

## CHAPTER 7

# PLANNING FOR ACCESSIBILITY: IN THEORY AND IN PRACTICE

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### INTRODUCTION

Pick up a transportation plan for a major metropolitan area in the US and you are likely to find improved mobility and accessibility highlighted as goals. The 2020 Regional Transportation Plan for the Austin region, for example, stated that “The primary goal of the CAMPO 2020 Plan is to provide an acceptable level of mobility and accessibility for the region’s residents with the least detrimental effects.” The 2020 Regional Transportation Plan for the Chicago region aimed to “provide an integrated and coordinated transportation system that maximizes accessibility and includes a variety of mobility options that serve the needs of residents and businesses in the region.” Such statements are likely influenced by the Transportation Equity Act for the 21<sup>st</sup> Century, commonly known as TEA-21, which established seven “planning factors” for consideration in the planning process, including “increase the accessibility and mobility options available to people and for freight.”

What exactly these plans mean by “mobility” and “accessibility” isn’t clear, nor whether the agencies writing these plans themselves have a clear sense of what they mean in using these terms. If so, they may have missed an important opportunity to clarify their objectives and direct their planning efforts more effectively. This paper takes the position that mobility and accessibility are distinct concepts with vastly different implications for planning. First, the paper looks at these concepts in theory, articulating a distinction between mobility and accessibility and outlining the possible implications of planning for mobility versus planning for accessibility. Second, the paper looks at the current use of these concepts in practice, by examining a sample of regional transportation plans. This exploration yields a mixed picture: although these plans continue to reflect a traditional concern with mobility, they also show many indications of a concern with planning for accessibility, even if they don’t label their efforts as such.

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## IN THEORY

The American Heritage Dictionary Fourth Edition defines “mobility” as “the quality or state of being mobile” and “mobile” as “capable of moving or of being moved readily from place to place” (Picket et al. 2000). The Oxford English Dictionary defines “mobility” as the “ability to move or to be moved... facility of movement” (OED 2002). In the context of transportation planning, mobility has been defined as the potential for movement, the ability to get from one place to another, an ability to move around (Hansen 1959; Handy 1994). Traditional level-of-service measures used in transportation planning are measures of mobility; higher volume-to-capacity ratios mean slower travel times, less ease of movement, and thus lower mobility. Mobility is sometimes also measured by actual movement, either numbers of trips made or total kilometers traveled. Actual movement is not necessarily an accurate measure of the potential for movement, however. First, potential movement can exceed actual movement, for example, if individuals choose to drive less than they could. Second, increases in actual movement can mean decreases in potential movement, as is the case when roads are congested.

Accessibility has been harder for planners to both define and to measure. The American Heritage Dictionary Fourth Edition defines “accessibility” as “easily approached or entered” (Picket et al. 2000). The Oxford English Dictionary defines “accessibility” as “the quality of being accessible, or of admitting approach” (OED 2002). Accessibility was perhaps more clearly defined for the planning context by Hansen (1959) as “the potential for interaction.” Accessibility can be thought of as an ability to get what one needs, if necessary by getting to the places where those needs can be met. In most cases, measures of accessibility include both an impedance factor, reflecting the time or cost of reaching a destination, and an attractiveness factor, reflecting the qualities of the potential destinations. Researchers have used many different forms of accessibility measures and have raised many important issues about these measures (Handy and Niemeier 1996). Simple “cumulative-opportunities” measures, which count the number of destinations of interest within a certain time or distance of the origin point, seem to be coming into greater use in transportation planning, as discussed below. Choice is an important element of accessibility: more choices in either destinations or modes of travel mean greater accessibility by most definitions.

Part of the confusion in the use of these terms may stem from the relationship between them. Mobility, the potential for movement, is related to the impedance component of accessibility, in other words, how difficult it is to reach a destination. Policies to increase mobility will generally increase accessibility as well by making it easier to reach destinations. But it is possible to have good accessibility with poor mobility. For example, a community with severe congestion but where residents live within a short distance of all needed and desired destinations has poor mobility but may still have good accessibility. If destinations are close, the travel times will still be reasonably short, even if travel speeds are relatively low. In this case, accessibility is not dependent on good mobility (though it does depend on having some mobility by one mode or another). It is also possible to have good mobility but poor

accessibility. For example, a community with ample roads and low levels of congestion but with relatively few destinations for shopping or other activities or with undesirable or inadequate destinations has good mobility but poor accessibility. *Good* mobility is neither a sufficient nor a necessary condition for *good* accessibility.

Planning for mobility, then, means making it easier to get around and, in practice, has largely meant making it easier to drive around. To plan for mobility is to focus on the means without direct concern for the ends: can people move around with relative ease? The traditional emphasis on road building in the U.S. is consistent with a planning-for-mobility perspective in that the aim is to accommodate growing levels of travel and increase the potential for movement. The planning process traditionally started with a projection of future traffic volumes that was followed by a determination of the capacity needed to accommodate those volumes at acceptable levels-of-service. The focus was on the performance of the system. This approach can lead to a vicious circle, however. When it's easier to drive around, people are more likely to drive around. Higher levels of driving put pressure on policy makers to accommodate more driving, and the cycle begins again (Figure 1).

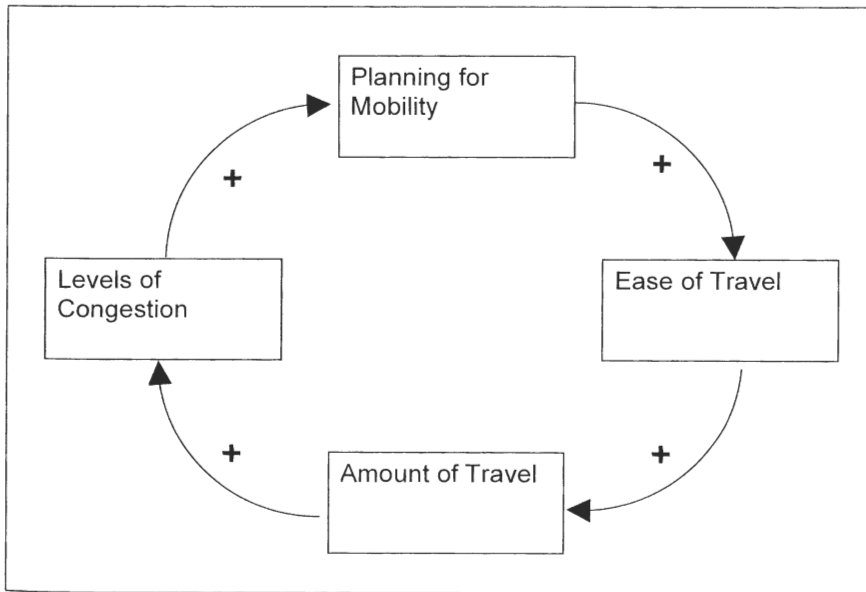


Figure 1. Planning for mobility

Although planning for mobility can be compatible with planning for accessibility, the traditional focus on mobility in transportation planning in the U.S. has over time helped to decrease accessibility. As a result of this emphasis, accessibility in the U.S. is largely mobility-dependent, and mobility in the U.S. is largely car-dependent. In the suburban areas of metropolitan regions, transit service is relatively sparse and destinations are generally beyond walking distance, leaving residents with no option but to drive. The result is a lower

level of accessibility, at least for those who need or would like to travel by modes other than the automobile. But even for those residents who prefer to drive, accessibility is threatened. As traffic levels invariably increase in these areas, getting around by car becomes harder, and accessibility ultimately declines (Handy 1993).

Planning for accessibility, in contrast, means making it easier to get where you need to go. To plan for accessibility is to focus on the ends rather than the means and to focus on the traveler rather than the system: do people have access to the activities that they need or want to participate in? Transit services that focus on linking specific groups of users to their desired destinations, such as reverse commute programs and other client transportation services, are an example of planning for accessibility. Land use policies designed to bring destinations within walking distance of residential areas are another example of planning for accessibility. Efforts like these reduce the need to drive, although they don't necessarily reduce actual driving. Either way, they help to break the planning-for-mobility cycle (Figure 2). Although such efforts are not new, they have largely played a secondary role to the primary focus on planning for mobility. As congestion levels continue to worsen and funding for capacity-expanding road projects dwindles relative to needs, however, interest in a planning-for-accessibility approach seems to be increasing.

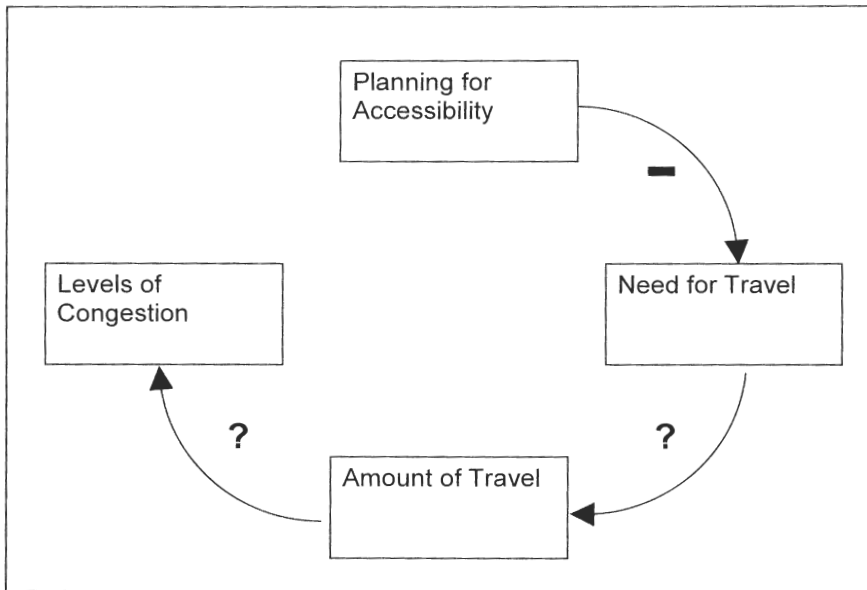


Figure 2. Planning for accessibility.

## IN PRACTICE

To what degree do current transportation plans continue to emphasize planning for mobility and to what degree do they now reflect planning for accessibility? For most plans, it's hard to tell. Not only do most plans not clearly define these concepts, they may implicitly address accessibility or mobility without explicitly saying so. The orientation of a plan, whether a mobility orientation or an accessibility orientation, may be evident in several different places: the stated goals and objectives for the plan, the performance measures used to evaluate alternatives, and the kinds of investments and policies chosen.

As an initial step towards determining the degree to which regional transportation plans reflect an accessibility orientation, I reviewed four regional transportation plans from Northern California and their supporting documents (Figure 1, Table 1). This sample of plans, though too small to allow for generalization, nevertheless illustrates some of the different ways in which mobility and accessibility may appear in regional transportation plans. The four regions are increasingly connected from the standpoint of daily travel patterns, as the population commuting from San Joaquin and Merced Counties to the Bay Area and Sacramento and even from Sacramento to the Bay Area continues to grow. Significant variations in the orientations of the plans of these interconnected regions could thus be interesting. For each plan, I addressed three questions:

What do goals and objectives say about accessibility and mobility?

What kinds of performance measures are used to evaluate alternatives?

What kinds of strategies are included in the plan?

In addressing Question 1, I looked for direct as well as indirect mention of accessibility and/or mobility (Table 2). Any goals that used the terms "mobility" or "accessibility" were highlighted. Indirect evidence of mobility orientation included goals that focus on congestion reduction or improvement in travel times. Indirect evidence of accessibility orientation included goals that focus on increasing the ease of reaching specific destinations, reducing the need for travel, increasing travel choices, or addressing the needs of specific populations.

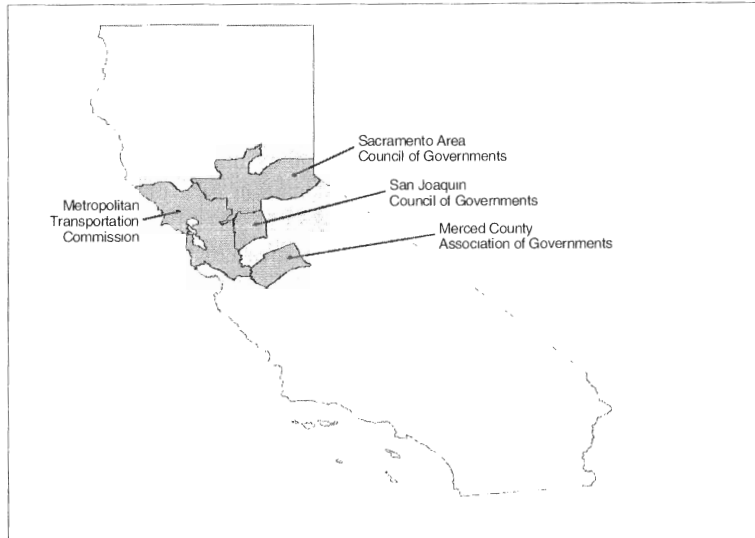


Figure 3. Regional plan areas.

**TABLE 1 Sample of Regional Transportation Plans**

<b>MPO</b>	<b>2000 Population</b>	<b>Plan</b>	<b>Date</b>
<b>MTC - Metropolitan Transportation Commission</b>	6.8 million	2001 Regional Transportation Plan for the San Francisco Bay Area	Amended November 2002; draft of updated plan available for review November 2004
<b>SACOG - Sacramento Area Council of Governments</b>	1.9 million	A Bold First Step for Mobility in the Sacramento Region: Metropolitan Transportation Plan for 2025	Adopted July 2002; updated plan due for adoption in June 2005
<b>SJCOG - San Joaquin Council of Governments</b>	0.6 million	2004 San Joaquin Council of Governments' Regional Transportation Plan: Vision 2030	Adopted 2004
<b>MCAG - Merced County Association of Governments</b>	0.2 million	2004 Regional Transportation Plan - Merced County	Adopted August 2004

**TABLE 2 Criteria for Distinguishing Mobility and Accessibility in Transportation Plans**

	Goals	Measures	Strategies
Mobility	<ul style="list-style-type: none"> <li>✓ Uses the term "mobility"</li> <li>✓ Focuses on reducing congestion or improving travel times</li> </ul>	<ul style="list-style-type: none"> <li>✓ Traditional level-of-service measures</li> <li>✓ Vehicle-miles travelled</li> <li>✓ Average travel time</li> <li>✓ Other measures of congestion</li> </ul>	<ul style="list-style-type: none"> <li>✓ Projects intended to increase road capacity to enable higher volumes of traffic</li> <li>✓ ITS projects that aim to increase the capacity of the road system</li> <li>✓ Transit projects that do not link key origins and destinations</li> <li>✓ Bicycle and pedestrian projects that do not link key origins and destinations</li> </ul>
Accessibility	<ul style="list-style-type: none"> <li>✓ Uses the term "accessibility"</li> <li>✓ Focuses on increasing the ease of reaching specific destinations</li> <li>✓ Focuses on reducing the need for travel</li> <li>✓ Focuses on increasing options for travel</li> <li>✓ Focuses on meeting the needs of specific population groups</li> </ul>	<ul style="list-style-type: none"> <li>✓ Share of jobs or other destinations within specified travel times or distances</li> <li>✓ Measures of travel options</li> <li>✓ Measures that focus on the needs of specific population groups</li> </ul>	<ul style="list-style-type: none"> <li>✓ Land use strategies intended to reduce the need for travel and/or promote the viability of alternatives to driving</li> <li>✓ Transit investments or services that clearly link key origins and destinations</li> <li>✓ Bicycle and pedestrian projects that link origins and destinations</li> </ul>

In addressing Question 2, I looked at the measures used to compare the performance of alternative plan scenarios. These scenarios generally include a no-build scenario as well as at least one and often more than one scenario consisting of a set of proposed improvements to the transportation system. As noted above, transportation plans were traditionally analyzed using the four-step travel demand model that produces measures of congestion. However, these models can be used to produce measures of accessibility as well, and plans may opt to evaluate scenarios using measures that are produced by means other than travel demand models. Measures of level of service, vehicle delay, congestion levels, and vehicle-miles-traveled were classified as mobility measures. Measures of the number or share of jobs or other activities or destinations within specified travel distances or times are categorized as accessibility measures, as are measures of travel choices and measures that focus on specific groups

Question 3 is the most challenging. To answer this question, I looked at the types of projects funded as well as other strategies included in the plan, and to the relative share of funding by project type (focusing on "Tier 1" funding, that is, funding that the MPOs believe is

reasonably assured). Deciding what counts as a mobility-oriented project and what counts as an accessibility-oriented project is not always straightforward, however. As a starting point, I drew on previous work (Handy, 2002) in which I defined mobility-oriented strategies as including road expansion (either new roads or expansion of existing roads) and intelligent transportation systems (ITS) technologies designed to increase the effective capacity of the road system. Accessibility-oriented strategies included transit investments, investments in bicycle and pedestrian infrastructure, land use policies designed to increase the viability of these modes, and programs targeted to the needs of specific groups.

But these categories are overly simplified. Some road expansion projects can be accessibility-oriented, for example, if they aim to increase the ease of reaching particular destinations rather than to reduce congestion in general. Some transit projects can be mobility-oriented, for example, if by making use of available rights-of-way they do not efficiently serve important origins and destinations; trails projects designed for recreational purposes are often more mobility than accessibility oriented. In other words, projects must be categorized according to the goal towards which they aim. Thus, I defined mobility-oriented projects as road expansion and ITS projects intended to increase capacity or reduce congestion, as well as transit and bicycle/pedestrian projects that do not explicitly link origins and destinations; road maintenance projects were also included in this category. Accessibility-oriented projects include transit and bicycle/pedestrian projects that link origins and destinations, land use strategies designed to reduce the need for travel, strategies that focus on the needs of specific population groups, as well as road expansion intended to increase the ease of reaching specific destinations and ITS projects that focus on specific travel needs (Table 2). In reviewing the regional transportation plans, I attempted to discern these often subtle differences. Where these differences were not clear, I defaulted to the original categorization of strategies.

### **Bay Area**

The San Francisco Bay Area is defined as the nine counties that border the San Francisco Bay. These nine counties encompass 100 cities, 7,000 square miles (18,000 km<sup>2</sup>), and a total population of 6.8 million. By 2025, the population of the region is expected to reach 8.2 million. The Metropolitan Transportation Commission (MTC) adopted its current regional transportation plan in 2001. MTC is currently in the process of developing a new plan, and the draft was made available to the public in November 2004.

The 2001 plan lays out six broad policy goals: mobility, safety, equity, environment, economic vitality, and community vitality. Although mobility is not explicitly defined in the plan, the concept used in the plan appears consistent with the definition of mobility as offered in this paper. The aim of this goal is to “improve mobility of persons and freight.” Specific objectives within this goal include improving travel time in congested corridors, but also improvements in transit, system reliability, and traveler information. Although accessibility is not specifically mentioned as a goal, it may be implicit in at least two of the other goals. The equity goal aims to “promote equity for system users,” and the community

vitality goal aims to “promote vital and livable communities.” Within the equity goal, one objective is to provide equitable levels of transportation service for elderly, disabled, minority, and low-income persons. The community vitality goal includes encouragement of transit-oriented development and improvements in convenience and safety for bicyclists and pedestrians, objectives that are more oriented towards accessibility than mobility. In other words, accessibility is not an explicit goal of the plan, though several goals are consistent with an accessibility orientation.

Accessibility is used, however, as one of “a set of complementary measures” in evaluating the proposed transportation system. In fact, accessibility measures are used as performance measures for several of the goals in the plan (Table 3). Most notably, accessibility to jobs and shopping opportunities is used as a performance measure for mobility of people and freight. The *Performance Measures Report for the 2001 RTP* states that “Accessibility is a significant measure of mobility because transportation is rarely an end in itself; it is most often a means for getting to other activities” (pg. 9). Travel time between selected geographic origins and destinations could also be considered an accessibility measure rather than a mobility measure. Measures of accessibility are also used as performance measures for economic vitality, community vitality, and equity. In fact, accessibility measures dominate the list of performance measures, and traditional measures of mobility, such as levels of congestion, are not used. Although the stated goal is to improve mobility, the use of accessibility measures to evaluate the plan gives it an overriding accessibility orientation.

The accessibility measures used in the plan are variations of cumulative opportunities measures. For example, accessibility to jobs and shopping is defined as the share of all regional work and shopping opportunities that residents can reach within specified time intervals and is measured for driving, transit, and walking or biking (MTC 2001). Access of employers to the region’s workforce is measured as the number of jobs that can be reached from home for employed residents within specified time intervals and is also measured for multiple modes. To measure performance with respect to equity, access to jobs is compared for communities with more than a specified share of minority or low-income residents and those with less. These measures are derived from the travel demand model.

The strategies outlined in the plan also suggest a shift in emphasis away from a mobility orientation toward an accessibility orientation. The website for the plan boasts that the plan provides “funding for dozens of congestion relief projects on Bay Area freeways” and sets aside “nearly \$11 billion for new rail and bus projects that will improve mobility and enhance connectivity for residents throughout the region” (MTC, 2003). The first of these statements emphasizes mobility, but the latter while mentioning mobility suggests a concern with accessibility as well through the term “connectivity.” On the mobility side, the plan includes widenings or other improvements to reduce congestion at key points in the freeway system and highlights maintenance of the existing network and improvements in system management, such as the Freeway Service Patrol (FSP) and call box network, and pavement management and traffic engineering technical assistance programs. These projects total about \$3.9 billion

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out of a total of \$8.6 billion of funding allocated in the plan (this total does not include funding already committed by law, voter mandates, or prior MTC actions).

**TABLE 3 MTC Performance Measures by Goal**

Goal	Performance Measures
Mobility of freight and people	Travel time Travel time between selected geographic origins and destinations Accessibility to jobs and shopping opportunities
Safety	No measures included
Economic vitality	Accessibility of region's work force to employers Economic efficiency of transportation investments
Community vitality	Population and employment within walking distance of transit intermodal/rail stations Use of walking to access transit
Environment	Air quality and global warming - vehicle emissions
Equity	Comparison of changes for low-income and minority communities relative to other communities in: - Travel time - Accessibility to jobs - Transit travel time from target communities to major job centers

Source: MTC 2001

On the accessibility side, the plan emphasizes the expansion of regional transit and a regional bicycle master plan. Included in the Regional Transit Expansion Program are projects to extend BART from Fremont to San Jose and to build a Central Subway in San Francisco that would extend to Chinatown; these transit projects can be classified as accessibility oriented. The Regional Bicycle Master Plan aims to fill gaps in the regional network of bike routes and focuses bicycling as a means of transportation, reflecting an accessibility orientation. The plan also includes several innovative programs oriented toward accessibility: the Lifeline Transportation Program (described below), the Transportation for Livable Communities (TLC)/Housing Incentive Program (HIP) (also described below), the TransLink transit smart card, rideshare programs, and regional transit information and marketing programs. These programs total \$4.8 billion, or about 56% of the total funding allocated in the plan.

A good example of an accessibility-oriented strategy is the Lifeline Transportation Program. This program focuses on the needs of low-income persons and consists of multiple components. The Low-Income Flexible Transportation Program (LIFT) includes improvements to existing fixed-route transit services as well as innovative alternatives where fixed route service is not viable, including demand-responsive van and taxi service and guaranteed ride home programs. The Lifeline Transportation Network, defined based on the region's public transit system, helps to target resources to spatial and temporal gaps in the network that affect low-income communities. A third element addresses transportation

affordability and includes a pilot program to provide subsidized transit passes to students. These efforts help to increase mobility – by making it easier to get around – but their focus on meeting the needs of a specific segment of the population reflects an accessibility orientation.

The Transportation for Livable Communities (TLC) program and Housing Incentive Program (HIP) both aim to link land use planning and transportation planning and may help to increase transportation choices. The TLC program provides planning and capital grants for “small-scale transportation projects that enhance community vitality” (pg. 7). The HIP program “rewards cities for fostering compact housing with easy access to public transit lines” (pg. 7). The higher the density of the housing project, the higher the grant amount, and projects earn bonuses for affordable units. The guidelines for the HIP program call for cities to use the grants to fund TLC-type projects. As the website for the regional planning notes, “While focused on mobility investments, the Regional Transportation Plan also triples funding for MTC land use-oriented initiatives” (MTC 2003). By promoting development that facilitates transit and non-motorized modes, these programs represent a significant shift toward an accessibility orientation.

### **Sacramento**

The Sacramento region comprises 6 counties and a population of 1.9 million as of 2000. The region is expected to grow rapidly, reaching a population of 2.8 million by 2025. The Sacramento Area Council of Governments (SACOG) most recently adopted a regional transportation plan in 2002. In October, 2004 SACOG adopted *The Final Interim Metropolitan Transportation Plan*, necessitated by a lapse in the conformity analysis for the 2002 plan. SACOG expects to adopt a new regional transportation plan in June 2005.

The current plan, the *MTP for 2025*, was subtitled “A bold first step for mobility.” Although this title suggests a mobility orientation, the plan itself suggests at least a balance between mobility and accessibility. The “overarching” goal of the plan is “quality of life” (pg. 27). The plan does not define quality of life, noting that this concept means different things to different people; it thus puts focus on the needs of people rather than the needs of the system. It lists as its second goal “Access and Mobility” and aims to “Improve access to goods, jobs, services, housing, and other destinations” and to “Provide mobility for people and goods throughout the region, in a safe, affordable, efficient and convenient manner” (pg. 28). The Sacramento Plan is the only one of those reviewed here to define these terms: access is defined as “the ability to get somewhere” and mobility as “the ability to move easily and quickly to get there” (pg. 28); the plan notes that these concepts are interrelated. These definitions are generally consistent with those offered earlier in this paper, although “somewhere” as a destination is rather vague.

Consistent with a goal of enhancing both mobility and accessibility, the plan uses different performance measures for each. Mobility is measured by congestion levels, as determined by the travel demand forecasting model. The model produces measures of vehicle miles traveled,

traffic congestion levels on roadways, transit travel times, and hours of delay in traffic jams. The plan also uses a congestion index that reflects time spent driving in congested conditions on a peak hour trip. These measures all reflect the ease of travel, the ability to move around. Accessibility is measured by “the ability to reach job centers in a reasonable period of time by auto and transit” (pg. 30) and also makes use of the travel time information produced by the travel demand model. The accessibility index reflects how many of the region’s ten largest job areas can be reached from each residential community within 20 minutes driving time or 45 minutes riding transit (pg. 41). This index is an example of a cumulative opportunities measure.

Not only does this plan provide clear definitions of mobility and accessibility, with appropriate measures for each, the Environmental Impact Report (EIR) for the plan (as required by the California Environmental Quality Act) explicitly categorizes strategies in the plan as designed to address accessibility or mobility. The accessibility-oriented strategies as listed in the EIR include improvements to the transit system and bicycle and pedestrian projects. The proposed transit projects include commuter rail linking Sacramento to the Bay Area, extensions to the light rail system to serve key destinations such as the airport, and bus rapid transit in three commute corridors. Accessibility-oriented projects also include a number of “connector projects” – road improvements that connect specific communities to major freeways. In contrast, mobility-oriented projects are described as “projects aimed at reducing the most critical areas of congestion from a region-wide viewpoint” (pg. 27). Examples include carpool lanes on existing freeways, highway bypasses around outlying communities, and improved highway interchanges in urban areas. Intelligent Transportation Systems projects are also counted in the mobility category, as are transportation demand management strategies and local road improvements.

With respect to funding, the plan stresses that it “gives first priority to expanding the transit system” (pg. 5). The adopted plan includes \$7.6 billion in funding for public transit, plus an additional \$1 billion for “regional programs,” including “clean air” projects, regional bicycle and pedestrian projects, community design plans and projects “to support smart growth,” transportation demand management, and landscaping and other enhancements. The plan also allocates \$281 million for local bicycle and pedestrian projects. The connector projects total \$944 million, bringing the total for accessibility-oriented projects to \$9.8 billion. The total for road, highway, and bridge projects other than the connector projects is \$6.7 billion, with an additional \$5.8 billion allocated for road maintenance, bringing the total for roads up to \$12.5 billion. Although mobility-oriented projects thus garner a larger share of the funding, accessibility-oriented projects are well supported.

### **San Joaquin County**

San Joaquin County is located directly south of the Sacramento region and to the east of the San Francisco Bay Area. Cities in the region, including Stockton and Tracy, are growing rapidly, and many residents commute to the Bay Area. With a 2000 population of just over

half a million, the county is projected to nearly double in population by 2025, to just under 1 million. The San Joaquin Council of Governments (SJCOG) adopted a regional transportation plan, called *Vision 2030*, in 2004.

The 2004 plan continues the goals, performance measures, and policies of the previous plan. The plan lays out the general goals of increasing mobility, accessibility, safety, reliability, preservation of the transportation system, and the environment. More specific goals, along with corresponding objectives and policies, are outlined for the overall system and for specific modes. The overarching goal is to “design a transportation system that will enhance the quality of life in San Joaquin County” (pg. 2-1). Tied to this goal is a policy to “design a transportation system that will meet the travel needs of both citizens and businesses.” This theme is echoed in the goals specific to the road system, where the need to develop a road and street system complementary to other modes of transportation is also noted. Objectives related to the expansion of the road system appear only within the goods movement category, where the plan recognizes the need for adequate road capacity to handle growing levels of freight traffic. The terms “access” and “mobility” appear in the specific goals only with respect to aviation, where the objective is to “improve ground access to the regional airports, with emphasis on alternatives to the single occupancy vehicle” (pg. 2-8). Although accessibility is not explicitly emphasized in the specific goals, they reflect a strong accessibility orientation.

The performance measures are grouped by a somewhat different list of goals: mobility, accessibility, cost-effectiveness, sustainability/system maintenance, environmental quality, environmental justice, and safety (pg. 2-13). In this list, the mobility goal is stated this way: “Transportation system should meet public need for improved access and for safe comfortable convenient and economical movement of goods and people.” While the goal mixes accessibility and mobility concerns, the measures of mobility do not: daily VMT, daily vehicle hours of delay, and peak lane miles. The accessibility goal is defined as a transportation system that ensures “the ease with which transportation options are available” (pg. 2-13), thus emphasizing the importance of choice to accessibility. However, accessibility is measured by peak hour freeway travel speed, person trips by mode, farebox recovery ratios, transit frequency and timeliness, and numbers and distance of bus stops. Only the last two measures might be considered accessibility measures by conventional definitions.

With respect to strategies, the plan promotes “a ‘balanced’ multi-modal transportation system” and calls for “an increased investment in alternative transportation modes, while accommodating a necessary amount of new highway capacity” (pg. 4-1). For road and highway projects, the plan emphasizes the need for efficient movement of people and freight and focuses on congestion reduction and capacity expansion – a mobility orientation. Improvements to highways and roads account for 24% of funding and maintenance of roads 26%, adding up to 50% of the total of \$3.8 billion in funding. For transit projects, the plan emphasizes concern for quality of life as well as air quality and discusses the need for improving both mobility and accessibility, although accessibility needs are not explicitly

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outlined. Projects focus on local, intercity, and interregional service, including commuter rail between the county and the San Francisco Bay Area to serve growing commuter demand. Although specific transit needs are not clearly defined, several planning studies are in progress. Complementary land use strategies are mentioned as important for the areas surrounding multi-modal transit stations. Transit gets a significant share of the funding pie, with 32% of total funding going toward local, intercity, and interregional bus service and another 11% going toward commuter rail. A bit of funding is directed toward bicycles, and transportation control measures are included in the plan, as required for air quality improvement efforts. In general, the accessibility-orientation of the transit projects included in the plan is not as clearly established as in the other RTPs reviewed.

### **Merced County**

Merced County is located two counties south of San Joaquin County and is also experiencing “spillover” growth from the Bay Area, particularly from the Silicon Valley area. The 2000 population of 210,554 is expected to grow to 377,400 by 2025. The Merced County Association of Governments adopted its regional transportation plan in August 2004.

The plan outlines seven “vision themes” that provide the foundation for the plan. The vision themes stray beyond pure transportation concerns to emphasize economic development and environmental protection. The first goal listed is to provide “a good system of roads that are well maintained, safe, efficient and meet the transportation demands of people and freight.” One objective under this goal is to “improve mobility and reduce congestion-related delays,” while another is to “promote an efficient, linked system of interstate freeways, major streets, rail lines, public transit, bikeways and pedestrian paths that enhances accessibility and the movement of people and goods” (pg. 18). This goal thus mixes mobility and accessibility orientations. The second goal is to provide “a transit system that is a viable choice,” with the objective of meeting “the individual needs of those who depend on public transit.” This goal more clearly reflects an accessibility orientation. Another goal aims to “support orderly and planned growth that enhances the integration and connectivity of various modes of transportation” and aims to “provide a variety of transportation choices” (pg. 19). Thus, although traditional concerns with mobility are evident in the goals, they predominantly reflect an accessibility orientation.

The plan uses performance measures in 10 categories, including mobility, access, and connectivity (pg. 23). Mobility is measured as delay and peak hour level of service. Access is measured as time to destinations and time to transportation system. Although relatively simplistic, these measures are consistent with conventional measures of accessibility. Connectivity is measured as mode choice and land use integration. These measures also reflect an accessibility orientation, even if they are not labeled as such. In addition, access to employment centers is included as a measure of economic vitality. The performance measures thus mirror the orientation of the goals: some concern with mobility but a predominant if implicit concern with accessibility.

With respect to strategies, the plan emphasizes traditional mobility concerns but addresses accessibility concerns as well. Within the road strategies, the plan aims to maintain a level of service D on “all regionally significant roads,” reflecting a mobility orientation. The funding allocation clearly favors roads, with \$1.4 billion going to road and highway improvements, in contrast to \$143 million for transit and \$6 million for bicycles. However, policies in the plan address transit, passenger rail, non-motorized modes, and land use strategies, as well as roads. The plan outlines an “Unmet Transit Needs Process” to identify deficiencies in the transit system and recommends that customer services surveys be conducted every two to three years (pg. 52). One of the actions outlined within land use strategies is to assist local cities in developing and implementing design criteria “that make new commercial and residential developments friendly to pedestrian and bicyclists” (pg. 31), reflecting an accessibility orientation; another action within this category, however, is to help cities “identify necessary improvements that would improve traffic movement,” reflecting a mobility orientation. The intent of the Regional Bikeway Plan, adopted in 2003, is to “connect major destinations throughout the County” (pg. 72), reflecting an accessibility orientation. Funding thus reflects a mobility orientation, while policies reflect a significant concern with accessibility.

## **CONCLUSIONS**

With the exception of SACOG, these agencies do not seem to have articulated for themselves the distinction between planning for accessibility and planning for mobility. The plans do not define these terms, and they do not use them consistently throughout (Table 4). The MTC plan, for example, frequently uses the term “mobility,” although its goals, performance measures, and strategies are largely accessibility oriented. The SJCOG plan doesn’t say much directly about either mobility or accessibility, and while its performance measures are not accessibility oriented, some of its strategies are. The MCAG plan mixes accessibility objectives with mobility goals, but emphasizes accessibility in its performance measures and policies without really saying so. In contrast, SACOG defines these two terms, establishes specific goals for each, uses appropriate performance measures for each, and chooses appropriate strategies for each. The MTC, SJCOG, and MCAG plans may simply have a labeling problem, although the numerous inconsistencies in these plans suggest that planners have not made a clear distinction between the concepts of accessibility and mobility.

Together these plans offer a mixed assessment of the degree to which metropolitan planning organizations have adopted a planning-for-accessibility approach. A concern with accessibility is evident in all of these plans, although as an additional aim rather than as a replacement for a concern with mobility. All four plans reflect some concern with accessibility in their goals, their performance measures, and the kinds of strategies included in the plan. All four plans also reflect a concern with mobility in each of these elements as well. An emphasis on both accessibility and mobility is not necessarily contradictory: as noted earlier, good mobility can contribute to good accessibility, and a decline in mobility can reduce accessibility. What the plans do not quite commit to are the notions offered here that plans

can enhance accessibility without increasing mobility and that providing for increased mobility has the potential to reduce accessibility.

It is perhaps not surprising that the size of the metropolitan region is negatively correlated with the share of the funding allocated to mobility-oriented projects (Table 4). The largest region, the San Francisco Bay Area, has the most significant congestion problems but also the most limited opportunities for expanding roadway capacity as a solution. Transit has long been a part of the arsenal of strategies for meeting transportation needs in the region. The smallest region, Merced County, faces a significant air quality problem but has only recently begun to feel the effects of congestion. Alternatives to driving are largely uncompetitive in this relatively low-density area. A larger survey of regional transportation plans would likely reveal a similar pattern: larger metropolitan areas are more likely to need – and more likely to see the benefits of – an accessibility-oriented approach.

A clearer understanding of these concepts and the distinctions between them will, I believe, lead to a further shift toward planning for accessibility. Besides the potential benefits outlined earlier in this paper, accessibility is a goal that most people can agree on and thus has important benefits for the planning process as well. A focus on accessibility helps move the policy discussion away from contentious issues associated with suburban growth, such as the right to choose a suburban lifestyle, and shifts the discussion towards a more productive focus on how transportation and land use policies can help make it easier for residents to go about their daily lives. The strategies that emerge from a planning-for-accessibility approach tend to have less environmental impact, may be significantly cheaper than those that aim to enhance mobility, and they offer a greater range of choice. In the long run, a further shift toward planning for accessibility rather than for mobility can produce better transportation systems for all these reasons.

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