# The Future City: Its Changing Role and Prospects

Martin Wachs, *University of California at Los Angeles*

I am honored and delighted but also rather puzzled to have been invited to be your keynote speaker. The reasons for being honored and delighted are obvious. This is a distinguished group that includes many old friends, and I thank the steering committee for inviting me to fill this important role. On the other hand, I was puzzled because I hardly consider myself to be an expert on the uses of census data in transportation planning, and in fact many of you are the experts to whose work I turn for assistance when I need to know something about census data in transportation. I became more puzzled when I was told not to worry about the fact that I know so little about the subject of the conference. My assignment, I was told, was not to talk about the subject of the conference—there would be plenty of papers on the technical topics associated with the subject. Instead, I was asked to give an "uplifting" talk on the future of cities in general, which is in itself a fairly open-ended assignment. Although I also know relatively little about the future of cities, this worried me less, since I do not think that many other people know much about this topic either. At the very least, whatever I say about the future of cities, focusing on 30 to 50 years into the future, there is very little likelihood that I will be proven wrong before the end of this 3-day conference.

The nature of the city of the future probably is an unanswerable question for several reasons that I will go into soon. Perhaps as a college professor I am well equipped to expound on unanswerable questions because over the years my students have posed to me with earnestness and sincerity some of the most ridiculously unanswerable questions anyone here can imagine. Since it is customary to begin an after-dinner speech with a bit of humor, before turning to my assigned topic I thought I would share with you the five most entertaining and absolutely unanswerable questions about transportation that I have been asked by my students over the past decade in response to my class lectures. Are you ready for them?

First, after a lecture on the Interstate highway system, one student asked me, "How can there be Interstate highways in Hawaii?"

When I was teaching a class on traffic safety a student asked me, "Since it is illegal to drink and drive, why do you need a driver's license to buy liquor?"

On another occasion, after a lecture on the history of transportation systems, a student asked me, "How come we call the place we park our car a driveway, yet we call the place we drive our cars a parkway?"

In a similar vein, another student once asked me, "Why is it that when we transport something in a car we call it a shipment, but when we transport something in a ship we call it a cargo?"

And finally, the most unanswerable question I've ever been asked about transportation, which came during a lecture on the transportation problems of disabled people: "Why do they put Braille dots on the keypad of drive-up automatic teller machines?"

Now I'm going to turn to some more weighty questions about the future of the city and the role of urban transportation systems in that future. Even though I was told that I did not need to consider the transportation uses of census data explicitly, I plan to incorporate some observations about the ways in which planners, politicians, and lay citizens relate to data about the city in an effort to say at least a few things about the future of the city in a way that relates to the theme of this conference.

## The City of the Future as a Link With the Past

The city of the future is largely the city of the past. Throughout the entire world, only a few cities will exist in 2020 that we do not already recognize as cities in 1994. In New York or Los Angeles or Washington, D.C., or Phoenix, the vast majority of the houses, workplaces, streets and highways, parks, and institutions of the city of 2020 are already built, and the majority of the people who will live in those cities are already born. Just as the city of 1994 already existed to a great extent in 1950 or 1960, it is also true that the city of the middle part of the coming century is already largely extant. We know a great deal about the city of the future because it is in fact the city of the present. Whereas that may not be a very "uplifting" thought, I think it is obviously correct.

The unique characteristics of our cities—the special features that they do not have in common with one another—are an important part of our culture and will of course continue to be a special part of our character as a people. These unique characteristics relate to the geography and topography and climate that they inherited—and to the highly specialized economic or political functions that they have acquired. The mild climate of a San Diego, the harsh climate of a Minneapolis, and the interaction between cities and major bodies of water, as in the San Francisco Bay Area, Seattle, New York, and New Orleans, give those cities and their transportation systems something of a special character. We should work hard to preserve, protect, and enhance their uniqueness. The special functions of political capitals, like Washington, D.C., and cities rich in historical sites—like Boston and Philadelphia—are similarly unique and worthy of protection and enhancement. Despite the commonalities of culture that we all share—our increasingly national uniform culture of television and movies and popular music—our cities are our collective memories of our diverse roots and the permanent symbols of our heritage and essence as a people. Their unique architectural styles, streetscapes, open spaces, and vistas should continue to be cherished and nourished through programs of historic preservation and educational and cultural programs to remind each generation that a special sense of place gives us an important part of our humanity. Americans best understand the extent to which cities are central parts of a national culture when they visit Paris, London, or Milan, and we are finally realizing that in their own way the special feelings associated with Denver or Baltimore can be nurtured even if they do not yet quite evoke the feeling of a Rome or a Venice.

Transportation facilities are important parts of our culture and central elements of that sense of place. Can you conceive of San Francisco without its cable cars or bridges, of New York without its great bridges or subways, or Los Angeles without freeways? Only recently have we transportation planners, managers, and engineers realized that our work is part and parcel of creating American culture and history as well as fulfilling obvious utilitarian roles. This realization, as exemplified in the artistic work associated with the Seattle bus tunnel or the Red Line subway in Los Angeles, or the sensitive and aesthetically pleasing design of the Interstate highway through Glenwood Canyon in Colorado, is a mark of our maturity as a professional field and a mark of America's maturity as a nation. We now share an understanding of the fact

that in the past we have rather crassly destroyed neighborhoods, historical landmarks, and environmental treasures in the name of transportation progress. We are far less likely to be so insensitive to our culture or natural environment in the future. Even though transportation facilities and policies are primarily utilitarian, we are now much more respectful of their historical, cultural, symbolic, and aesthetic values as well as their functional purposes. Our decisions about what to build and what to save are far more informed and sensitive today than they were a mere few decades ago. I certainly hope that we define the future city largely in terms of this understanding of its ties to the city of the past and that we see our roles quite self-consciously as preservers of the special qualities of our cities as well as creators of the functional cities of the future. The city can be both efficient and symbolic, both effective and beautiful. We should settle for nothing less as we set out to create the city of the 21st century.

To acknowledge the linkage between future cities and their historical evolution, as I just did, is certainly not to deny that cities also change substantially as they evolve. Barring major catastrophes such as wars or massive earthquakes, cities actually change rather gradually—over centuries. Even when we rebuild cities after such catastrophes, for cultural and political reasons we frequently choose to rebuild them as they were before their destruction rather than take advantage of the opportunity to start again from scratch by creating a different kind of city in a new image. After the great London fire of 1666, Sir Christopher Wren's master plan to rebuild the city was rejected because the proposed revisions to the street plan would have disrupted the historical locations of major public facilities and churches. After the 1906 earthquake and the ensuing fire in San Francisco, with the exception of the addition of the major diagonal street called Columbus Avenue, the city fathers chose to rebuild the city in keeping with its previous development patterns rather than to implement Daniel Burnham's 1905 plan for the city. And in Europe, many cities were rebuilt after World War II to recreate the street plans, housing patterns, and densities as they existed before the bombing.

## Cities in the Coming Century

Cities change slowly by adding new sections that reflect the tastes, technologies, and cultures of their day, but without thoroughly destroying or replacing the older districts that also reflect the tastes and technologies and cultures of their day. New York is quite a different city from Los Angeles not because the two cities have different world views or different economic or social goals today, but rather because they grew to maturity in different eras and their forms encapsulate some of the basic patterns that characterized their youth. Thus, for example, New York's density and street patterns reflect the fact that it was a mature city of millions of people before the introduction of subways and the invention of the automobile. The dispersed low-density form of Los Angeles reflects the fact that it grew to maturity after streetcar lines made decentralized development desirable and possible and after the invention of the automobile, which accelerated the decentralized pattern that had arisen in the first instance as a result of transit technology. And, whereas New York's physical form and culture are clearly derivative of its western and northern European roots, the character of Los Angeles is in both obvious and more subtle ways reflective of its Latin American and Spanish heritage. London's older industrial areas exist in a band outside the central city because they were added to a city that was already well established at the time of the industrial revolution. The industrial areas of most American cities are in the central areas adjacent to ports and rail lines because they were the economic base of cities that were established after the technology of the industrial revolution had become central to urban development. Cities of the coming 50 or 100 years will continue to reflect these many special characteristics that are the result of historical processes—the technology, social issues, and politics during their most formative years and their periods of most rapid growth. These unique histories will continue to give cities their physical forms and their unique characteristics.

There are, of course, many speculations as to which of our current trends will dominate the patterns of urban evolution into the new century and which will be remembered as quaint footnotes to history, like hula hoops and polyester leisure suits. One is always entering risky

territory when making predictions. Like many academics, I am sort of a collector of past predictions made by academics, and there is no doubt that the vast majority of them have proven to be far from the mark. Consider, for example, the very widespread predictions made in the late 1940s and early 1950s that by the 1980s the personal helicopter would completely replace the automobile as the most common vehicle providing personal mobility. Imagine what difficulty we transportation professionals would have today had those predictions been accurate. Can you imagine what it would be like to deal with three-dimensional urban traffic congestion rather than the two-dimensional variety, which is sufficiently frustrating?

At the risk of seeing our predictions of today ridiculed in two decades for their obvious absurdity, I can state several visions of the future with which most of us would concur—because they are frequently made and because they seem completely plausible. For example, I would feel comfortable forecasting that for the next 20 or 30 or more years, advances in telecommunications technology will continue to reshape our ways of behaving in the world as radically as the transportation revolution did a century ago. The ability to instantaneously transmit and receive images and data is growing exponentially, and the "information highway" will very soon be a reality. Many more people will handle information and operate computers than is the case today, and this will undoubtedly lead to the further decentralization of residences and places of work in our metropolitan areas. The process of decentralization has been under way for more than a century, and the prediction that it will continue appears to be safe. City cores and specialized suburban office and retail concentrations, increasingly called "edge cities," will continue to exist and in some cases to prosper, but in relative terms more growth in employment, residential population, and economic activity will occur at low and medium density than ever before. This will occur simply because there is no economic or social necessity for high densities. We can conduct our daily work with ever fewer face-to-face contacts and with less reliance on heavy or bulky raw materials, which tend to keep manufacturing and industrial employment near ports and railheads.

This pattern will be facilitated by improved multimedia communications links, and electronic linkages among us will account for a greater and greater share of our interaction with one another. But there will still be a need for and a desire to travel—perhaps with different frequencies and time patterns and perhaps to different destinations. Longer but probably less frequent trips to office headquarters, schools, and shopping centers will continue to congest roads and streets at peak periods. Growth in traffic congestion will probably slow down, but it will continue because there will be more people; because household income will in general continue to rise among middle- and upper-income groups, though perhaps more slowly than in the past; and because richer people will have more desires that must be met at different locations. I believe that suburb-to-suburb trips will continue to be the fastest-growing kind of trip and that peak periods will spread because of more flexible working hours as well as better management of transportation capacity.

Some observers believe that we will re-create in the coming decades the older, mixed-use, higher-density city cores that characterized the turn of the last century. Under the heading "neotraditional town planning," some have been advocating a return to pedestrian-oriented and transit-oriented land use planning with much higher degrees of mixed land uses. I am actually quite sympathetic to this notion. I personally dislike automobile-oriented residential neighborhoods without sidewalks or transit and with shopping opportunities only at megamalls rather than in street corner shops. I prefer to live near a transit station at which I can catch a train to downtown and in a community where I can walk to the store. I welcome the addition of these "new-old" communities because they increase the range of choices available to us in the housing market and because I think that more choice in the marketplace is almost always a good thing. And although I hope that many such neotraditional communities are successful in market and social terms, I do not expect them to reverse the general long-term trend toward lower-density communities. I believe that so far most neotraditional communities have served only upper- and middle-income people and that in many cases, despite their neotraditional appearances, their actual densities have remained suburban in character. In few or no cases have the concepts of neotraditional planning been used to renew decaying inner-city neighborhoods. Whereas I hope that some initiatives of that type will actually take place, I think that, for

obvious reasons related to market economics, they will remain exceptional examples and not the general trend.

I expect that transportation technology will see its greatest advances in the gradual and systematic augmentation of movement technology by communications technology. I believe that before too long we will have access to smart buses and shuttles, for example, which will be public transit systems providing users with a much-improved level of information on where approaching transit vehicles are located, what their costs and levels of seat availability will be, and what their arrival and departure times will be. We will probably slowly decrease the extent to which we operate transit on fixed routes in favor of flexible, demand-responsive routing, especially in lower-density areas. Similarly, I believe that the most significant improvements in individual vehicle technology will be the result of enhancing automobile capabilities through communications. In congested corridors on key links of each region's highway system, automobiles will eventually be guided along computer-controlled automated highways with something like three or four times the capacity of current highways within existing rights-of-way. Various forms of route guidance and automatic braking systems will serve as technological milestones along the way to automated highways.

I also believe that it will be possible, within a couple of decades, to envision urban transportation systems relatively free of the most common air pollutants that are the single most consistent focus of current policy, although we may face other struggles to control pollutants and toxics that are as yet not well understood. Despite the fact that transportation demand management and transportation control measures dominate our conversations today, I expect that most of the progress in resolving air pollution problems in the future will be through technological innovations rather than through massive shifts in travel behavior or the wholesale abandonment of automobiles for transit, cycling, and walking.

Like most people associated with the field of urban transportation, my visions of the future city include major advances in the capacity of technology to address some of the more vexing aspects of daily life. I honestly do have confidence that changes in transportation and communications technology will gradually but certainly enable us to solve some of the problems, like air pollution and energy efficiency, that we as transportation experts consider dominant in our field. Yet I worry about visions of the future that focus exclusively on new technological marvels. My concerns about the future of the metropolis reflect my belief that technology cannot really solve our most pressing social problems, especially some that we now identify as being outside the realm of transportation planning but that I personally see as being very much involved with transportation.

## Social Dimensions of the City of the Future

Most urban economists and demographers see the city of the future in troubling terms. The gap between the incomes of the richest and the poorest Americans is expected to continue to widen; the economic well-being of the poorest segments of our society is expected to continue to decline; the racial and ethnic composition of our cities is expected to become increasingly diverse; and the quality of education, health care, and welfare services is expected to continue to decline for decades to come unless there are major policy interventions. Doesn't it trouble you that we frequently see the city of the future as a haven that is the product of technological marvels, yet we usually also see the city of the present as the locus of unmanageable social and economic problems? Our confidence that we can solve problems of traffic congestion and air pollution with technological advances must be tempered by our society's repeated failures in other realms. Our metropolitan areas are plagued by violence, crime, homelessness, unemployment, racial and ethnic inequality, and fiscal deficits. There is a pervasive feeling that we cannot solve these problems because our political systems are more gridlocked than our highways and that our social systems have no will to solve them. What major contribution has transportation planning, investment, and management made to address these problems during the past decades? Some might say that by increasing the ability of some Americans to opt for upper-income, ethnically homogeneous suburbs, transportation systems have, if anything, height-

ened these problems. I honestly believe that transportation planners and national and regional transportation policies have in some cases innocently and in a few specific cases even deliberately contributed to the worsening of these social problems. I also believe that the realization of all of our high hopes for technological change in the future will fail to improve the quality of urban life unless and until transportation planners recognize and accept some responsibility for problems in these other realms and design transportation policies explicitly to attempt to overcome them.

Transportation systems certainly are not the primary causes of poverty, racism, or homelessness in our cities, yet we cannot turn our backs on these problems. We must accept some of the responsibility for addressing them. If I have one major disappointment with the professional community of transportation planning of which I am a part, it is our collective failure to grasp the pervasive, complex relationships between transportation systems and the social and economic failures of our cities and the absence of an ethical commitment on the part of many—though certainly not all—transportation planners to address these issues. In my view, if the city of the future is to be a more satisfying environment for people of many different backgrounds, we must address transportation problems with a commitment to deal with these problems head on that we have not yet shown.

We can no longer be blind to the fact that in American cities transportation systems provide access to the richest array of economic, educational, cultural, and recreational opportunities, but that because land use has adjusted to the nearly universal availability of automobiles, the carless are more generally isolated from those opportunities than urban Americans have ever been. And, since the carless are likely to be the poorest citizens, disproportionately consisting of the elderly, the very young, recent immigrants, the disabled, and members of minority groups, the rising fares of public transit systems and the declining service provided by transit are becoming a significant social problem in many metropolitan areas. We increasingly rely on local sales taxes to bear most of the cost of providing public transit. Sales taxes are generally regressive—they take a much higher proportion of the income of poorer people than of richer people. At the same time, we are increasingly putting our transit resources into new rail systems and express bus operations serving wealthier suburbanites, who already have very high rates of automobile ownership. To the extent that we continue to do this, we will be creating cities in which gaps between the haves and the have-nots grow because of widening differences in mobility and in disposable income. Our transportation policies might well be worsening both the access and the income components of this problem. The nature of the future city will depend at least to some extent on the actions we take to create greater access and mobility for those who need it most—the poor, disabled, old, young, and immigrants. I believe that we should address the needs of the transit-dependent population much more directly in transit planning and, more generally, in transportation planning.

Although we decry the problems of crime and violence in our cities, collectively we have seen a very small direct role for transportation planners and managers in the realm of crime prevention. We now have enough information about crime patterns, however, to know that in many cities a substantial proportion of crime occurs at bus stops, in large parking garages, on the highways, and in subways or involves victims who are walking to or from transit stops. My own research on transit-related crime in Los Angeles, for example, demonstrated that rates of victimization were up to seven times as high as those reported by local transit police departments. Whereas we envision a future of automated, high-technology highways, we do little to improve the safety of our existing systems through improved lighting, patrolling, policing, and sensible designs with security as the single most important design criterion. The nature of the future city will depend to at least some extent on the actions we take and the policies we create to recognize the role of transportation in urban crime prevention and reduction.

Transportation systems also could become a greater contributor to racial and ethnic equality in America than they have been. We could argue that transportation investments make people and economic activities accessible to one another and thereby potentially contribute to ethnic and racial integration and to the betterment of the poorer segments of society. It is also clear, however, that in other ways they may well facilitate racial and ethnic segregation and economic isolation. The building of superhighways and suburban rail lines into the far-flung

suburbs makes it possible for economically secure white people to live and work in communities far removed from one another and to travel through communities of minority poverty without ever really interacting with or understanding them. The accessibility thus provided has enabled capital investment to flee from the inner cities, bypassing minority communities and concentrating in mostly white-owned suburban areas. We construct new suburbs from scratch and allow inner-city communities to decline. We don't create segregation, but we create conditions that enable people with resources to consciously pursue segregated neighborhoods. At the same time, rights-of-way for transportation facilities have removed disproportionately the residential neighborhoods and community facilities serving minority communities. The nature of the future city will depend to at least some extent on the actions we take and the policies we create that recognize the role of transportation investments in economic development, job creation, community renewal, and the reduction of the gaps in opportunities available to rich and poor people.

On the one hand, I argued earlier that the city of the future is largely the city of the past. Our technological breakthroughs and new communities only marginally and slowly change the basic urban physical patterns that we inherited. On the other hand, the city of the future is largely what we choose to make it through our complex processes of governance and decision making. Investments in transportation systems are among the most influential in creating those marginal changes. I worry, however, that our governmental decision-making structures are becoming less willing to deal with the poverty, inequality, crime, and violence that plague our environment. In metropolitan areas we sometimes have hundreds of separate bodies of government, each trying to provide specific services to particular groups of citizens and all failing to make commitments to share in governance toward common regional goals. Whereas most of us now recognize that the region is the functional economic unit of most importance, it is at the metropolitan regional level where our government is weakest and we are failing to act collectively in the common interest. The nature of the future city will depend to at least some extent, and perhaps to a great extent, on the actions we take and the policies we create to recognize the role of transportation systems in regional integration, economic development, and more unified governance.

## Political Nature of Transportation Decision Making

Despite my concern that we have not done enough to address the social needs of the increasingly diverse population through transportation policy, I must admit that over the last 40 or 50 years transportation policy making clearly has become more democratic, open to participation by diverse interest groups, and sensitive to a variety of perspectives. Requirements added to the transportation decision-making process—including those related to public hearings, comments, and workshops and environmental impact reviews—and the emergence of transportation user groups, community-based organizations, and interest groups representing environmental concerns have surely democratized transportation decision making. These groups have of course differed in the resources they have been able to bring to bear on transportation policy debates, the skillfulness of their staffs, and the persuasiveness of their arguments. However, the effectiveness of advocates for air quality, rail system construction in some large cities, and the disabled in transportation policy making have proven that groups who are well organized and effective at constituency building can make an enormous difference in the outcomes of transportation policy debates.

If I am correct that the politics of urban transportation has become more open and accessible, yet that we have not adequately addressed the economic and social needs of our cities through transportation policy, I can think of two explanations for this shortcoming. The first is that effective coalitions of interests have not emerged on behalf of those whose social and economic needs are being inadequately met by transportation policy—the unemployed, minority groups, the elderly, and so on. In my idealized future city, sophisticated organizations representing the needs of these interests would emerge that are as active and effective as the

interest groups concerned with air quality and energy policy that have emerged in the past two decades.

The second explanation is the lack of a deep, powerful, and convincing data base providing information that describes and codifies the performance of the transportation system with respect to economic and social development and equality of opportunity. It seems clear that progress in addressing air quality and energy conservation through transportation policy making has been enhanced dramatically by data establishing, for example, the extent of and distribution of air pollution and the change in the energy consumption characteristics of the vehicle fleet over time. The effectiveness of organizations advocating cleaner air and greater energy efficiency in transportation has been significantly enhanced by the availability of extensive and reliable data to help them make their cases. I believe that we do not have good information readily available to indicate the relative difference in accessibility for poor and rich people, the levels of transit service available to different communities, the extent to which capital investments in transportation facilities produce benefits to lower- and middle- and upper-income communities, and so forth. I believe that the ready availability of information on such issues would enhance the effectiveness of advocates for social change through transportation systems and within transportation programs and that the absence of such information itself hinders the formation of effective advocacy organizations.

Our data bases and the policy questions we address have something of a chicken and egg relationship. Transportation policy makers do not ask with sufficient frequency about the impacts of transportation investments on the well-being of poorer and minority communities, the elderly, the disabled, or even women as a group. Perhaps they fail to ask those questions because our data bases do not provide information on them, and perhaps our data bases do not highlight such issues because decision makers fail to ask about them. Nevertheless, there is an important need to be addressed here, and I believe that better information can be a spur to better policy making by making it possible for disenfranchised interests to argue more cogently for their needs in the transportation policy-making arena.

## Conclusion: Our Role in Shaping the Urban Future

This conference will deal with the importance of information and, more particularly, with the nature of one source of information—the U.S. census—in transportation planning and policy making. In the light of what I have been saying so far about the future of the city and about the importance of good data bases in determining effective democratic participation in transportation policy making, I would like to argue that we share a responsibility for improving the data bases available to planners and policy makers. In the coming decade an important dimension of that improvement should relate to the social and economic status of diverse populations. I am aware of the political pressures to lessen the scope and depth of census data coverage of transportation issues. I would like to argue that we should collectively demand that our nation's commitment to the collection of travel-related information in the national census be strengthened rather than weakened; that our ability to link travel and transportation information with other social and demographic indicators of human well-being be enhanced rather than lessened.

To some extent, American cities of the future are already determined by the history of the cities we now see before us. We must study, understand, appreciate, and build on the ways in which our cities encapsulate our history and our culture. To some extent, future American cities will surely also be shaped by emerging new automotive, highway, transit, and especially communications technology. We should certainly work hard to understand the interactions between urban form, daily urban life, and the emerging technologies, but they will continue to marginally shape our cities—probably for the betterment of most people—whether we understand these forces or not. I believe that the social, ethnic, and economic divisions and tensions that characterize our cities today will grow to be the dominating policy issue of the coming decade, surpassing environmental concerns, and that we in the transportation community will be called on to play an increasing role in addressing those problems. Strangely, it is in this realm

that I believe we have the greatest opportunities to influence the future of the city and the future quality of life for all Americans, yet it is in these areas that we as transportation experts have at this moment the fewest ideas and the weakest commitments to contribute. I hope that this situation will change, and I hope that as you consider the future role of census data in transportation, you will specifically address the ways in which census data and transportation data can together shed more light on the solution of the complex social and economic issues we will continue to face in the coming decades.