Valley AQMD are comprised solely of county supervisors and city council members or mayors. In addition to county supervisors and city councilmembers or mayors, the SCAQMD board includes one member each appointed by the Governor, State Senate, and State Assembly. This has contributed to the highly-charged political atmosphere surrounding the SCAQMD. State law also requires each district to have a hearing board made up of one lawyer, one professional engineer, one member of the medical profession, and two public members. The hearing boards are a quasi-judicial body and primarily serve to consider variances to district rules.

Funding for air districts in California comes from a variety of sources. Air districts recover a large portion of their operating costs from permit and emission fees and penalties resulting from violations. However, revenue from these fees declines as emissions decline or as the economy stagnates, reducing the number of businesses needing permits. State and federal grants contribute to agency budgets, though that source has declined over the years. A new source of revenue for most urban districts is a two to four dollar surcharge on motor vehicle registrations. These funds are used to reduce mobile sources of pollution through demand management measures and alternative fuel vehicles.

The 1970 and 1977 federal Clean Air Act Amendments led to increased activity on the part of the regional agencies in the 1970s and 1980s. For example, prior to 1970, the Bay Area APCD had adopted only three regulations in its first fifteen years of existence and had not engaged in significant planning activities. In 1979 the agency joined with the Association of Bay Area Governments to develop an air quality management plan for the region, which included measures to reduce pollutants from both stationary and mobile sources. By the end of 1992 the thirteenth regulation was adopted, with numerous rules within each regulation. Staff topped 300 in the early 1990s, with a budget of over \$30 million. The South Coast Air Quality Management District (SCAQMD) had a staff of around 1,000 and a budget of well over \$100 million. William Fulton (1996) described the SCAQMD during the 1980s as follows: "During the boom years of the 1980s, environmentalists, federal bureaucrats, staff members and the public prodded the agency to get tougher on pollution. James Lents, a Tennessee chemist with a no-compromise reputation, took over and declared Los Angeles to be 'the Super Bowl of smog.'"

During this time the State expanded districts' authority and planning requirements. The 1989 California Clean Air Act granted districts the explicit

authority to adopt and implement rules to control transportation, indirect, and area sources, in addition to their long held authority to regulate stationary sources of air pollution. Districts had the authority to seek penalties for violations of their regulations of up to \$25,000 per day and this was increased to \$50,000 per day for the most egregious violations. Some violations can result in jail time (California Health and Safety Code, Section 42400 et. seq.). The Act also required that air quality plans be prepared and updated every three years to meet stricter state ambient air quality standards. Legislation specific to the BAAQMD and SCAQMD required the area's metropolitan planning organizations, the Metropolitan Transportation Commission and the Southern California Association of Governments, respectively, to take part in developing the transportation and indirect control measures.

Air districts in California witnessed numerous challenges to their authority in the 1990s. Each legislative session has brought a series of bills to limit the authority of the SCAQMD and air districts in general. Arguments often center upon economic impacts of air regulations and the accountability of the district boards. Two of the leading opponents of the SCAQMD described it as a "monster bureaucracy" that is "accountable to no one" and "crushing businesses with regulatory nightmares" (Hurt and Lewis, 1996). Another opponent authored a column in *National Review* entitled "Air Zealots" that led with the statement "The number one killer of business in California is the AQMD" (Hewitt, 1992).

Opponents have succeeded in limiting district authority to some extent. For example, three regional air districts, starting with the SCAQMD in 1987, adopted regulations requiring large employers to impose trip reduction programs aimed at getting their employees to rideshare, use transit and other modes to reduce automobile commuting to work. Opposition to the regulatory requirements and costs of implementing the programs grew, particularly from employers in Southern California. A 1992 *Forbes* article opened "A southern California environmental bureaucracy has become a pioneer in the least efficient ways to clean up the atmosphere" and went on to label the regulation "southern California's most loathed environmental regulation" (Lane, 1992). At that time the SCAQMD had already imposed over one million dollars in fines for this regulation, which affected about 4,000 work sites in the region. As a result of complaints from businesses, a State Senator from the region sponsored legislation signed by the Governor in 1995, prohibiting cities, counties, and air districts from implementing such regulations.

In 1996 a set of bills introduced by Republican Senators in Orange County (within the SCAQMD) sought to overhaul the District's board, require legislative approval of expenditures, and limit District authority to control indirect sources. Prior legislation had already been approved that required some state agency and legislative oversight of the SCAQMD's budget. However, support for the massive changes was not widespread, as two industry groups, including the California Manufacturers Association, spoke against the bills (Cone, 1996). Overall, air district authority remains intact, though agency management and governing boards may be wary of exercising that authority to its full extent.

The change from the 1980s to 1990s is perhaps summed up best by continuing with Fulton's description of the SCAQMD: "When the recession hit in the early 1990s, political tolerance for anti-smog regulations changed. Though Lents remained in charge, his agency became more flexible, rolling back many regulations. The business community, which had long complained about the anti-smog power wielded by the agency, recognized that this was a two-way street. Throughout, the Clean Air Act did not change. Neither did the technology used to fight smog, nor the computerized-modeling approach used by most air-quality analysts, nor the weather patterns that make Los Angeles susceptible to smog. All that had changed was the political climate." In response to this change, the South Coast AQMD adopted the 1996 AQMD Regulatory Reform Initiative which included policies to reduce its size by 50% (staff is now under 800), eliminate permitting requirements for small businesses, and streamline permit processes. However, there are critics of such actions who argue that the SCAQMD bowing to industry and is not tough enough.

## **Evaluating Regionalism in Air Quality Planning**

### **A) Successes**

Regional air districts in California are generally viewed as a success in terms of reducing air pollutant emissions and improving air quality. Air quality has improved in all regions despite significant growth in population and vehicle use. Peak ozone levels in the South Coast basin have been cut to less than half what they were in the 1950s. The same is true in the San Francisco Bay Area, which was declared in attainment of the federal ozone standards in 1995, though a recent proposal may revoke this designation. These improvements are due to a combination of air district controls and improved vehicle emission controls adopted by the State. Several factors contribute to this success at the regional level.

One key factor is that federal legislation and regulation established clear and specific targets for air quality, unlike transportation. The EPA established the National Ambient Air Quality Standards (NAAQS) based upon health criteria. The plans that states and air districts develop are designed to meet these standards. In addition, the Clean Air Act and implementing regulations require specific actions, such as rules requiring "best available control technology" to reduce emissions. Having a specific goal mandated from above reduces some of the political debate that might otherwise surround air quality agencies and impede action. When developing regulations to meet federal, or in the case of California, state mandates, regional air districts can place the blame, so to speak, on the EPA or ARB. If federal laws are not met, the EPA might come in to the region and implement its own plan or highway funding might be cut. Area interests, including the regulated community, would usually rather comply with a regulation developed at the regional level than deal with state or federal agencies.

Other federal requirements and provisions increase the likelihood of strong regional air pollution control programs. For example, programs must be implemented by agencies with legal authority to enforce the adopted measures. In order to become part of the federally-approved State Implementation Plan (SIP) the

measures must be enforceable, real, quantifiable, and result in emission reductions in surplus of other measures. The federal Clean Air Act explicitly allows for citizen lawsuits to enforce federal requirements. The possibility, and in some areas the probability, of such lawsuits serves to counteract pressures from the regulated community to weaken plans and regulations. At the same time, there is room for local control. For example, California law allows air districts to delegate implementation of rules, particularly transportation rules, to local cities and counties. This option was exercised by several cities in both the SCAQMD and BAAQMD with respect to employer trip reduction rules.

## **B) Limitations**

However, air districts are finding it more difficult to continue achieving such substantial improvements in air quality. The agencies have generally succeeded in reducing emissions from stationary sources, ranging from oil refineries to dry cleaners and gas stations. Implementation of these controls has little direct impact on residents' everyday lives or on city and county land use authorities. However, as these sources have been controlled and air quality standards have not yet been met, air districts have turned to more difficult, but significant sources, such as the use of automobiles and consumer products, including barbecues, lawn mowers, paints, and spray cans. Air districts have not been able to significantly reduce emissions from these transportation and area wide sources. They have had little, if any, impact on the cause of much of today's ozone problem: increasing travel by private automobiles, spurred, in part, by current growth patterns. This is an area, however, where state and federal technology-forcing regulations have been successful; automobile emissions per mile of travel have decreased dramatically since 1970.

When the air districts in California entered this arena by adopting employer trip reduction rules, backlash led to a state law forbidding such rules from any level of government. Regulatory controls on automobile use and consumer products are more difficult because they directly impact residents who may not see the benefit to air quality. It is much easier to understand how putting equipment on a refinery will improve air quality than using non-oil based paints on your house. Similarly, it is much easier to blame pollution problems on Chevron and Exxon than you and your neighbor working in the backyard on the weekend or driving to work each day. These types of measures fit into Alan Altshuler's fourth, and least acceptable, level of innovation "...those that entail substantial costs or interference with established patterns of behavior, imposed in such a manner that the blame will fall clearly and inescapably upon the public officials who adopt the innovation" (Altshuler, 1979).

Other problems exist with these measures as well, including lack of jurisdiction and authority. Many clean air plans include measures involving improvements in transit service, high-occupancy vehicle lanes, or bicycle facilities. However, air districts are not responsible for these types of facilities that are typically under the jurisdiction of state and regional transportation agencies, cities, and counties. This is even more true for land use measures that appear in some air quality plans, such as jobs-housing balance and increased density around rail transit stations. Air districts also struggle to accurately predict the benefits of such measures, unlike traditional

stationary source controls. This makes convincing air district boards and other agencies to adopt such measures even more difficult.

Despite the number and impact of rules adopted by air districts, and the power given them by the State, air districts have often been in the center of controversy. During the earliest years of the BAAPCD, at the time adopting a regulation to limit open burning which was very common in the region, opponents burned a likeness of the head of that agency in effigy. In the late 1980s and early 1990s, the SCAQMD was in the middle of several lawsuits by environmental groups that forced EPA to develop two federal implementation plans (FIPs) for the region. Given the constraints of the federal Clean Air Act, EPA's proposals included extremely controversial measures, including high fees on airplanes landing in the region and driving or gasoline purchase restrictions. However, after each proposal was introduced and publicity ensued, agreements were reached to avoid implementation of the plans, with each agency returning to its regular activities.

Overall, regional air agencies face far more difficult challenges today than they did earlier in their forty year history. Most districts have already adopted the most effective and politically acceptable controls for stationary sources. Getting those last emission reductions needed for attainment are proving to be the most difficult. When adopting air quality plans, California air districts must evaluate the cost effectiveness of each control measure in terms of dollars per ton of pollutant reduced. Many of the rules that District boards adopted in the past two decades had a cost effectiveness ranging from cost savings to expenses of \$10,000 per ton of reactive organic gases (ROG) reduced. However, many of the transportation control measures have costs of \$50,000 to \$100,000 or more per ton of ROG reduced. New stationary source measures are more costly as well, or call for technology that does not yet exist. Rules adopted today are getting emission reductions of one-tenth of what rules adopted in the 1970s and '80s achieved. Many of the rules proposed in clean air plans in the 1990s are projected to achieve less than one ton of ROG reductions per day.

Air districts also struggle in defining their role relative to state and federal agencies. Traditionally, the federal government and California have regulated direct emissions from vehicles. The EPA and states have also been responsible for programs directly related to vehicle emissions, such as inspection and maintenance programs and fuels, including the formulation of gasoline and the introduction of alternative fuels. However, some air districts have entered this arena by adopting programs to fund alternative fuel vehicles or rules that require or provide incentives to purchase such vehicles. As a result, conflicts may arise between the regional district and the State over how programs might overlap or conflict. In addition, districts often feel constrained by having little or no control over sources such as aircraft, ships, and interstate rail engines. As other sources are controlled, these are becoming a bigger piece of the pie and essential for some areas to meet federal and state standards.

One question that faces regional air quality agencies is what will be their role in reaching attainment of state and federal standards? If the largest sources of pollution remaining, namely cars, trucks, and other mobile sources, can't be controlled at the local and regional level through reducing their use, i.e. if

technological changes are the only real solution, will air districts play as large a role in adopting new strategies to clean up the air as they have in the past? In addition, if traditional regulatory strategies are not acceptable, can the agencies adapt by implementing more innovative programs via incentives, public-private partnerships, and market-based measures?

### C) Equity

Issues of equity have not been as visible in air quality debates as in transportation, though they do exist. The lack of debate over equity stems, in part, from the focus of air pollution control on ozone, a pollutant that is formed by chemical reactions in the air over the course of the day. The emissions that cause smog may originate in one area and end up as ozone in another part of the region. The smoggiest areas of a region do not always correspond with income, race or other demographics. Air districts have traditionally applied their regulations equally throughout the region, believing that emissions from all parts potentially create smog. This is in contrast to providing transportation facilities or services in certain locations that might impact certain neighborhoods or groups differently.

If pollutants other than ozone are considered, particularly toxic air contaminants, effects are often very localized, impacting lower-income ethnic communities. Neighborhoods surrounding refineries and other heavy industrial sites, may be subject to higher concentrations of pollutants in addition to the risks of accidental releases. In many cases they also have active community groups that are often at odds with the air districts, calling for stricter controls. Air quality regulations may also impact income groups differently. Inspection and maintenance requirements for cars and trucks require minimum spending limits that can impact the poor families substantially. Critics of the SCAQMD argue that the agency's regulations have eliminated disproportionate numbers of manufacturing jobs and small businesses, though that debate is unsettled. And, while State law requires socio-economic impact reports for many air district plans and regulations, the required focus of such reports is impacts on businesses and jobs, not residents or neighborhoods.

More recently, the issue of environmental justice, which has its origins in the arena of toxics and waste disposal (Bryant, 1995), has entered into the air pollution arena. Environmental groups in the Los Angeles region are challenging so-called "trading" rules adopted and proposed by the SCAQMD. These rules allow stationary sources of air pollution to avoid compliance with existing stationary source control rules by reducing pollutants from other sources, such as scrapping high-polluting automobiles. Critics claim that this will result in increased pollution in low income communities of color. They argue that the programs violate Title VI of the Civil Rights Act. EPA's National Environmental Justice Advisory Council has recommended postponing federal approval of one such rule, though EPA staff is divided on the issue (Inside Cal/EPA, 1996 and 1997). Environmental justice issues are not unique to regional air districts. In this arena the issue is a product of the push towards market-based pollution control measures and the location of noxious sources in low-income areas. Furthermore, it is unclear whether a regional agency will be



able to address the issue any better than a county or city. In fact, with a regional agency the opportunities for trading between sources are likely to be greater, thereby increasing the demand for and feasibility of such programs. With respect to central cities, the equity impacts of regional air pollution programs are highly dependent upon the region in question and whether sources of pollution are concentrated in the central city.

## **Conclusions**

Transportation and air quality are two sectors of American public policy in which there are today significant regional roles. There are important similarities among and differences between regional governance in these sectors, however, and, it is also not completely clear that the evolution of regional approaches to governance and decision making in transportation and air quality offer models of approaches that will be readily applicable to other sectors of public policy making.

A widespread consensus that a problem is regional in extent and in scope does not necessarily lead directly to regional action or to attempted solutions that are regional in scope. Both transportation and air quality are addressed at the regional level in large part because federal legislation and federal regulatory agencies have directed that these problems be attacked regionally. Far less often have effective regional agencies been direct outcomes of progressive initiatives taken entirely within regions that simply recognized the importance of acting collectively to address a serious regional problem. Though many can argue for the potential benefits of collective regional action, they have rarely caused a groundswell of support for councils of government or special districts. Local governments naturally see these forms of regionalism as a threat to their autonomy and financial integrity, and state governments also have seen little to be gained from creating stronger regional bodies. Requirements of the Clean Air Act and its subsequent amendments and in a series of Surface Transportation Acts have more directly led to the regionalism that we have discussed in this paper.

One of the key differences between regional transportation and air quality planning is the existence of clearer goals in air quality planning, namely the ambient air quality standards established at the federal level and in California. In addition, the federal and California Clean Air Acts define specific goals to help reach the ambient standards, such as a three percent per year reduction in emissions. While some may question the reasonableness of the goals, their existence eliminates some of the debate over goal-setting that is typical in planning processes, helps focus efforts, and provides criteria to use in selecting programs and measures. On the other hand, the federal government has not set specific, quantitative goals or objectives that define the overall mission of transportation agencies. Rather, transportation planners face several broad goals, such as the reduction of congestion and the provision and enhancement of mobility, which often conflict with each other. The existence of regional authorities does little to clarify the goals of transportation planning, and it is reasonable to conclude that the sharper policy focus associated with air quality does not result from the fact that it is to a great extent addressed at the regional level.

One of the principal arguments that might be given for a regional locus for public policy making is the fact that regions differ dramatically from one another in their economies, demographics, geography, and history. There is little reason to expect, for example, that the type of transportation investment program appropriate for New York or Boston is also likely to be the most appropriate approach for Phoenix or Dallas. Yet, in the realms of transportation and air quality, at least, the existence of regional decision making bodies have not fostered dramatic differences in approaches to regional planning. Because there are few sources of transportation funds at the regional level, and programs at the federal level make transportation funds available for specific types of investments – new rail systems or bridge rehabilitation programs – regional bodies adjust their activities to focus on the capture of federal resources. That focus makes regional agencies' priorities seem surprisingly similar despite dramatically different regional settings. Rather than finding that one metropolitan area seeks funds for rail system construction, another for express bus operations, and a third for highway network rehabilitation, all seem to compete for their shares of whatever federal programs offer, leading to a surprising similarity in their plans. To fulfill the requirements of air quality regulations, each metropolitan area models its regulatory program after programs other regions are trying or what the federal government is currently requiring.

It might also appear that the presence of a regional authority for transportation or air quality might lead to greater equity in the distribution of resources within a region. While one school board might have far less to spend on education than another as a function of the wealth of the citizens of their different districts, wouldn't the existence of a region wide transportation authority suggest the possibility that the needs of less advantaged communities within the region might be more equitably addressed? Unfortunately, there is little evidence that a higher level of distributional equity has been achieved as a result of the existence of regional transportation authorities. Neither transportation nor air quality agencies at the regional level have direct taxing or fundraising authority, and neither typically has the equitable redistribution of funds as an explicit responsibility within the terms of its charter. In many instances, for example, per capita transportation subsidies for suburban transit services in high income communities are many times larger than per capita subsidies for inner-city transit networks that serve larger numbers of lower-income, transit-dependent people. In many instances, highways have been built through low income communities in order to benefit richer suburban commuters despite the fact that a regional authority has reviewed the routing and the funding of the highway construction project. And, as we have noted above, many observers claim that regional air quality goals have led to regulations that have had especially negative impacts on lower income manufacturing workers.

Governance and policy making at the regional level in transportation and air quality are almost always indirect and derivative. Regional transportation authorities and air quality management districts are not composed of directly elected representatives, but rather are structured so that their boards are composed of locally elected municipal and county officials. These boards and commissions, therefore, typically include few or no advocates for region wide interests. Rather, each

representative to the regional body or commission is there to serve the interests of his or her home community, seeking to minimize the negative effects of region wide regulations on the communities they represent, or to maximize the financial gains of region wide policies for their districts. The policies that are adopted and compromises that are reached at the regional level rarely redistribute benefits from the haves to the have nots. They do not result in choices of investments to maximize regional efficiency, but rather they attempt to balance competing interests within the region.

## REFERENCES

- Air and Waste Management Association (AWMA), 1995. *1995 Government Agencies Directory*, Washington, D.C.
- Altshuler, Alan, 1979. *The Urban Transportation System*, Cambridge, MA: MIT Press.
- Bay Area Air Quality Management District (BAAQMD), 1993. *The History of Ozone in the Bay Area (1970 - 1992)*.
- Berdahl, Robert O., 1955. Bureau of Public Administration, University of California, "Governmental Experience in Air Pollution Control," July 21, 1954 in Joint Subcommittee on Air Pollution, *Air Pollution Control in the San Francisco Bay Area*, February.
- Bollens, John C., 1957. *Special District Governments in the United States*, University of California Press, Berkeley.
- Bryant, Bunyan (editor), 1995. *Environmental Justice: Issues, Policies and Solutions*, Washington, D.C.: Island Press.
- California Air Resources Board (CARB), 1972. *California Air Basins*, December, Sacramento, CA.
- Cone, Marla, 1996. "Air Board to Fight Bills Curbing Power Environment," *Los Angeles Times*, p. A20, February 24.
- Ewing, Reid, 1997. "Counterpoint: Is Los Angeles-Style Sprawl Desirable?" *Journal of the American Planning Association*, Vol. 63, No. 1 (Winter), pp. 107-126.
- Federal Highway Administration, U.S. Department of Transportation, 1993. *Journey to Work Trends in the United States and Its Major Metropolitan Areas, 1960-1990*.
- Fulton, William, 1996. "The AQMD: A Political Creature Suffers a Political Fate," *Los Angeles Times*, September 1.
- Gordon, Peter and Harry W. Richardson, 1997. "Point: Are Compact Cities a Desirable Planning Goal?" *Journal of the American Planning Association*, Vol. 63, No. 1 (Winter), pp. 95- 106.
- Heightchew, Robert E., 1979. "TSM: Revolution of Repetition," *ITE Journal*, Vol. 48, No. 9 (September), pp. 22-30.
- Hewitt, Hugh, 1992. "Air Zealots," *National Review*, August 17, Vol. 44, No. 16.
- Inside Cal/EPA, 1996. "Environmentalists Hail EPA Move to Consider Justice in Credit Trading," Vol. 7, No. 51, December 20.
- Inside Cal/EPA, 1997. "EPA Postpones Approval of Credit Trading Plan to Focus on Justice," Vol. 8, No. 5, January 31.
- Johnson, President Lyndon, 1967. "Protecting out National Heritage," January 30, 1967, in Lieber, Harvey, "Controlling Metropolitan Pollution Through Regional Airsheds: Administrative Requirements and Political Problems," *Journal of the Air Pollution Control Association*, Volume 18, Number 2, February 1968.
- Joint Subcommittee on Air Pollution, 1955. *Air Pollution Control in the San Francisco Bay Area*, Assembly Interim Committee Reports 1953-1955, Volume XIII, Number 4, Assembly of the State of California, February.
- Lane, Randall, 1993. "The Commuter Police," *Forbes*, Volume 152, Number 14, December 20.

- Pisarski, Alan E., 1996. *Commuting in America II: The Second National Report on Commuting Patterns and Trends*, Eno Foundation for Transportation, Inc., Lansdowne, Va.
- Pucher, John. 1981. *Equity in Transit Finance: A Quantitative Assessment of the Impacts of Transit Subsidies on Low-Income and Minority Groups*, Report Prepared for the Urban Mass Transportation Administration, U.S. Department of Transportation.
- Pucher, John. 1982. "Discrimination in Mass Transit," *Journal of the American Planning Association*, Volume 48, Number 3 (Summer), pp. 315-326.
- Schueneman, Jean J., 1977. "Organization and Operation of Air Pollution Control Agencies," in *Air Pollution, Third Edition, Volume V*, Arthur C. Stern, editor, New York: Academic Press.
- Hurt, Rob and John Lewis, 1996. "Making AQMD More Accountable," Letter to editor, *Los Angeles Times*, March 12, p. B-6.
- Stern, Arthur C., 1982. "History of Air Pollution Legislation in the United States," *Journal of the Air Pollution Control Association*, Vol. 32, No. 1, January.
- Taylor, Brian D., 1991. "Unjust Equity: An Examination of California's Transportation Development Act," *Transportation Research Record No. 1297*, pp. 85-92.
- Taylor, Brian D., 1992. *When Finance Leads Planning: The Influence of Public Finance on Transportation Planning and Policy in California*, Doctoral Dissertation, Department of Urban Planning, UCLA.
- Taylor, Brian D., 1995. "Public Perceptions, Fiscal Realities, and Freeway Planning: The California Case," *Journal of the American Planning Association*, Vol. 61, No. 1 (Winter), pp. 43-56.
- U.S. Environmental Protection Agency, 1972. *Federal Air Quality Control Regions*, Washington, D.C.
- Wachs, Martin, 1997. "Critical Issues in Transportation in California," in Xandra Kayden, ed., *California Policy Options: 1997*. The UCLA Policy Forum and the UCLA Business Forecasting Project, School of Public Policy and Social Research, University of California, Los Angeles.
- Wachs, Martin and James Ortner, 1979. "Capital Grants and Recurrent Subsidies," *Transportation*, Vol. 8, No. 1 (March), pp. 3-19.