

# UC Berkeley

## Earlier Faculty Research

### **Title**

Transit-Oriented Development in the Inner City: A Delphi Survey

### **Permalink**

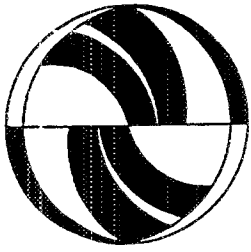
<https://escholarship.org/uc/item/2pg9m5rm>

### **Author**

Loukaitou-Sideris, Anastasia

### **Publication Date**

2001



**Transit-Oriented Development in the Inner  
City: A Delphi Survey**

Anastasia Loukaitou-Siders

Reprint  
UCTC No 498

The University of California  
Transportation Center  
University of California  
Berkeley, CA 94720

**The University of California  
Transportation Center**

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

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

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

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

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



University of California  
Transportation Center

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

**DISCLAIMER**

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or use thereof.

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

**Transit-Oriented Development in the Inner City:  
A Delphi Survey**

Anastasia Loukaitou-Sideris

Department of Urban Planning  
University of California  
Los Angeles, CA 90095

Reprinted from  
*Journal of Public Transportation*  
Vol 3, no 2, pp 75-98 (2000)

UCTC No. 498

The University of California Transportation Center  
University of California at Berkeley

## **Transit-Oriented Development in the Inner City: A Delphi Survey**

*Anastasia Loukaitou-Sideris  
University of California, Los Angeles*

---

### **Abstract**

*This study presents the results of a three-round Delphi survey that focused on issues and opportunities related to transit-oriented development (TOD) in US inner cities. The survey queried a panel of 25 experts about the various goals and objectives of the practice of TOD, as well as the preconditions and constraints surrounding such development in economically disadvantaged areas of the inner city. Starting from a wide range of responses, the panel was eventually able, through the Delphi process, to focus on specific issues and propose a concrete set of strategies for the implementation of TODs.*

### **Introduction**

Economic development of depressed inner-city areas has long been a goal of local government and city planning. In the 1980s, there was considerable debate regarding the optimal allocation and planned investment of private resources in inner-city neighborhoods that can trigger private economic activity and attendant jobs and tax revenues (Witherspoon 1982). In particular, transportation investments, often utilizing state and federal funds, were viewed as capable of inducing positive change and development in derelict inner-city areas (Cervero 1987).

Over the last decade, city planners and transit officials have promoted the idea of using rail transit stations as instruments of development. Many planners and designers have enthusiastically espoused a transit-oriented transformation

in urban form. Writings about TOD have proliferated (Calthorpe 1990, 1992, Katz 1994, Bernick and Cervero 1997). TODs are defined as mixed-use communities within a quarter-mile radius of a rail station. Their design configuration and land uses emphasize a pedestrian-oriented environment and reinforce the use of public transportation. A mix of residential, retail, office, open space, and public uses are arranged in comfortable proximity, making it possible for residents and workers to travel by transit, bicycle, or foot (Calthorpe 1993). Such development is often described as a "village" surrounding the transit stop, where a core commercial area provides space for offices and retail. This vision is about an alternative way of life supported by a higher density, pedestrian-friendly, and transit-contingent urban environment.

Transit villages have been described as tools for revitalizing U.S. inner cities (Bernick 1996). In their book *Transit Villages for the 21st Century*, Bernick and Cervero (1997, pp. 9–10) argue that:

*The transit village offers a fresh new approach to stimulating economic growth in inner-city neighborhoods served by rail . . . Combining transit village planning with aggressive programs to improve the social and physical infrastructure of neighborhoods can provide a formula for progressive change. . . Transit villages can be important catalysts to community rebuilding*

Such enthusiasm notwithstanding, substantial social, economic, and institutional barriers persist. Many of the obstacles are rooted in the segregated social ecology of U.S. cities. Inner-city neighborhoods that have often been segmented by freeway development, are now experiencing a new "intrusion," as fixed rail lines have to traverse them to link suburban centers with the downtown (Loukaitou-Sideris and Banerjee 2000). These areas suffer from a long history of disinvestment and neglect. Fear of crime, drugs, gangs, and violence dominate public perception.

Is there a future for "transit villages"—so far considered mainly in the context of middle- and upper-class suburban settings—along the inner-city corridors? What are the constraints and potentials for implementing TOD around inner-city transit stations?

### **Rail Transit and Economic Development: Literature Review**

A literature review to respond to the previous questions provides some contradictory arguments. Studies of the 1970s and early 1980s have typically found that transportation investments may have some small effects on economic development, but only if certain preconditions are present. Knight and Trygg (1977) have argued that for substantial land-use impacts to occur in the vicinity of a railway station, four factors need to exist simultaneously:

1. local government policies supportive of development;
2. a growing regional economy;
3. availability of developable land around stations, and
4. positive physical characteristics of the station area (good location, compatible land uses, etc.).

Gómez-Ibáñez (1985, p. 349) reported that merchants and developers located near light rail lines in San Diego, Calgary, and Edmonton found them to be rather unimportant factors for business activity or development decisions. He argued that for a rail system to produce significant development around station areas three conditions need to be met.

1. The rail system produces a significant improvement in transportation service quality and accessibility.
2. The metropolitan area is growing.
3. There is supportive local zoning.

Knight (1980) claimed that the available evidence did not show that American and Canadian rail rapid transit investments had had any major effects on urban structure or economic development. On the other hand, in a comprehensive study of light rail transit systems in the United States and Canada, Cervero (1984) concluded that the economic stimulus of light rail on urban form can be moderately high when accompanied by a strong regional economy, a prodevelopment policy orientation, zoning, taxation, and joint development incentives, as well as physical improvements that enhance aesthetics and pedestrian access and create hospitable station settings.

In a study of the impacts of urban rail transit on local real estate markets in two of the fastest-growing cities in the United States in the 1980s, Atlanta and Washington D C , Cervero and Landis (1993) found that the rail systems had a positive impact on station real estate markets. These impacts included higher rents, lower vacancy rates, and higher densities in office buildings around station areas (Cervero 1994).

In the late 1980s and 1990s, the debate about the effectiveness of transit investments in inducing economic development was revisited. The New Urbanist movement advocated physical layouts, called "pedestrian pockets," where light rail transit was an integral element of the urban form (Kelbaugh 1989, Calthorpe 1993; Katz 1994). The force of these ideas and their promise of urban revitalization convinced many city planners. Since 1990, much-touted design guidelines have sought to shape TOD in the City of San Diego and in Sacramento County (Calthorpe 1990, 1992). In 1993, the most automobile-oriented city in the nation, Los Angeles, formulated guiding principles for station-area development (City of Los Angeles Planning Department 1993). TOD is a major component of Los Angeles's long-term growth strategy, as the city's new General Plan calls for directing 75 percent of all new development onto 5 percent of its land, mostly around rail stations and bus stops (Chu and Curtiss 1995). In 1994, the California legislature enacted a transit village bill to promote such planning efforts.

In the 1990s, the subject of TOD found both academic proponents and critics. Proponents (Bernick 1996, Bernick and Cervero 1997) tended to emphasize the opportunities for TOD and transit village development. They noted the growing willingness of transit agencies and local governments to initiate joint development projects near rail stations, receptive policies and legislation for coordinating transit and land-use decisions, and demographic growth of population groups (the elderly, young professionals without children, etc.) that are prime candidates for TOD living (Bernick and Cervero 1997, pp 138-139).

Skeptics have mostly emphasized barriers such as local institutional obstacles (Boarnet and Crane 1998), as well as the behavior of private land



markets. They have pinpointed the fact that, despite the enthusiasm, residential TOD activity has been rare in practice (Boarnet and Crane 1998). Examining an inner-city line in Los Angeles, Loukaitou-Siders and Banerjee (2000) found no evidence that it had promoted revitalization and growth in the adjacent neighborhoods. They argued that the New Urbanist's romantic image of a transformed inner city stands in stark contrast with the decay, unemployment, poverty, and crime that characterize these neighborhoods (Loukaitou-Siders and Banerjee 1996, 2000).

Despite the rhetoric about the potential of New Urbanism to revitalize stark inner-city areas, the few implemented examples of New Urbanist planning are located in outlying suburban areas or have been designed as resort towns that are typically devoid of transit. There has been, however, a notable exception in the works. A \$100 million redevelopment is currently under construction around the Fruitvale BART station that will bring a mixture of housing, shops, offices, senior center, child care facilities, library, and community centers to this low-income Oakland neighborhood (Wadhawani 1999). The Fruitvale development is the result of intense community activism by the Spanish Speaking Unity Council, a local community group that was able to attract extensive funding from the public sector (Federal Transportation Authority, Housing and Urban Development, Health and Human Services) and private foundations (Hewlett, Irvine, Ford) (Bernick 1996).

Is the Fruitvale example paradigmatic for things to come, or is it a unique case that is unlikely to be repeated elsewhere? What are the prospects for TOD in America's inner cities? In addressing this issue, this article reports on a Delphi survey of knowledgeable transportation planning experts.

### **The Delphi Research Concept**

The Delphi technique was developed by Norman Dalkey and Olaf Helmer of Rand Corporation in the early 1950s as a means of systematic group judgment (Rawitz 1991). According to Linstone and Turoff (1975, p. 3), Delphi is a "method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem." The belief is that the group's judgment will have more validity,

and will be more complete and accurate than individual points of view (Dalkey 1972).

Use of a Delphi survey is appropriate when there is lack of consensus or agreement regarding the nature of a problem or the components, which must be included in a successful solution (Rawitz 1991). The Delphi technique has been employed in a variety of different contexts, as its reliance on human judgment makes it useful in decision- and policy-making situations (Cavalli-Sforza et al. 1982).

The goal of the Delphi technique is to bring informed consensus, or at least to delineate, clarify, and define existing opinions and views (Herrick Cramer 1991). This is achieved by an iterative process in the form of two to four rounds of questions. In the first round, the panel responds to the questions posed by the researchers, who, in turn, use statistical measures to summarize the panel's responses. The summaries are fed back anonymously to the panel for the second and subsequent rounds. In these rounds, experts are asked to reconsider their responses based on the information provided to them by the results of the previous round. The goal of the iterative process is "to obtain a convergence of responses to each question. Such convergence would be indicated by the decrease in the measures of dispersion for the responses and by stability of the distribution of the responses to each question" (Cavalli-Sforza et al. 1982, p. 12).

The Delphi process possesses several strengths. It:

- reduces the effect of dominant individuals, by preserving anonymity and eliminating face-to-face communication (Dalkey 1972);
- enables the creation of a heterogeneous group for problem solving (Rawitz 1991);
- encourages "exhaustive search" of issues and opinions; and
- allows for a better opportunity to reach consensus (Rawitz 1991).

In terms of weaknesses, the method pools out extreme views, as consensus is reached by averaging. In addition, the quality of the findings can be affected by a poor (or not representative) selection of the panel, and by a poor summary, analysis, and report of the results of each round.

The study reported in this article employed a panel of 25 individuals who had knowledge and experience in the field of TOD.<sup>1</sup> Panel members were identified by means of four criteria:

1. position at a university in the field of transportation planning and/or real estate and economic development (7 participants);
2. leading position in a public sector agency involved in TOD (6 participants);
3. leading position in a private sector company that has been involved as consultants or developers in TOD (7 participants); and
4. leading position in a nonprofit organization or community group that has been involved in TOD (5 participants).<sup>2</sup>

The 25 panel members were from six different states (California, Illinois, Massachusetts, Missouri, Oregon, Pennsylvania) and the District of Columbia, but they have been involved in TOD planning, design, development, or research for projects in a much wider geographical spectrum.<sup>3</sup> Individuals who had leading roles in their organization (directors, managers, principals, project managers, senior associates) were sought from the public, private, and non-profit sectors. This yielded 20 male and 5 female respondents. The racial/cultural breakdown of the panel was: white, 20; African-American, 1; Latino, 1, Asian, 1; and undeclared, 2. While this is certainly not a balanced sample in terms of race or gender, it may be quite representative of the sociodemographics of the group that tends to acquire leading positions in the TOD field.

### Findings and Discussion

During the first round of the Delphi process, participants were told that:

*The study seeks to examine TOD in two different ways. It will look at the various goals and objectives underlining the practice of TOD and will also examine the means and problems of its implementation. We are particularly focusing on TODs in North American inner-city areas, and we want to identify the relevant issues, objectives, opportunities, and constraints surrounding such development. By inner city, we mean the economically disadvantaged areas that lie between the downtown district and a city's suburbs.*

Panel members were asked to respond to four open-ended questions:

1. What are the most important goals of TOD?
2. What are the most important objectives of TOD in inner-city areas?
3. What are the most important preconditions for successful TOD in inner-city areas?
4. What are the most important barriers to inner-city development?

The first round yielded various responses from the panel (Table 1) and showed that the concept of TOD is loaded with a variety of expectations that include economic (e.g., generate revenue for the transit authority, the developer, the community), environmental (air quality, sustainability, reduction of sprawl, energy conservation), social (choice, mobility, accessibility, social interaction), and planning (land-use/transportation coordination, regional linkages) goals. Participants stated that, in addition to these goals, inner-city TODs should promote community economic development, enhance safety, create jobs, increase the value of the residential market, reinforce prior public investment, attract more retailers, provide affordable housing, effectively link the inner city with other parts of the metropolitan area, and combat inner-city decline.

Participants listed an array of preconditions for successful inner-city TODs that included economic and market-related factors (federal and state funding, private sector interest, public/private partnerships, and good economic climate), regulatory/institutional factors (collaboration and coordination among different public agencies, proactive planning departments and transit agencies, political support, and community involvement), as well as urban form and transit characteristics conducive to TOD. The list of responses to the last question was the longest—an indication of how difficult it is to establish TODs in US inner cities. Participants discussed a wide spectrum of barriers to such development, including economic, social, and institutional constraints.

The first round did not involve any prioritization of responses. However, in the second round, the panel was asked to select and rank the 10 items they felt were the most important per question. Responses that received a very low score were eliminated. This reduced the range of answers considerably (Table 2). In this round, three experts—all from academia—felt strongly that the TOD concept could not be successful in achieving its goals or significantly influ-

**Table 1**  
**Results of Round 1--Responses**

<i>Question 1 TOD Goals</i>	<i>Question 2 Inner-City TOD Objectives</i>	<i>Question 3: Preconditions</i>	<i>Question 4 Barriers</i>
<b>Economic Goals</b>	<b>Economic Objectives</b>	<b>Economic/Market-related</b>	<b>Economic Barriers</b>
Increase transit ridership to generate revenue for the transit system	Spur community and economic development, create inner-city jobs, and combat inner-city decline	Federal and state funding	Absence of market demand for inner-city space within the range of costs at which it is possible to develop
Generate revenue for the developer	Use transit as conduit for more federal, state, or private funding	Local government support, financial participation in the development, and financial commitment	Low expendable income of inner-city residents to support TOD (especially retail and services)
Revitalize urban neighborhoods and promote appropriate redevelopment efforts	Increase value of the residential market and investment for the surrounding area	Public-private partnerships with both partners knowledgeable about their roles	Disinterest of private sector; unwillingness to locate/invest in inner city because of perceived risk
Generate real estate development of all types at or near transit stations	Reinforce prior public investment; make better use of existing infrastructure investment	Interest from developers	High development cost especially for mixed-use projects and high-density housing
<b>Environmental Goals</b>	Improve air quality, conserve energy, create sustainable environments	Availability of financing	Lack of experienced TOD developers
Reduce suburban sprawl	Increase customer base for inner-city commercial uses, attract more retailers, expand retail services	Good economic climate with stable or appreciating land values	Chronic shortage of funds for land and infrastructure development
Reduce reliance on the automobile and auto-dominated environments	Create jobs and employment opportunities for inner-city residents within one-quarter mile from station	Fair return of investment for landlords and developers	Lack of skilled labor force
<b>Social Goals</b>	Strengthen the inner-city tax base	Housing market that supports new construction	Competitive disadvantage of inner cities, difficulty to compete for development dollars
Offer choices for living and working	Increase revenue to the transit property and returns of investment for the transit agency		

**Table 1 (continued)**

<i>Question 1 TOD Goals</i>	<i>Question 2 Inner-City TOD Objectives</i>	<i>Question 3 Preconditions</i>	<i>Question 4- Barriers</i>
<b>Social Goals</b>	<b>Environmental Objectives</b>	<b>Economic/Market-related</b>	<b>Economic Barriers</b>
Offer more mobility to inner-city residents; link them to the economic and cultural life of the larger metropolis	Reduce pollution and energy consumption with development that has less adverse environmental impact	Market demand for TODs; willingness of people to live there at the prices needed to support new development	Lack of financing, realigning by financial institutions
Enable accessibility to regional job centers	Resist suburban infill development; provide an alternative to the suburbs	Market-based development concept	<b>Social Barriers</b>
Provide an urban form that encourages interaction between diverse social groups	Encourage walking and cycling, reduce travel by car, dependence on automobiles and traffic accidents	Regulatory/institutional/Political	Preconceived prejudices that inhibit development in inner city
<b>Planning/Transportation Goals</b>		Coordination and collaboration among different agencies	Perception and reality of crime and social pathologies
Enhance existing transit facilities in low-income areas	Improve the environment for the transit patron	A transit agency that knows how to do development	NIMBY-like resistance to denser infill projects
Provide land-use options combined with transit investment; integrate the transit system into the desired land use	<b>Social Objectives</b>	Proactive planning department or redevelopment agency that offers regulatory assistance, streamlines permits, implements land-use and parking controls in support of TOD	White flight
Reduce the impacts of new development on the regional highway system	Offer more choices for living and working for inner-city residents	Centralized ownership and control of land	<b>Governmental/Institutional Barriers</b>
Provide an urban pattern of regional growth	Enhance mobility and access to jobs and services for inner-city residents and transit-dependent people	Interest groups that lobby for a TOD	Lack of leadership, will, and focused effort from local government or transit agencies
	Create a vibrant mixed-use environment with services and amenities within walking distance from transit		Governmental failure to solicit or follow community input

Table 1 (continued)

Question 1 TOD Goals	Question 2 Inner-City TOD Objectives	Question 3. Preconditions	Question 4: Barriers
Planning/Transportation Goals	Social Objectives	Regulatory/Institutional/Political	Governmental/Institutional
Create a mixed-use, pedestrian-friendly neighborhood within walking distance from transit stop	Create a focal point and a sense of place for the inner-city community	Community support (as it relates to high densities, fear of displacement and gentrification)	Lack of state support for investment in affordable housing
Create medium- to high-density housing within one-quarter-mile radius from transit stops	Build more affordable housing within one-quarter mile, with lower than normal parking ratios	Political leadership	Governmental policies and regulations that favor nonurban developments
Resurrect a romantic image of 18th-century village life and an imagined past	Provide an urban form that encourages social and economic integration and creates a place for people of different incomes to live close together	Physical/Environmental/Infrastructural Supporting infrastructure improvements (streets, sidewalks, landscaping)	Government obstructionism (confused zoning requirements, expensive permitting and EIR processes)
	Improve safety in the inner city	Adequate parking for retail and transit	Lack of interagency coordination, interagency rivalry that militates against comprehensive planning
	Planning/Transportation Objectives	Existence of pedestrian-oriented amenities and civic assets around transit stations	Transportation planning that reinforces projects that worsen the quality of inner cities
	Implement efficient land-use plans that integrate land uses that support mixed-use development and transit	Attractively located large land parcels	Transit companies not interested in land development
	Maximize intercity connectivity by building stations as parts of a regional string of TODs	Good access to main streets	Absence of centralized control
	Increase ridership to gain more frequent and reliable service and enhance the rail system's viability	Good design and area-specific plan that ensures coherent development	Single-purpose concerns of public and private sector and lack of vision

**Table 1 (continued)**

Question 1. TOD Goals	Question 2. Inner-City TOD Objectives	Question 3. Preconditions	Question 4. Barriers
		Physical/Environmental/Infrastructural	Physical/Environmental/Infrastructural
	Security and perception of safety, good inner-city schools and day care		Barriers
	Transit-Related		Pollution and contaminated sites
	A critical mass of transit-dependent population		Ubiquitous road network that vitiates against selected points of high accessibility at transit stops
	A transportation and development policy that is multimodal and recognizes the connection between land use and transport		Lack of large sites, difficult land assembly
	Transit system alignment that services desirable locations for housing development		Incompatible land uses for residential development
	Reliable and frequent transit service		Lack of quality schools and amenities
			Inadequate and declining infrastructure
			Long lead time for infrastructure investments
			<b>Other Barriers</b>
			High car and home ownership rates
			Negative image/attitude toward transit service



encing urban life. One panelist argued, "TOD is a hopeless waste that can divert resources from other more worthwhile projects." This response was included in the survey of round 2, but was eliminated from round 3, receiving a very low score. Subsequently, one of the three panelists decided to stop participating in the Delphi process, while the other two stayed on.<sup>4</sup>

To identify the most significant issues, preconditions, and constraints related to TODs, a third survey was sent to participants during round 3. This survey asked the panel to select and rank the five most important responses to each question. Responses that received an average score of less than 2.0 were eliminated. Table 3 shows the respondents' priority ranking and scores. Additionally, respondents were encouraged to discuss possible strategies, policies, and actions that could counteract the perceived barriers to inner-city TOD.

Even though there was no unanimous agreement, the panel was able to effectively identify the five or six most important issues and concerns for each question. Considering that the first round had generated 20 to 30 responses per question, this was a considerable accomplishment.

Experts agreed that the major goal of a TOD is to create a mixed-use, pedestrian-friendly neighborhood within walking distance from a transit stop that offers choices for living and working, reduces automobile dependence, effectively integrates land use and transportation, and increases transit ridership and revenue for the transit system. This is a rather broad statement that could have been easily drawn from the Charter for New Urbanism (see Kelbaugh 1997). As shown in Table 3, experts felt that for inner-city areas, three additional social and economic objectives should take precedence: (1) community and economic development, (2) mobility and accessibility to jobs and services, and (3) reinforcement of prior public investment. In other words, the panel believed that TOD in inner-city areas should have the objective to act as a catalyst, combat inner-city decline, and bring about positive change.

The panel argued that successful TOD cannot be carried out by only one entity but needs the successful collaboration, financial support, and regulatory assistance of public agencies, local government, and the private sector, support of the local community, and interest from perspective consumers (market demand). But these preconditions are often not met in the inner cities because

**Table 2**  
**Results of Round 2—Priority Ratings (Scoring Range: 0–10)**

Question 1 TOD Goals		Question 2 Inner-City TOD Objectives		Question 3 Preconditions		Question 4 Barriers	
Rank	Responses	Rank	Responses	Rank	Responses	Rank	Responses
	Group Average		Group Average		Group Average		Group Average
1	Create a mixed-use, pedestrian-friendly neighborhood within walking distance from transit stop	1	Spur community and economic development, create inner-city jobs, and combat inner-city decline	1	Proactive planning department or redevelopment agency that offers regulatory assistance, streamlines permits, implements land-use and parking controls in support of TOD	1	Disinterest of private sector; unwillingness to locate/invest in inner city because of perceived risk
	6.25		6.68		5.30		6.00
2	Increase transit ridership and generate revenues for the transit system	2	Reinforce prior public investment, make better use of existing infrastructure investment	2	Local government support, financial participation in the development, and financial commitment	2	Absence of market demand for inner-city space within the range of costs at which it is possible to develop
	6.15		5.36		4.10		5.28
3	Reduce reliance on the automobile and auto-dominated environments	3	Enhance mobility and access to jobs and services for inner-city residents and transit-dependent people	3	Public-private partnerships with both partners knowledgeable about their roles	3	Lack of financing, redlining by financial institutions
	5.10		4.63		3.45		3.28
4	Offer choices for living and working	4	Increase ridership to gain more frequent and reliable service and enhance the rail system's viability	4	Market-based development concept	4	Competitive disadvantage of inner cities, difficulty to compete for development dollars
	4.45		4.47		3.20		3.04
5	Revitalize urban neighborhoods and promote appropriate redevelopment efforts	5	Create a vibrant mixed-use environment, with services and amenities within walking distance from transit	5	Availability of financing	5	Preconceived prejudices that inhibit development of inner city
	4.15		3.57		2.95		3.00

**Table 2. (continued)**

Question 1: TOD Goals		Question 2: Inner-city TOD Objectives		Question 3: Preconditions		Question 4: Barriers	
Rank	Responses	Rank	Responses	Rank	Responses	Rank	Responses
	Group Average		Group Average		Group Average		Group Average
6	Provide land-use options combined with transit investment, integrate the transit system into the desired land use	6	Offer more choices for living and working for inner-city residents	6-7	Interest from developers	6	High development cost especially for mixed-use projects and high-density housing
7	Provide an urban pattern of regional growth	7	Increase customer base for inner-city commercial use, attract more retailers, expand retail services	6-7	Community support (as it relates to high densities, fear of displacement, and gentrification)	7	Perception and reality of crime and social pathologies
8	Improve air quality, conserve energy, create sustainable communities	8	Create a focal point and a sense of place for the inner-city community	8	Political leadership	8	Lack of leadership, will, and focused effort from local government or transit agencies
9	Offer more mobility to inner-city residents; link them to the economic and cultural life of the larger metropolis	9	Strengthen the inner-city tax base	9	Market demand for TODs, willingness of people to live there at the prices needed to support new development	9	Lack of large sites, difficult land assembly
10	Create medium- to high-density housing within one-quarter-mile radius from transit stops TOD is a hopeless waste that can divert resources from other more worthwhile projects <sup>a</sup>				It is doubtful that the TOD concept can ever be successful <sup>a</sup>		
	3.90		3.31		2.80		2.95
	3.55		3.00		2.80		2.80
	3.45		2.78		2.70		2.66
	3.30		2.63		2.60		2.52
	2.70						

a. No score. Response added in the second round by one participant.

**Table 3**  
**Results of Round 3—Priority Ratings for the Five Most Important Issues (Scoring Range: 0–5)**

Question 1 TOD Goals		Question 2 Inner-City TOD Objectives		Question 3 Preconditions		Question 4 Barriers		Group Average
Rank	Responses	Rank	Responses	Rank	Responses	Rank	Responses	
1	Create a mixed-use, pedestrian-friendly neighborhood within walking distance from transit stop	4.1	1   Spur community and economic development, create inner-city jobs, and combat inner-city decline	4.2	1   Proactive planning development or redevelopment agency that offers regulatory assistance, streamlines permits, implements land use and parking controls in support of TOD	3.6	1   Disinterest of private sector, unwillingness to locate/invest in inner city because of perceived risk	4.5
2	Increase transit ridership and generate revenue for the transit system	3.5	2   Enhance mobility and access to jobs and services for inner-city residents and transit-dependent people	3.4	2   Local government support, financial participation in the development, and financial commitment	3.0	2   Absence of market demand for inner-city space within the range of costs at which it is possible to develop	3.5
3	Offer choices for living and working	3.2	3   Reinforce prior public investment, make better use of existing infrastructure investment	3.2	3   Public-private partnerships with both partners knowledgeable about their roles	2.9	3   Competitive disadvantage of inner cities, difficulty to compete for development dollars	3.3
4	Provide land-use options combined with transit investment; integrate the transit system into the desired land use	2.6	4   Increase ridership to gain more frequent and reliable service and enhance the rail system's viability	2.8	4   Interest from developers	2.7	4   Preconceived prejudices that inhibit development of inner city	2.6
5	Reduce reliance on the automobile and auto-dominated environments	2.2	5   Create a vibrant mixed-use environment, with services and amenities within walking distance from transit	2.7	5-6   Community support (as it relates to high densities, fear) of displacement, and gentrification	2.6	5   Lack of financing, redlining by financial institutions	2.3
				2.3	5-6   Market demand for TODs, willingness of people to live there at the prices needed to support new development	2.6		

the private sector is disinterested to invest there, and major retailers are afraid to move in. As one panel member, who is in charge of real estate acquisition for a major supermarket chain, stated, "The potential for high volumes are easily achieved in the inner city, but low productivity and high shrink [theft of product] reduces profits on sales." Thus, real risks along with preconceived prejudices lead to lack of financing and inhibit development of inner-city sites. This creates a competitive disadvantage of the inner cities that find it difficult to compete for development dollars. In addition to the lack of private sector interest for the development of commercial space, panel members pointed out that there is an absence of market demand for inner-city residential space within the range of costs at which it is possible to develop. Because mixed-use development is more expensive than conventional construction, residential units are not affordable for many inner-city residents, while more affluent citizens are not interested in moving to the inner cities.

#### **Creating TOD in the Inner City: Proposed Strategies and Actions**

*This is a very strong development time and due to a number of positive aspects, such as low interest rates and good market acceptance for less conventional, newer prototypes, it is time to move the vision into reality. In my opinion, this is the best time in 50 years to shape our communities with urban form different from the post-World War II suburban sprawl.*

—Delphi participant

The passage from vision to reality is not easy. Studies have shown that even in good economic times, a transit line cannot, by its mere presence, catalyze a miracle in the inner city (Loukaitou-Sideris and Banerjee 2000). Development and positive change in an environment that has remained disinvested in and neglected for decades requires specific and drastic actions, coordinated policies, and concrete strategies. As shown in Table 3 (question 4), the panel found five major impediments to implementing TOD around inner-city stations:

1. disinterest of the private sector to locate and invest in the inner city;
2. absence of a market demand from the part of the public that can afford to pay the arguably higher cost entailed in a mixed-use development,

3. competitive disadvantage of the inner city;
4. preconceived prejudices regarding inner-city locations; and
5. lack of financing for inner-city locations.

Participants were asked to outline proposals that can help counteract these barriers that TODs face in inner-city environments

#### ***Inducing Private Sector Interest***

Some panelists argued that local communities, planning departments, and redevelopment agencies should do a better job in marketing a neighborhood's commercial strengths so as to attract private developers and retailers to the inner city. Despite stereotypical images of distressed economic landscapes, inner cities can provide certain advantages to investors that are missing from downtown and suburban locations (Porter 1996). Inner-city commercial strips are usually characterized by an abundance of available commercial space, and lower commercial rents and land values than those encountered in outlying locations. Despite low incomes, inner-city high densities translate into a consumer market with substantial purchasing power. Inner cities are often underserved in retailing and services, which also creates opportunities for incoming businesses to fill the void. Despite these advantages, panelists felt that local governments need to assume part of the investment risk and give incentives to developers and retailers to locate in the inner city. Some panelists proposed rent subsidies, while others believed that the public sector should seek to provide some exclusivity for a time period to ensure the success of the incoming commercial development. As one participant reasoned, "The ability to have control of the market for a time period shall enhance the success of the project and after completion would spur future developments based on its success."

Panelists felt that developers will be attracted if the cost of development is effectively lowered. Development of inner-city sites often requires added costs for land assembly and for clearance of toxic pollutants from the soil. Mixed-use developments are more expensive because the cost of code compliance is greater than in conventional single-use projects. The role of the public sector is, once again, crucial in offsetting some of these costs. Public agencies may put together a program of land assembly and land write-down, or become

partners in projects to reduce costs. They can offer administrative and regulatory assistance, help expedite development approvals, limit special charges and impact fees, and be flexible in certain code requirements. One participant optimistically stated, "Once the fundamental issues of cost are overcome, the developers and lenders will be there."

#### ***Building Market Demand for TOD Housing***

A preliminary market research could help identify market needs and impediments. There may be some demand for inner-city housing—some experts felt that it may consist of aging baby boomers who are tired of their long commutes and want a more "urban" experience. Others believed that young professionals or the elderly might be more likely to "experiment" with inner-city living. Market research should identify the demands in rental and for-sale housing and match the proposed development to the economic realities of the area. As any housing expert would argue, housing decisions are made not only on the basis of quality of the housing unit, but are greatly influenced by the quality and number of neighborhood amenities and the condition of surroundings. Many in the panel stressed the importance of "good schools, less crime, improved infrastructure, and cleaner environment." One participant argued, "Beyond actual safety the *perception* of safety also matters. This means well-lit areas, unobstructed lines of sight, clean sidewalks, and public spaces." All these translate into a considerable investment and subsidies from the public sector. One expert proposed the use of regional tax sharing for school improvement and crime reduction, as well as the direction of increased revenues from changes in federal mortgage deductions' to accelerate brownfield redevelopment, acquire open spaces, and improve transit and its surrounding environment.

#### ***Reducing the Competitive Disadvantage***

Inner cities' competitive disadvantage is exacerbated by public policy. As one participant explained, the public sector should "create a more balanced playing field through land-use policy and other pricing mechanisms so that TOD can become competitive to ex-urban development, which is perceived as having lower risks and costs." In reality ex-urban developments create social costs that are rarely borne by the development community. This panelist

advised that counties force ex-urban developments to pay more realistic impact fees, and states and regions initiate legislation that establishes "Smart Growth" plans with a diverse supply of housing. Key changes in tax reform can also encourage high-density housing in urban areas.

#### ***Addressing Preconceived Prejudices***

The absolute need to demonstrate success in inner-city TOD was stressed by many panelists as a means to address fear and skepticism. One participant reasoned, "If a market exists, jumpstarting a few good projects can create a buzz and positive images to counteract the negativity and prejudice that surrounds inner-city living." Others suggested that transportation or redevelopment agencies find communities interested in demonstration projects and work closely with them toward the realization of a successful plan.

While TODs are sometimes inhibited by NIMBYism in suburban communities (Deakin, Bernick, and Chang 1992), fears of gentrification are often prevalent in inner cities. Policies to address such neighborhood concerns should include an educational process and public discourse, as well as the involvement of community members in all stages of the process.

#### ***Ensuring Financing***

Redlining has historically plagued inner-city areas. But this problem can now be seen as an opportunity because banks now have new requirements to show lending in low-income communities. According to one participant, "Bank mergers are another opportunity, since the acquiring institution often needs to demonstrate a commitment to investments in neighborhoods which have been overlooked by existing banks." Another source of financing can come from local housing assistance programs that can be targeted to a TOD project to guarantee the revenues needed to justify a conventional loan. In certain cases, local and state agencies can make the needed financial contribution and become part owners, as has happened in the Del Norte Place project on BART. Finally, federal money from the Intermodal Surface Transportation Efficiency Act and its successors can contribute funding.



## **Conclusions**

This discussion has clearly demonstrated that there are many pieces that need to be in place for TOD to succeed in the inner city. While local communities and the private sector are certainly actors in the process, it is really the public sector that is asked to take the lead, set the stage, develop policies, and offer important subsidies and assistance to support the creation of TOD in the inner city. The actions of the public sector are influenced to a great extent by the attitudes of the public, since it is taxation that defines public revenue. It remains to be seen if TOD will become a viable option for community enhancement and positive change in America's inner cities.

## **Acknowledgments**

The author gratefully acknowledges the following individuals who graciously accepted her invitation to participate in the Delphi process and offered valuable insights to this study: Michael Bernick, Marlon Boarnet, Carlos Castellanos, Elisabeth Deakin, Robert Dunphy, Doug Fair, Todd Fontanella, Karen Heit, Anish Kumar, John Landis, Jackie Leavy, Terry Margerum, Alvin McNeal, Val Menotti, Susan Moses, George Ray, Jonathan Richmond, Doug Shoemaker, Tom Shrout, Sarah Smith, Matt Taecker, Martin Wachs, Melvin Webber, Phil Whitemore, and Richard Willson.

The author also thanks her graduate research assistants Laura Aldrete, Lauren Nackman, and Liette Gilbert, who helped with the logistics of the Delphi process.

## **Endnotes**

1. Many participants stated that they had one or more of the following professional affiliations: American Planning Association, American Institute of Certified Planners, International Society of City and Regional Planners, American Collegiate Schools of Planning, American Institute of Architects, American Economic Association, Association for Public Policy Analysis and Management, Congress of New Urbanism, Regional Science Association International, Transportation Research Board, Institute of Transportation Engineering, Urban Land Institute, Western Regional Science Association, Women's Transportation Seminar, Society of Hispanic Professional Engineers.

2. This distribution reflected the present employment status of the participants. Many of them had worked under various capacities in the past.
3. Delphi participants listed the following areas where they have been involved in TOD work: Anaheim, Atlanta, Bayonne, Beavertown, Boston, Boulder, Broomfield, Chicago, Cincinnati, Dallas, Denver, Gresham, Hayward, Hoboken, Holyoke, Japan, Jersey City, Long Beach, Los Angeles, Madison, Marin County, Milwaukee, Orange County, Philadelphia, Philippines, Phoenix, Portland, Riverside County, Sacramento, San Bernardino County, San Diego, San Jose, San Francisco, Seattle, Somerville, Sonoma County, South Amboy, Stockton, St. Louis, Toronto, Washington, D.C., Weehawken, Union City, Vancouver
4. In general, academic participants were more skeptical about the merits or desirability of TOD development than the other three groups.
5. This Delphi participant proposed the elimination of federal mortgage interest deductions for households with incomes over \$250,000 and the use of this revenue for inner-city improvements.

## References

- Bernick, M. 1996. Transit villages: Tools for revitalizing the inner city. *Access* 9: 13-17
- Bernick, M., and R. Cervero. 1997. *Transit villages in the 21st century*. New York: McGraw Hill.
- Boarnet, M., and R. Crane. 1998. Public finance and transit-oriented planning. New evidence from southern California. *Journal of the American Planning Association* 17(3): 206-219.
- Calthorpe, P. 1993. *The next American metropolis: Ecology, communities, and the American dream*. New York: Princeton Architectural Press.
- Calthorpe, P. and Associates. 1990. *Design guidelines/final public review draft for Sacramento County Planning Community Development Department*.
- . 1992. *City of San Diego land guidance system. Design guidelines/final public review draft*

- Cavalli-Sforza, V., L. Ortolano, J. Dajani, and M. Rosso. 1982. *Transit facilities and land use: An application of the Delphi method*. Stanford: Stanford University, Department of Civil Engineering, Report IPM-15.
- Cervero, R. 1984. Light rail transit and urban development. *Journal of the American Planning Association* 50(2): 133–147.
- . 1987. *Transportation and urban development perspectives for the nineties*. Berkeley: University of California, Berkeley, Institute of Urban and Regional Development, Working Paper #470.
- . 1994. Rail transit and joint development. *Journal of the American Planning Association* 60(1): 83–94.
- Cervero, R., and J. Landis. 1993. Assessing the impacts of urban rail transit on local real estate markets using quasi-experimental comparisons. *Transportation Research A* 27(A.1): 13–22.
- Chu, H., and A. Curtiss. 1995. Making way for transit town. *Los Angeles Times*, March 19: A3.
- City of Los Angeles, Department of City Planning. 1993. *Land Use/Transportation Policy*. Council File No. 93-0478, City Plan Case No. 93-0257.
- Dalkey, N. 1972. Studies in the quality of life: *Delphi and decision-making*.
- Deakin, E., M. Bernick, and T. Chang. 1992. *Implementation of residential development at rail transit stations in California: Case studies and policy options*. Sacramento: California Department of Transportation, Division of Transportation Planning.
- Gómez-Ibáñez, J. 1985. Dark side to the light rail? *Journal of the American Planning Association* 51(3): 337–351.
- Herrick Cramer, R. 1991. The education of gifted children in the United States: A Delphi survey. *Gifted Child Quarterly* 35(2): 84–90.
- Katz, P. 1994. *The new urbanism: Toward an architecture of community*. New York: McGraw Hill.
- Keilbaugh, D., ed. 1989. *The pedestrian pocket book. A new suburban design strategy*. New York: Princeton Architectural Press.

- . 1997 *Common place* Washington University of Washington Press
- Knight, R. 1980. The impact of rail transit on land use. Evidence and a change of perspective. *Transportation* 9. 3-16
- Knight, R., and L. Trygg. 1977. Evidence of land-use impacts of rapid and transit systems. *Transportation* 6: 231-247.
- Linstone, H. A., and M. Turoff, eds. 1975 *The Delphi method: Techniques and applications*. Reading, MA: Addison Wesley.
- Loukaitou-Sideris, A., and T. Banerjee. 1996. There's no there there: Or why neighborhoods don't readily develop near light-rail transit stations. *Access* 9: 2-6.
- . 2000. Blue line blues: Why the vision of transit village may not materialize despite impressive growth in transit ridership. *Journal of Urban Design*, forthcoming
- Porter, M. 1996. The competitive advantage of the inner city. *Center for Urban Policy Report* 7(2) 6
- Rawitz, C. Z. 1991. *Minority students and journalism education: A model program design using the Delphi technique*. University of California. Los Angeles, Department of Education, Ph.d. diss.
- Wadhawani, A. 1999. Unique BART plan renewing Fruitvale. *San Francisco Examiner*, July 11.
- Witherspoon, R. 1982. Transit and urban economic development. in Levinson, H. S. and R. A. Weant (eds.) *Urban transportation: perspectives and prospects*. Westport, CT: Eno Foundation for Transportation.

#### **About the Author**

ANASTASIA LOUKAITOU-SIDERIS (sideris@ucla.edu) is associate professor in the Department of Urban Planning at the UCLA School of Public Policy and Social Research. She specializes in urban design, physical, and land-use planning. Professor Loukaitou-Sideris is the coauthor of *Urban Design Downtown: Poetics and Politics of Form* (University of California Press, 1998).