highway oriented, which has aided in the out-migration of people, and, then, of burying ourselves in cement.

I frequently ask: How can we develop life-styles and quality-of-life statements within communities? The answers are not going to be easy. Housing, sewer, zoning, and Internal Revenue Service officials are not going to like the answers. Nevertheless, we need to move in these directions.

Would it be appropriate to merge the Urban Mass Transportation Administration and the Federal Highway Administration?

I think it will be, eventually. But I do not think that we can do it legislatively unless we get strong backing from the President, the Secretary of Transportation, UMTA, and FHWA. Otherwise, such a merger would be impossible.

Since national urban policy does impact and interact with rural policy, would it be more helpful and useful to consider that topic jointly in terms of a national settlement policy specifically contemplating these interactions? Or is that going to compound the problem?

Ideally, that is where we ought to be moving—toward looking at the totality of the problem. Realistically, the President is committed to an urban policy. Maybe the first step is to secure an urban policy that works, while recognizing that the total picture includes the whole quality of life in both rural and urban America as well as other issues that have been raised.

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Public Transportation and Land Use: A Developer’s Perspective

Harold S. Jensen, Urban Land Institute, Washington, D.C.

Transit and land use impacts have had a questionable linkage. Public transportation does not work automatically as a tool to assist and enhance the viability of a city. Transit can be a very special economic development tool that cannot stand by itself but that, if coordinated with other leverage mechanisms and if tuned to the strengths of the city, can be instrumental in the rebirth of central cities. Cooperative detailed planning before the route and mode are set and a created capacity to carry out these developments through a public and private partnership are needed.

My exposure to public transportation is threefold:

1. I am usually a commuter;
2. I am a developer in an area where public transit is very important; and
3. I chaired an Urban Land Institute task force that issued a policy statement in 1974 on development policies for urban mass transit station areas.

Based on these experiences, I maintain that (a) operating an efficient transport system is a very complex task, (b) transit development can cause problems for those who try to accommodate it, and (c) there is much we do not know about effective public transportation.

I would like to give you a developer’s view of public transit and some of its problems. Then I want to outline my perception of the future of the city and, within that framework, to discuss how transit can fulfill its promise.

**TRANSIT EXPECTATIONS**

I believe that public transit has been colored by great expectations. Maybe it would be more accurate to say too many expectations. The public’s expectations from transit cover at least five areas: mobility, mass transit, relief of congestion, energy conservation, and land use.

**Mobility**

Mobility appears to be a key word in the transit vocabulary. Providing mobility is obviously the purpose of public transit, but for whom and why? It is meaningless to say that a system should provide mobility for everyone.

Specific groups of the population that can most effectively use the kind of mobility offered by transit need to be identified. I believe we have to be very sensitive to the economic value of mobility, and this sensitivity must be explained to the public. For example, providing mobility for the mobility disadvantaged—i.e., the young, the old, and the handicapped who have no alternative transportation—may be adequate justification for a low-capital investment system, but we need much more extensive justification for a capital-intensive system.

**Mass Transit**

The word "mass" in mass transit can lead us astray. For example, the Bay Area Rapid Transit (BART) system in San Francisco is carrying only 5 percent of all peak-hour trips. The system is clearly not representative of mass transit. It also fails to meet the special needs of a very important segment of its ridership—the office and service workers in downtown San Francisco. They do not want to end up downtown still some blocks from their final destinations. My feeling is that commuters to downtown San Francisco would have been much happier with a system limited to the highly congested central area but with more frequent access points within that area. The automobile and the bus are today’s mass transit vehicles; they will be for a long time. Despite energy costs, I believe the automobile will remain the overwhelming transportation choice for most Americans. Its advantages for most trips in terms of comfort, convenience, and time saved are significant.

**Congestion**

I tend to agree with Sumner Meyers of the Institute of Public Administration in Washington, D.C., who says there is little evidence that peak-hour highway congestion can be relieved by transit. There seems to be an unwritten law that, if an area has the basic economic vitality to attract and generate a high volume of trips, available street and highway systems will be used to full capacity no matter what the alternatives. There will always be enough people who prefer to use and
can afford their automobiles.

Frankly, I do not think this failure to relieve congestion detracts at all from the value of transit. While it would be nice to neatly tuck most people in transit vehicles and leave room for you and me to drive downtown, I suggest we not raise the public’s expectations about relieving congestion.

Emphasis should be given to the impact that transit can have on automobile congestion—i.e., to neutralize it as a constraint to urban development, particularly in central cities. Transit helps to remove the congestion barrier. This is a very important benefit of transit and that fact should be made clear to everyone. Transit serves as a capacity builder in congested areas. It can do this task very well if properly planned and designed for that purpose.

Energy Conservation

Energy conservation sounds terribly important to me as a lay person and I believe it should be thoroughly explored. The problem is that the experts are confusing me. Some experts are saying that big transit vehicles (e.g., subway cars) are not as energy efficient per rider as a car pool van. Of course, it depends on what the vehicle usage and ridership patterns are. Information from the land use field is even more puzzling. Some research indicates that high-density areas easily served by transit, such as New York, are more energy efficient than sprawl developments. Other studies say very high-density urban development (i.e., high rise) is not as efficient as medium-density development (i.e., townhouses or garden apartments). I conclude that the matter is not yet resolved.

Until we have a much better knowledge of the variables involved, promises of energy conservation should be minimized.

Guiding Land Use Patterns

The idea of using the provision of public transportation services—i.e., services provided by fixed-guideway systems such as BART—as an important lever in making land use decisions is not new. Although it never received much attention outside professional circles, I cannot think of any other aspect of transit rhetoric that has been the subject of more spectacular failures. The failure of BART to generate the expected land use impacts is rather well documented, and the Metro system in Washington, D.C., is beginning to establish its own poor record in this regard. There are many reasons for this, but I lay the major blame at the doorstep of the transportation planners, who have dealt with the relationship between public transportation and land use much too abstractly. You looked around and saw high-rise building sprouting near subway stops in Toronto in the early 1960s. You put this information in your mathematical models and colored your maps accordingly. Despite your sophistication, you accepted the notion that some great inexorable force of nature was going to guide the decisions of large and small investors along neat predictable paths. But there is nothing inevitable about the business of urban development. There are no statistical verities in development as far as I know. This is a business of self-fulfilling prophecies. You have to work very hard to make things come out the way you want. Throw away your models. You are wasting your time and probably my money.

There are far too many variables to fit in any model. The details make the difference in land use. A variation of 30 or 60 m (100 or 200 ft) in the transit right-of-way can make or break a major development proposal and affect all the related land use decisions that are supposed to fall in place. Individuals or citizens’ groups who may not be visible to the regional transportation planner may have more effect on land use options than the most attractive transit station. Using growth management tools or obtaining political commitments requires deliberate efforts; they are not predictable.

So far, in the case of most of the new fixed-guideway transit systems, the effort has not been deliberate enough. For the most part the planning and implementation processes have not been structured to ensure that urban development would proceed as intended. To establish a strong link between transportation services and land use, you have to be very specific about current and prospective conditions—what you want and how you intend to get it. Generalities will not work.

The tendency of planners to deal with land use in abstract terms would not bother me so much if in the long run it did not matter anyway. But the fact is that transit can have major impacts on land use. There are many land use situations where transit can play a very special and valuable role if a special effort is made to accommodate those needs in the location and design of the system. If we are to claim that one of the benefits of transit is to help guide land use, then some major changes will have to be made in the way we plan and implement transit systems.

I think that part of this confusion about transit objectives and benefits has to do with the separation between those who plan and implement transit proposals and everyone else. It is an institutional problem. In your isolation you can say that urban development ought to conform to an ideal transit system rather than that the transit system should conform to urban development patterns that are feasible but never ideal.

ROLE OF CENTRAL CITIES

Central cities, particularly those in the East and Midwest, are indeed in a serious state of decline. However, the Urban Land Institute believes this should not prevent us from recognizing that central cities are changing their function and that, by and large, this change is not for the worse. Central cities are losing population and an increasing proportion of the population is dependent. The housing stock is aging. Many cities are experiencing a net loss in employment. The most important job losses are in manufacturing. For a variety of reasons, cities are losing their advantages as manufacturing centers—and—from the standpoint of the national economy and its place in a highly competitive world economy—there seems little justification for incurring the extraordinary costs required to reverse the situation. Although central cities find these circumstances socially and politically unacceptable and there are remedial efforts to stem the tide, sooner or later most large manufacturers will leave.

However, while manufacturing job losses can mean net job losses for cities, many cities are experiencing a gain in government, finance, and service sector jobs. On a national basis the shift in the distribution of jobs from the manufacturing sector to the government, finance, and service sectors of the economy has been dramatic. Since 1965, the latter type of employment has accounted for 70 percent of the total rise in employment, a change increasing its share of jobs from 37 percent of the total nonagricultural jobs to 43 percent.

This fundamental economic shift is becoming overwhelmingly important to the future of cities. Although cities have lost their relative advantage for manufacturing enterprises to suburban, nonmetropolitan, and even foreign locations, they remain very attractive for the administrative or office functions that tend to be associated with financial, governmental, and service activities. Indeed, most older cities are fairly advanced in the tran-
sition from manufacturing to administrative centers. We have simply to look at the tremendous boom in office construction that has taken place in most cities over the last 15 years. Chicago, Philadelphia, and Denver are good examples. Since 1967 approximately 316 hm$^2$ (34 million ft$^2$) of office space has been constructed in the Chicago region; approximately 80 percent or 258 hm$^2$ (27.2 million ft$^2$) of this construction has been in downtown Chicago. This translates into 133,000 new jobs downtown. Today some 90 percent of the region's office jobs are located in the downtown Chicago area. The city is projecting continued growth in downtown office employment at a level of about 21,500 new jobs/year at least through 1980. Philadelphia has added more than 46 hm$^2$ (516 million ft$^2$) of office space since 1970. Denver has experienced an expansion of more than 28 hm$^2$ (3 million ft$^2$) in recent years, most of it in the central business district.

Given the similar, if less dramatic, experience of most other downtown areas, I believe the economic base on which the future of central cities will rest is clear. Unfortunately, there will be winners and losers in this change of employment base. The central cities that have flourished in the past as manufacturing centers with a large pool of low-cost labor are going to slowly lose their reason for being if they cannot capture or define an administrative function.

The tough question before most cities with a strong administrative employment base is whether or not they can also capture the residential and trade functions needed to maintain vitality. The specter of central cities left with a residual, dependent population haunts us all. A look at current changes in more detail shows some hopeful trends. Emigration from rural areas has dried up. So while the proportion of dependent persons or low-skilled persons may increase, the real number increases are slowing and are more or less stable in some cities. Families with children continue to leave central cities. In most cities this causes a net loss of middle- and upper-income families. On the other hand, there is also substantial immigration of middle-income households, particularly those without children. It is very important to realize that childless households now constitute approximately 60 percent of all households. This continued immigration is important even in declining cities because, although the numbers are small, it indicates a trend quite compatible with the changing economic function of those cities.

In an increasing number of declining central cities, the strength of this small middle-class movement is becoming evident in investments in housing rehabilitation and restoration—a sign that people intend to stay. Better schools and play areas for children have become irrelevant to childless households. Proximity to jobs, adult-oriented entertainment, and other leisure time activities have increased in importance and these are the advantages the central city can offer in their competition for a share of middle- and upper-income housing demand. Another factor is that the young, upwardly mobile people moving into the expanding office employment sector in the central business district were reared in suburbia. To many people, central cities are new and exciting places where diversity in life-styles, ideas, and personal expressions is the norm. Finally, there has been a dramatic increase in households with two working adults, particularly in the professional, managerial, and clerical occupations, or occupations that tend to be associated with expanding administrative or office functions in most downtown areas. For these people the attraction of residential proximity to administrative centers is proving very strong.

What we may be witnessing is the beginning of another significant, long-term trend in the central city population. Middle- and moderate-income blue collar workers will continue to follow factory jobs, moving to the suburbs and nonmetropolitan areas or retiring to the country; they will be gradually and partially replaced by professional, managerial, clerical, and service groups. While large dependent populations will continue to be a major problem for many years, there is some basis for predicting their eventual redistribution so that central cities will regain what might be called a balanced population—one well matched to the new employment base.

Several other characteristics of the future central city are worth mentioning. First, they will be smaller than the huge manufacturing centers of the past. The departing population will only be partially replaced. Massive concentrations of labor will not be needed. In addition, the labor pool for administrative and related service jobs will on the average receive a higher income than the previous manufacturing population. There is every indication that this new population will not accept very high-density living arrangements. The preferred densities will lead, therefore, to lower total populations, no matter how healthy the local economy is. Given the tax-generating capacity of a balanced population, this situation is not necessarily bad.

What does all this mean? I can best summarize my prediction for central cities by saying that most will assume the role that central cities performed prior to the industrial revolution. They will once again become primarily centers of administration with all the accessory service, education, and cultural functions that thrive in an urban environment. This is a trend the Urban Land Institute observed 3 years ago in a study for the Federal National Mortgage Association. Events have continued to support our thesis and other people are beginning to make the same observations.

Ironically, after many years of treating Washington, D.C., as the atypical city in this country, we may begin to see it as the prototype for this new type of city. Since it never suffered the ravages of industrialization and has a very stable employment base, it enjoys certain unique advantages over other cities and is still worth watching.

The process of change will be very uneven, and some cities will not make the adjustment. The precise timing and nature of changes will be very hard to predict. Also, there will be inequities and injustices normally associated with change. Nevertheless, change will occur.

I have detailed the scenario of the future of central cities because (a) it is both a desirable and a feasible scenario and (b) public transportation can play a major role in helping central cities to reestablish their function as administrative centers and thus can contribute greatly to their revitalization.

TRANSPORTATION—AN ECONOMIC TOOL

Three avenues to improving public transportation as an economic tool will be explored here.

1. Planners must play to the economic strength of central cities. While paying due attention to the social service role of transit and other worthy objectives, planners should use transit as an economic development tool—specifically, as a tool to sustain or support growth in administrative and related service employment in central areas. Unless this is done and done well, cities will continue to decline and so will their transit systems. Transit rhetoric should be modified to make policy makers and the public keenly aware that transit has a very special economic development role; in many cities this will be a primary role.

Transit services will be most effective as an economic
development tool when they are used in conjunction with other incentives to investment. This calls for a higher degree of cooperation between transit and other organizations than has been true in the past. The rewards of cooperation more often than not will be higher ridership for transit systems.

I applaud the Urban Mass Transportation Administration's (UMTA's) explorations of an economic development role for transit in Detroit. More of these types of ventures are needed. The recently completed Gallery Place project in Philadelphia is a good example of how all the elements of economic change in central cities can be brought together with transit as a key ingredient and catalyst with a very beneficial economic result.

2. The public transportation planning process must be revised to ensure adequate consideration of the economic role of transit services. Several specific steps can be taken.

a. A detailed analysis of local conditions is needed. Decisions should not be made on the basis of a generalized regional analysis of the demand or need for services and transit route options. One must proceed to a very detailed level of analysis.

b. The specific social, economic, and physical characteristics of the areas to be served must be studied. If the area has an administrative employment concentration, planners must determine how it can best be served. Also, the social character of an area can make a difference. What appears to be a logical station location to a regional planner may make no sense at all to local residents. In how many instances have station decisions been made and financing committed before detailed feasibility studies—and not just engineering feasibility studies—have been completed? The results have not been inspiring to those of us in the development business. The transition from the macro level of regional transit planning to the micro level of engineering too often skips the stage at which critical decisions should be made—the analysis of specific sites, modes, and environments that can make or break a project.

c. The area availability for development near the system's proposed access points must be determined. Is the area really available for development, or does it just look that way on the aerial photographs? Parcel sizes, ownerships, costs, and the potential for assembly must be studied.

d. Ease of access from developable areas or already developed areas to the transit system must be examined. Is the route on the wrong side of a railroad right-of-way or is it inconvenient to transit users? A classic case of how not to link transit and land use can be found at the Washington (D.C.) National Airport. The transit station ended up on an elevated structure several hundred meters from the terminal—an unacceptable arrangement for travelers with luggage.

e. The political climate at the local level and the capacity and inclination of local agencies to make decisions regarding transit service must be explored in detail. Unfortunately, evidence indicates that transit planners have not paid close attention to this matter.

f. Due recognition to the dynamic and incremental character of urban development must be given. The Urban Land Institute and other people maintain that the one-shot construction of major regional systems such as BART or Metro is not necessarily a good idea. More flexible and incremental approaches that will allow variation in route plans as urban areas go through the process of transition are needed. Incremental development also makes it possible to adjust system costs to the financial and economic capacity of the areas served. I am very pleased to mention the downtown people mover demonstrations that UMTA is undertaking because these systems may be very suitable to the needs of growing and changing central business districts. These systems should always be planned with extensions and upgrading in mind. Similarly, experiments with light rail, exclusive bus lanes, and other arrangements can be related to the dynamics of urban change. Finally, I think we have a great deal to learn from the Toronto experience with the incremental expansion of its subway system.

g. The transit system must be planned in a way that will maintain a balance over time between costs and benefits, including impacts on land use and private investment. If you accept the proposition that transit is an economic development tool, I think you will accept the idea that the extent of capital investments in a transit system should be closely related not only to the numbers of riders carried and to other traditional measures of benefit, but also to such factors as the extent of private investment generated and the long-term economic value of jobs created.

h. In view of the operation of transit systems in San Francisco and Washington, it does not appear that the value of private investment will come close to equaling the public investment for many, many years. UMTA's Detroit experiences will no doubt teach us a lot more about how this matching of investment levels may be carried out.

A link must be established between transit development plans and private investment plans at the very beginning of the planning process. Once the persons who affect transit planning and investment decisions have agreed to the proposition that transit services should be used as part of an economic development program, then communication should be established with all major existing or potential private investors in the service area. The first plans are drawn. This step is critical to setting private investment targets through a careful study of investment options. You cannot leave developers out of the process until the last moment. You need us as much as you need the public policy makers and citizen groups. You have to design joint development and other opportunities right into the system from its very conception. It is a matter of creating the right environment for development, either by public or private agencies. If you look closely at BART and Metro and other systems, you will see that this has not been done. Joint development has been an afterthought and accordingly the opportunities have been very limited.

3. The institutional arrangements necessary to implement the community development plans related to public transportation improvements must be revised. There are two aspects to consider:

a. First, we should seek to strengthen the institutional links between the transit planning and operating systems and the units of general purpose local government to be served by the improvements. I have no magic answers here; as I stated earlier, it is a matter of hard work and perseverance. I believe that the changes in the planning process I have suggested will help in this area. Cooperative, detailed planning conducted before route and mode decisions are made and a more flexible approach to adjusting the nature of the system to local economic and social needs and rates of growth should go a long way toward bringing local and regional perspectives together. I see no future for huge monolithic transit systems imposed from the regional level. You need local support through the exercise of appropriate controls and land regulations, and you desperately need local political commitments. A very diverse system is likely to develop, but it will work.

b. The second step is to create the capacity to carry out development projects through the formation of public and private partnerships, i.e., partnerships in which close cooperation exists between public and private en-
Land Use and Transportation in an Energy Efficient Society

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Most people are aware of the close relationship between land use and transportation. However, little is known of how to apply this conceptual knowledge in achieving the goal of a mobile and energy efficient region and nation. Despite the research studies and publicity to the contrary, transit can be an energy saver; energy savings can be an argument for transit. The comparison should not be made simply between a bus and a van pool or between a streetcar and a heavy-rail vehicle but between transit-oriented environments and automobile-oriented environments. There are many other techniques such as subordinated leasing and tax abatement that should be considered for use by public agencies. They are tools that every central city is going to need to carry out development generally. People in the transit field should join with those in the housing, commercial, and industrial development fields to obtain the necessary authority and resources. I would be remiss if I did not say something about UMTA. I am encouraged to see UMTA beginning to express a more serious interest in joint development. With the advent of the Young amendment and with its evolving interest in economic development, UMTA has a chance to make a positive contribution to the land use side of the transit equation. I hope UMTA does not approach the issue too timidly. It must quickly get up to speed on how development proceeds these days and must not impose requirements that will frustrate joint development. For example, I understand that Young amendment funds can only be received by an agency with transit operational responsibilities. If this is true, there are going to be problems in areas where the operating agency has neither the power nor capacity to act in the fashion I suggest is necessary. UMTA should make sure that the local public agency responsible for joint development is fully competent to do the job, but, once that competency is established, the agency should be given wide discretion in the uses to which funds may be applied.

SUMMARY

I believe that public transportation, particularly fixed guideway systems, has a very bright future and a very important role to play in the evolving revitalization of our central cities. However, the secret to the success of transit and of central cities will be the careful coordination of transit services with the dynamics of the urban development process. We must build on economic strength. Deliberate steps must be taken to revise the transportation planning and implementation processes to ensure that transit can perform an economic development mission. Public transit investments must be used to provide leverage for private investments. This can be accomplished best by involving the private sector in the planning process from the beginning. Together and in concert with many other interests we shall be able to bring vitality to cities and provide a better living and working environment for all.