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TRANSIT-LINKED MOBILITY STUDY: An Assessment of Opportunities and Challenges for Transit Operators, Alternative Mobility Providers and Land Developers

(Preliminary Edition)

July 9, 2004

Prepared for:

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13. ABSTRACT (Maximum 200 words) This document provides information regarding the efforts being made nationally to couple transit with various additional transportation modes, including but not limited to, paratransit services, feeder transit, vanpools, carsharing, station cars, bicycle amenities, and more conventional park-and-ride lots, for the purpose of extending and enhancing transportation services. Among other findings, this publication describes the difficulty that transit operators have in conceptualizing options other than conventional service restructuring methods, such as park-and-ride lots, as a means to provide access to stations and increase ridership levels. The publication also identifies the obstacles to and effectiveness of implementing transit-linked mobility strategies as perceived by alternative mobility providers, land developers, as wells as transit operators, concluding that funding, institutional issues, parking and land use are common problems for all three subject groups.

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Table of Contents

Table of Tables

Table of Figures

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1 Introduction and Acknowledgements

Those individuals and agencies identified in this study as "Industry Leaders" (transit operators, alternative mobility providers and land developers/urban designers/architects) have in common a critical set of important character traits. They are secure enough in their own hearts, and confident of their basic technical and management skills to permit a level of scrutiny that, in order to be revealing, risks taking a badly lit, partial or distorted snapshot of sincere efforts and, possibly some failures. What's more, an investigation of industry innovation and obstacles thereto, naturally gravitates to precisely those individuals or agencies that are performing right at the edge of their competence. Advances worthy of admiration and wider adoption are not made by people who merely talk about transformation from under the downy folds of their institutional comforters. Basically, those working the "edge" are likely to be right half the time, and wrong the other half. In either case, the rest of us have much to learn from them.

The literature of creativity and organizational learning and change confirm a model of transformation where, after years of business as usual, change happens suddenly, everywhere. The only signs are a few fits and starts, some setbacks, adjustments and occasional sacrificial lambs. But finally, the force of need and frustration breaches the dam of policy paralysis. Passion trumps doubt. And vision becomes the machete through the jungle of the previous generation's making. We create light-filled meadows in which a thousand flowers bloom. We take turns at cutting the ceremonial ribbon and applauding others milestones. We remember our dream and we fall in love with our professions again. Transit needs some days like this. And land use has long been the Big Bad Wolf of sustainable planning. It is overdue for major nip and tuck. What can unite and ignite these efforts is the wide and evolving set of strategies—some technological and some institutional—that we are calling in this study "transit-linked mobility strategies" (TLM). These are the strategies that, especially when married to community-oriented land use and urban design, fill the gaps. Working together, these three forces can help transit turn a corner, and play the role that we *need it to play.*

The list of leaders and innovators whose courage and candor, gifts of time and thoughtful commentary is all the more extraordinary in light of an austere public finance environment which has every public employee working double time. Please read the report with a generous spirit, in recognition of the important goal of handing off a sustainable democracy that allows all to live fully, travel freely and walk lightly on this earth, our home. All anomalies and misrepresentations are solely the fault of the report author.

Again, WestStart, the report author and FTA extend heartfelt gratitude to the interview and/or survey contacts and their respective agencies, organizations or firms. They are identified in Table 1.1, below.

Table 1.1: Consolidated List of Study Participants

Transit Operator/State	Interview Contact	Title
Alameda-Contra Costa Transit District (Bay Area, CA)	Anthony Bruzzone *(survey only)*	Manager, Service Planning
Dallas Area Rapid Transit (DART) (Dallas, TX)	Tim Newby	Assistant Vice President, Service Planning
Denver Regional Transportation District (Denver, CO)	Tony McCaulay	AGM, Customer Services
Greater Cleveland Regional Transit Authority (Cleveland, OH)	Joe Calabrese	CEO/General Manager
City of Honolulu Department of Transportation Services (Honolulu, HI)	James Burke	Acting Chief, Public Transit Division
King County Metro (Seattle, WA)	Matt Hansen	Supervisor
Lane Transit District, (Eugene/Springfield, Oregon)	Andy Vobora	Service Planning and Marketing Manager
Los Angeles County Metropolitan Transportation Authority (Los Angeles, CA)	Nancy Michali	Director of service Performance & Analysis
City of Los Angeles Department of Transportation (Los Angeles, CA)	Phil Aker	Supervising Transportation Planner II
Pace Suburban Bus Service	David Tomzik	Supervisor, Long Range Planning

(Arlington Heights, Illinois)		
Massachusetts Bay Transportation Authority, (Boston, MA)	Alan Castaline	Deputy Chief Operations Officer
Metropolitan Transit System (San Diego, CA)	Dave Schumacher	Principal Planner
Riverside Transit Agency (Riverside, CA)	Anne Palatino	Director of Planning
SamTrans (San Mateo, CA)	Richard Cook	Operations Contracts
Santa Clara Valley Transportation Authority (Bay Area, CA)	James Unites	Operations Planning Manager
Tri-Met (Portland, Oregon)	Ken Zatarain	Director, Transportation Planning
Twin Cities Metro Transit (Minneapolis/St. Paul)	Arlene McCarthy	Director of Service Development
Utah Transit Authority (Salt Lake Urbanized Area, Ogden, and Provo-Orem, Utah)	John Inglish	General Manager
Valley Metro/RPTA, (Phoenix, Arizona)	Jim Dickey	Deputy Executive Director, Planning and Operations
Washington Metropolitan Area Transportation Authority (District of Columbia)	Rick Stevens Elissa Hill (TOD issues only)	Director, Business Planning and Project Development Acting Manager, Property Planning and Development
Alternative Mobility Providers	**Interview Contact**	**Title**
Bikestation (Long Beach, CA)	Mark Shandrow	Project Director
Caltrans High-Occupancy Vehicle Division (Sacramento, CA)	Antonette Clark	Statewide HOV Coordinator; Co-Manager of Caltrans Bus Pool Project
Cybertrans (Group Rapid Transit)	Neil Garcia-Sinclair	VP Corporate Development
Enterprise Rideshare	Connie McGee	Rideshare Manager
Metro Commute Services (Los Angeles County Metropolitan Transit Authority)	Al Rangel	Account Executive—Employer Programs
Mobility, Inc., DBA Flexcar (Carsharing)	Tim Vogel	General Manager, DC Region
Skyweb Express Personal Transit	Jeral Poskey	Director of Applications
VPSI (Vanpool Services)	Michael B. Norvell	Vice President—Business Development
WalkSacramento (Pedestrian advocacy)	Anne Geraghty	Executive director
Warner Center (CA) Transportation Management Organization	Chris Park	Director
Developer/Architectural Firm	**Interview Contact**	**Title**
Synergy Real Estate Corporation (Pittsburgh, PA)	Mark H. Smith	Senior Associate
Citiventure Associates, LLC (Denver, CO)	Marilee Utter	President
CIM Group (Hollywood, CA)	John Given (survey only)	Principal
Moule & Polyzoides, Architect and Urbanists (Pasadena, CA)	Stefanos Polyzoides (survey only)	Partner

2 Executive Summary and Major Findings

2.1 Transit-Linked Mobility Study Goals, Background and Approach

2.1.1 Study Parameters

Transit-Linked Mobility (TLM) Strategies Defined The primary transit-linked mobility strategies and services that are the subject of this assessment include:

- Paratransit (non-ADA)
- Feeder transit (fixed route, route deviation and on-demand)
- Vanpooling (when used to connect with transit)
- Carpooling (when used to connect with transit)
- Carsharing
- Station cars
- Bicycle amenities including bicycle storage infrastructure
- Pedestrian amenities
- Park-and-ride lots
- Guaranteed ride home programs

Though not often categorized as a "mobility strategy", transit-oriented development in its various forms was also a focus for this multi-industry assessment, because of the widely acknowledged importance of land use and urban form upon transit mode share.

Target Industries In order to gain a holistic understanding of issues related to the above-defined set of transit-linked mobility strategies, leaders within the following key industries were identified for inclusion:

- Transit Operators
- Alternative Mobility Providers
- Land Developers/Architects/Urban Designers

Table 2.1: Overall Study Participation

Industry	# Of On-Line Surveys	# Of Telephone Interviews
Transit Operators (TOs)	20	19
Alternative Mobility Providers (AMPs)	10	10
Land Developers (Developers)	4	2

2.1.2 Study Goals

The goals of this assessment of transit-linked mobility strategies are as follows:

- **To assess perspectives and future plans for growing transit's mode share of person trips:** Are leading transit agencies focused on increasing the number of people that choose public transit over their personal car for a daily trip, and if so, how? What markets are they pursuing? What level of priority is this for them?

- **To understand how transit-linked mobility services are perceived by the three target industries.** How do leading transit agencies and land developers perceive these strategies and services in terms of effectiveness? How do alternative mobility service providers feel they are perceived by transit agencies and land developers?

2.1.3 Study Approach

Key study components included:

- Literature review
- Identification of "innovative" transit operators, alternative mobility providers and land developers/urban designers
- Industry-customized on-line surveys of participants from all three groups (20 transit operators, 10 alternative mobility providers and four land developers)
- Follow-up interviews of participants (19 transit operators, 10 alternative mobility providers and two land developers)
- Survey and Interview Analysis
- Draft and Final Reports

2.2 Transit Operators

2.2.1 Survey Respondents and Interview Participants

The Transit Operator Study collects and analyzes data and agency perspectives on obstacles and opportunities for implementing and benefiting from transit-linked mobility strategies, from surveys and telephone interviews with transit operators throughout the country. A total of 20 transit operators responded to a request to complete an on-line survey, between March 29 and May 21, 2004. Responses were received from a wide range of transit operators (TOs) across the United States. With the exception of Alameda Contra Costa Transit District, the list of survey respondents below also consented to a follow-up telephone interview, that typically lasted 30-45 minutes, and in some cases as long as 90 minutes. These interview provided important insights into operators' priorities and concerns.

Table 2.2: Transit Operators Participating in the Study

ALAMEDA CONTRA COSTA TRANSIT DISTRICT, BAY AREA, CA	**Dallas Area Rapid Transit**	**Denver Regional Transportation District**	**Greater Cleveland Transit District**
City of Honolulu Department of Transportation Services	**King County Metro, Seattle, WA**	**Lane Transit District, Eugene/Springfield, Oregon**	**Los Angeles County Metropolitan Transportation Authority**
CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION	**Pace Suburban Bus Service, Arlington Heights, Illinois**	**Massachusetts Bay Transportation Authority, Boston**	**Metropolitan Transit System, San Diego**
Riverside Transit Authority, CA	**SamTrans, San Mateo, CA**	**Santa Clara Valley Transportation Authority (VTA)**	**Tri-Met, Portland, Oregon**
Twin Cities Metro Transit, Minneapolis/ St. Paul	**Utah Transit Authority**	**Valley Metro/RPTA, Phoenix, Arizona**	**Washington (DC) Metropolitan Area Transportation Authority**

2.2.2 Major Findings

Transit Operators' Ridership Goals The survey showed that virtually all ridership segments (choice and dependent riders; peak and (more important) off-peak) are important to *retain* as well as to *increase.*

- Operators are equally focused on **retaining** existing "choice riders" and retaining existing transit dependent riders (15 out of 20 say this is very important; 5 of 20 say it's somewhat important)
- In looking for **increases** in ridership, however, operators are more focused on choice riders than transit dependent riders. While 14 of 20 think increasing choice riders is very important, only 9 of 20 think increasing transit dependent riders is very important.

How Operators are Trying to Meet Ridership Goals Of note is the fact that, when asked in interviews about the range of strategies they were using to meet existing and future demand, few operators, without being prompted, mentioned the kinds of transit-linked mobility strategies that are the focus of this study.

Current Strategies The five most frequently identified strategies currently deployed or planned, that were designed to meet stated ridership goals were:

- Service Restructuring (10 of 19 responses)
- New Rail Service (8)
- New Bus Service –including BRT (6)
- Marketing/Information Initiatives (6)
- Technology Upgrades (4)

Wish-List Strategies After determining the kinds of strategies operators are already pursuing, further probing on how operators would allocate additional (financial) resources prompted responses centering around expansion of park and ride lots and upgrading or expanding basic trunk line service (both bus and rail). The number of responses for each strategy is in parentheses:

- Add more park and ride lots or increase spaces at existing lots (7)
- Improve marketing and promotion of services; improve user information at bus stops (4)
- Upgrade productive bus routes to BRT or arterial express routes (4)
- Improve frequency of bus service or more service in general (3)
- Upgrade rail stations; improve bicycle and pedestrian environment around stations (3)
- Expand trunk lines (bus, BRT and rail) or bring on planned improvements faster (3)
- Expand hours of service to accommodate changes in work hours (2)
- Add new collector/feeder routes or increase frequency on existing routes (2)
- Raise the price of parking ("four-fold")
- Add demand-responsive service to ensure better match between service and demand
- Focus on directing development to station-adjacent areas
- Implement electronic fare collection to enable distance-based charges
- Make better efforts to integrate neighborhood circulator service and line-haul routes

Transit-Linked Mobility Services in Use The on-line survey elicited information about current "transit-linked mobility" services. Of note is the fact that, without being prompted, few operators, when asked in the follow-up interviews what strategies they were using to meet existing and future demand (see previous section), mentioned the kinds of transit-linked mobility strategies that are the focus of this study.

- 17 of 20 systems have fixed-route shuttle service
- 17 of 20 systems have demand-responsive shuttle service (primarily ADA)
- 9 of 20 systems have taxi or shared taxi available
- 9 of 20 systems have route-deviation shuttle available
- Bicycle information, station amenities, bikes on buses etc offered by 18 of 20 operators

- Pedestrian and bike paths available in 14 of 20 systems
- TDM services widely available
- Operators are responsible for park and ride facilities serving their systems in most cases
- "Facilitation and Encouragement" of TOD is widely cited [interviews revealed that actual engagement or implementation is much rarer]

Obstacles to Implementing Transit-Linked Mobility (TLM) Strategies The 19 transit operators interviewed were asked an open-ended question about obstacles to implementation of TLM strategies. Interviewees usually directed their responses to obstacles relative to implementing core service, rather than the list of TLM strategies provided. The five obstacles identified most frequently were:

- Funding (13)
- Institutional issues (8)
- Parking or park-and-ride lot issues (7)
- Land use (6)
- Transit can't compete with auto (5)

Opportunities to Expand Use of Transit-Linked Mobility Strategies When presented with a scenario in which operators had additional budget to allocate (either capital or operating funds), the most common TLM strategy identified as an opportunity was park-and-ride lot expansion (either more lots, or more spaces in existing lots). Of the top six most frequently cited strategies, improvements to basic services constitute roughly half of the top contenders, identified below in descending order of frequency:

- Add more park and ride lots or increase spaces at existing lots (7)
- Improve marketing and promotion of services; improve user information at bus stops (4)
- Upgrade productive bus routes to BRT or arterial express routes (4)
- Improve frequency of bus service or more service in general (3)
- Upgrade rail stations; improve bicycle and pedestrian environment around stations (3)
- Expand trunk lines (bus, BRT and rail) or bring on planned improvements faster (3)

Operator Views on Effectiveness of Transit-Linked Mobility Strategies The top tier of strategies designated by transit operators as either "very effective" or "somewhat effective" were: (respective response frequencies are in parentheses below):

- Park-and-ride lots (14/4)
- Transit Oriented Design at stations (12/6)
- Integrated fares or fare media (11/8)
- Pedestrian access and amenities at stations (10/9)
- Fixed route shuttles to stations (9/8)
- Marketing (7/12)

2.3 Alternative Mobility Providers

2.3.1 Survey Respondents and Interview Participants

A good variety of alternative mobility providers was included in the study—ranging from firms providing personal and group rapid transit prototypes to those providing rideshare services, carsharing opportunities, vanpools, pedestrian and bicycle amenities, lockers and community advocacy, to the California State DOT's carpool czar and one of the longest continually operating transportation management organizations in the country. The participants are listed in Table 2.3.

Table 2.3: Alternative Mobility Providers Participating in Study

Bikestation (Long Beach, CA)	Caltrans High-Occupancy Vehicle Division (Sacramento)
Cybertrans (Group Rapid Transit)	Enterprise Rideshare (Bay Area, CA)
Metro (Los Angeles MTA) Commute Services	Mobility, Inc., DBA Flexcar (
Skyweb Express Personal Transit	VPSI Vanpool Services
WalkSacramento (Sacramento, CA)	Warner Center Transportation Management Organization (Warner Center, CA)

2.3.2 Major Findings

Obstacles to Implementing Transit-Linked Mobility Strategies The ten alternative mobility providers were given a list of possible obstacles and asked to state whether each one was a serious obstacle, somewhat of an obstacle, not much of an obstacle, or if it actually helped their operations, or did not impact it at all. The five obstacles identified most frequently as either a serious or somewhat serious obstacle were:

- Free parking downtown/employer lots (8)
- Level of public awareness of my services (8)
- Local/regional land use patterns (7)
- Red tape/regulation (7)
- Attitudes of area transit operators (6)

In interviews, the top three obstacles identified were:

- Institutional resistance/poor stakeholder communication (8)
- Regulatory issues (5)
- Liability or insurance concerns (4)

Opportunities to Expand Use of Transit-Linked Mobility Strategies In interviews, most of the participants mentioned a strength these diverse firms and agencies hold in common: they excel in their ability to efficiently meet the growing demand for many-to-many distribution, that is, they complement the transit operators strength—the long bus or rail lines along relatively dense corridors.

The on-line survey elicited information about current "transit-linked mobility" services. Of note is the fact that, without being prompted, few operators, when

Operator Views on Effectiveness of Transit-Linked Mobility Strategies Based on the rating "very effective" (see Figure 5.6, Alternative Mobility Providers' Perceptions of Strategy Effectiveness) the strategies can be divided into three tiers. The first tier, those rated by AMPs as most effective, is:

- Transit Oriented Design at stations
- Marketing
- Pedestrian access and amenities at stations
- Park-and-ride lots
- Integrated fares or fare media
  Market research

2.4 Land Developers

2.4.1 Survey Respondents and Interview Participants

Land developers, urbanists and architects are included in the group that constitutes the third side of the industry triangle that was the subject of this study. This group presented the largest data collection challenge: only four firms responded to the survey, and only two interviews were obtained (from Synergy Real Estate Corporation and Citiventure Associates, LLC). The interviewees were generous with their time, however, and though certainly far from a statistical sample, the information and insights they provided was of great value to the study, and have been incorporated into a number of the overall study findings and recommendations for future action. Table 2.4 identifies the four firms that completed that on-line survey.

Table 2.4: Land Developers, Architects, Urban Designers Participating in Study

Synergy Real estate Corporation (Pittsburgh, PA)	Citiventure Associates, LLC (Denver, CO)
CIM Group (Hollywood, CA)	Moule & Polyzoides, Architect and Urbanists (Pasadena, CA)

Services and Business Activities Offered The on-line survey showed that all four of the respondents include "land development" as part of their normal business. Survey tallies also showed that two are involved in real estate finance and investment, and one response was received for each of three activities identified as urban design/architecture, urban planning and privately implemented community economic development. Three respondents identified additional activities ("other"), including:

- Mixed-use and TOD development
- Mixed-use and TOD advisory services
- Real estate consulting
- Urban mixed use acquisition, development and investment

2.4.2 Major Findings

Obstacles to Implementing Transit-Linked Mobility Strategies The follow up interviews elicited developers' thoughts on obstacles to expanding their TOD work, or otherwise implementing TLM/TOD strategies. The two respondents overlapped on the following list:

- Transit agency culture (sluggish response to timing constraints of developers; lack of political will)
- Lack of profitable TOD projects to use as models
- Inadequate funding of transit creates problems for would-be development partners
- Difficulty of land assemblage near station sites
- Cost and design implications of having to replace surface parking (or structures) and incorporate into the new project, if the transit operator or local jurisdiction do not relax pre-TOD requirements

Opportunities to Expand Use of Transit-Linked Mobility Strategies Citiventure noted the opportunity to focus seriously on walking, and the pedestrian environment that should connect any TOD project into the fabric of the neighborhood and the larger urban surround. Though presented more as a challenge than an opportunity, there is clearly work to do with the transit operators to convince them that TOD at stations will produce more riders than will either park-and-ride lots or shuttles.

Views on Effectiveness of Transit-Linked Mobility Strategies Survey responses identified the following four strategies as the top tier for effectiveness in either increasing "choice" transit ridership or in reducing the impact of automobile trips generated by their TOD projects:

- Transit Oriented Design at stations
- Pedestrian access and amenities at stations
- Park-and-ride lots
- Parking cost/supply management at stations
- Fixed route shuttles to stations

2.5 Comparison of Views, by Industry

2.5.1 The Three Industries Share Basic Agreement on Obstacles

Figure 2.1 shows that the three sectors are in agreement about the top candidates for most serious obstacles to transit-linked mobility strategies or land use and transit-oriented development strategies (TLM/TOD). The top four: funding, institutional issues, parking or park-and-ride lot problems, and land use are common problems for the three industry groups. Some divergence of opinion is then evident: Alternative mobility providers (AMPs) find that regulatory issues are the next most serious issue, while transit operators cite the inability of transit to compete with the automobile. Both those groups agree that marketing problems, and the difficulty of communicating with the public is a moderately level obstacle. Liability and insurance concerns is a problem for the AMPs, but was not mentioned by transit operators during interviews.

Mobility service providers feel they are variously valued, feared or ignored by transit operators, depending on the operator's views and needs, and the particular service in question. No particular pattern was identified, although operator familiarity with the details of the service and its potential benefits increased the likelihood that an operator would use and value that service.

Mobility service providers are also invisible to many developers, particularly suburban residential developers. However, new urbanist developers and designers, as well as managers of industrial parks or business campuses are increasingly looking to the AMPs to provide tenant amenities and reduce parking demand.

2.5.2 Views of Effectiveness

Views on Effectiveness of Transit-Linked Mobility Strategies Despite the wide range of different services and strategies, agency structure and mission included in these three industry groupings, substantial agreement on the top tier of "effective" strategies was evident from the survey results, shown in Figure 2.2. The top performers, in the consensus of the three industries studied, were:

- Transit Oriented Design at stations
- Pedestrian access and amenities at stations
- Market research/marketing
- Integrated fares or fare media
- Park-and-Ride Lots (and, less so, fixed route shuttles to stations)

Figure 2.1: Obstacles Perceived, by Industry (2004 Interviews)

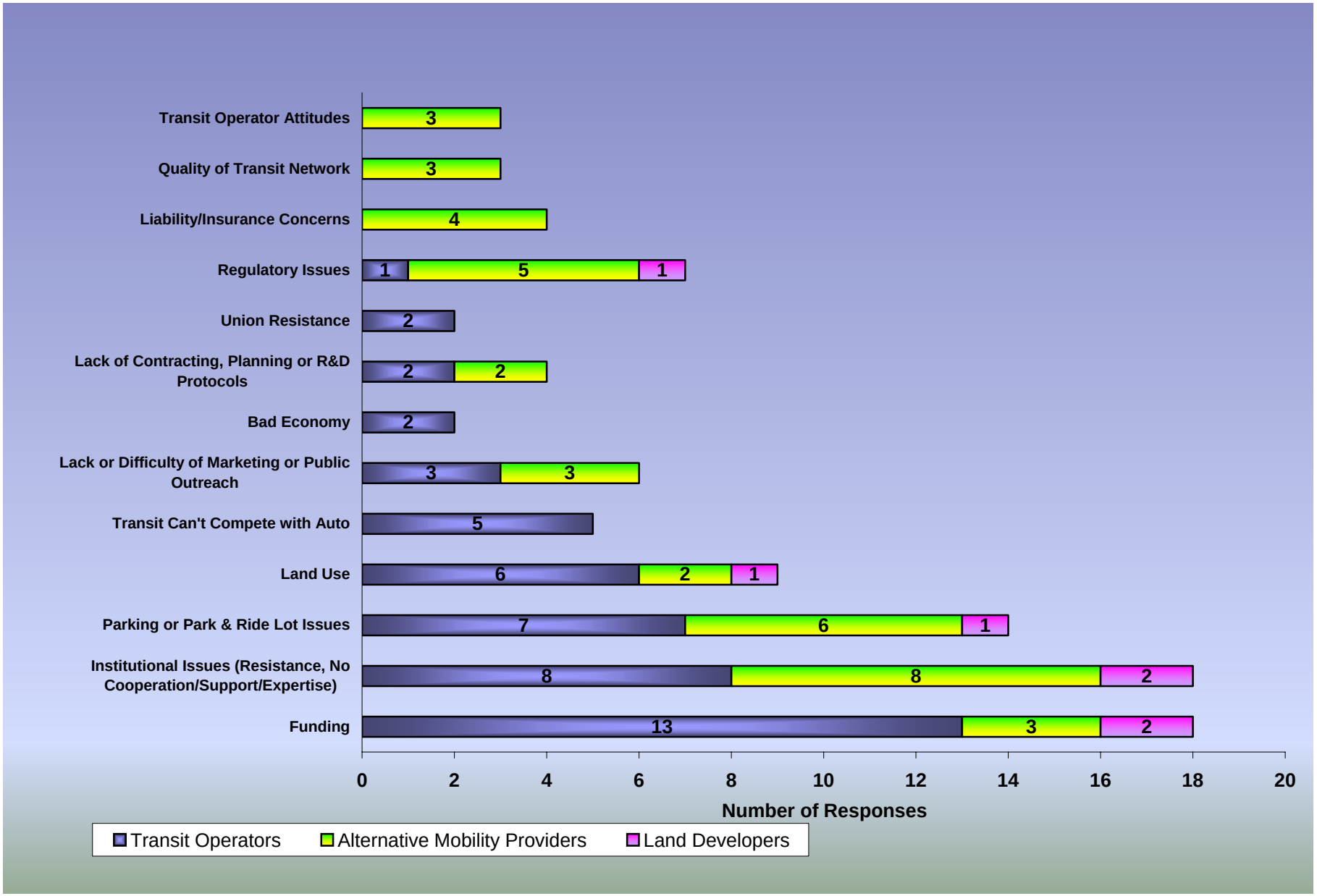
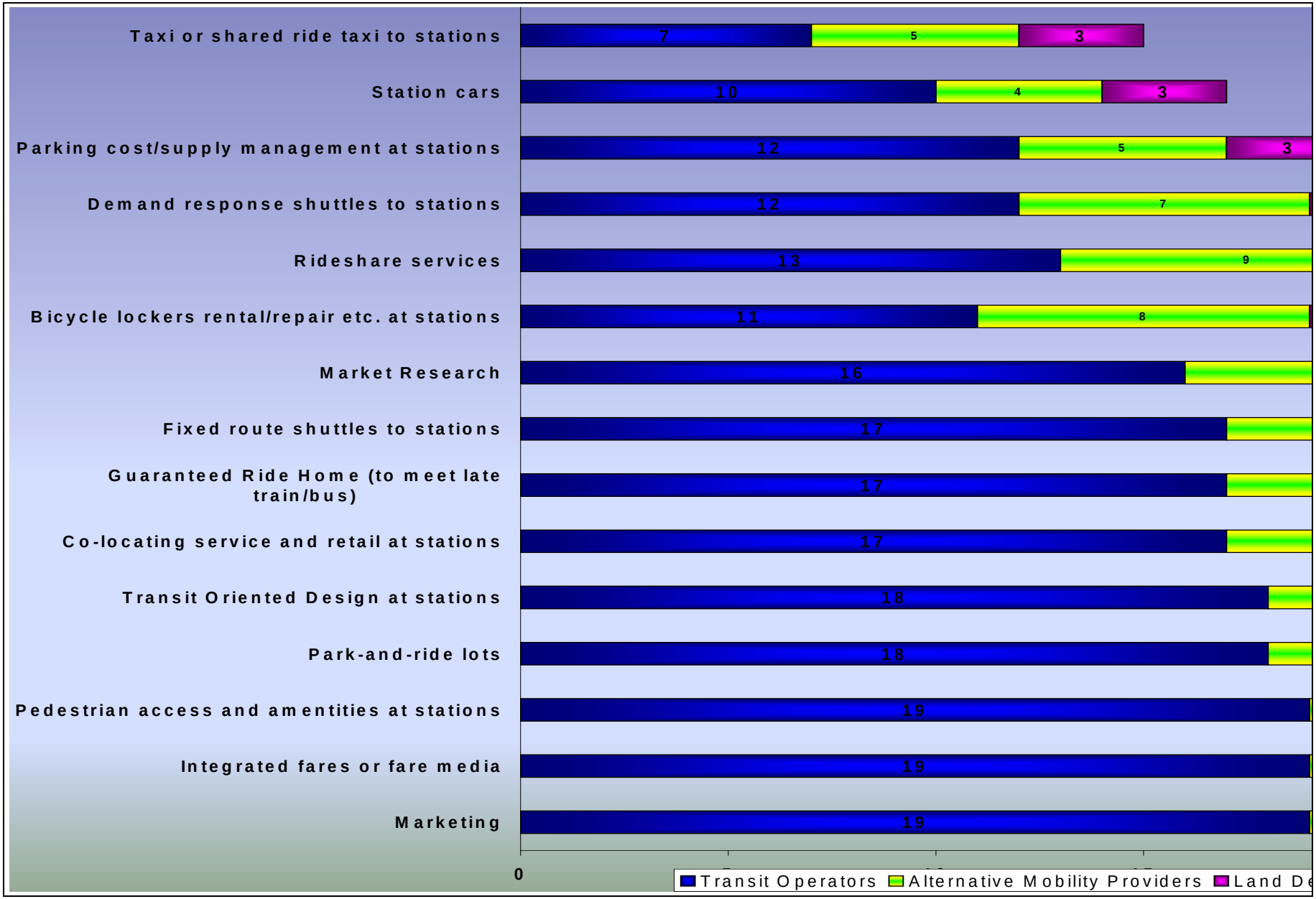


Figure 2.2 Combined Categories ("Very" Plus "Somewhat" Effective) Strategies, Rated by Sector (2004 Survey)



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2.6 Key Study Implications

2.6.1 Industry Cluster Approach Validated by Study Findings

At the end of the study, findings validate the basic study approach—to look at TLM strategies through the lenses of the three industry groupings—transit, alternative mobility providers, and developers. Despite differences in approach to customer satisfaction, product delivery and market development, numerous opportunities exist to leverage overlapping organizational goals and combined interest and enthusiasm of all three sectors. Transit operators well understand that the largest influences on ridership are factors traditionally outside their influence—including, importantly, land use. By bringing land use into the tent with the other two sectors to solve problems they hold in common, and by engaging innovative TLM strategies to support mainline transit networks, transit increases its relevance to communities, to business and to the environment. There is a need to underscore the fact, however (a fact already understood by some operators) that private entities and outside public operators of alternative mobility service provide an extension of the core transit service delivered by traditional transit operators.

With respect to the term "transit-linked mobility" and a large portion of the strategies themselves, the research found that these do not resonate with transit operators. Especially in times of cutbacks, transit operators behave conservatively—that is, they fall back on what they know best. They typically look at improvements as increasing the frequency, reliability or amenities associated with their existing service types as the best way to boost ridership. They too often underestimate, overlook or are unaware of the ridership benefits to be gained by collaborating more actively with alternative mobility providers. Additionally, the term "transit-linked mobility" had to be explained to all transit operators—it is not a familiar term, nor, apparently, a self-evident one.

2.6.2 Integrated Findings

The Power of Three:

- **Strategies Work Synergistically and Require Tri-Partite Cooperation**
  The responses from all industries studied revealed, either from explicit statement or easily drawn inference, that few successful strategies are implemented in isolation. Further, the overlapping organization goals and combined interest and enthusiasm of all industry groups—fueled by transit operators' needs, mobility providers' profit motive and new urbanist/TOD land developers' vision—are required to create the critical mass needed to shift operators, city and regional government and elected officials out of their comfort zone. Finally, there is room for improvement of interagency coordination even within the realm of "traditional transportation" institutions. An example from this study is the need, recognized by the California Department of Transportation (Caltrans) to work more closely with transit operators, statewide, to ensure that transit vehicles are both able to use and are actually making use of the state's extensive and expensive network of high-occupancy vehicle lanes.

- **The Future Success of Transit, Alternative Mobility and Land Use are Tied by Natural Market Affinities**
  On the large scale, the future of transit ridership lies 1) in its ability to serve existing and planned transit-hostile suburban development; and 2) in its ability to influence future development to support and be capable of benefiting from efficient and cost effective modes of mass transit. The first challenge cannot be met without the creative collaboration of traditional transit and alternative mobility providers. The second challenge demands that both traditional transit and alternative mobility providers unite to provide seamless service to transit-oriented land use in general, and specific projects as they are developed.

  At the level of specific strategies, the shared fate of the three study industries is evident, too. For example, a limit on the number of cars using or parking in an area improves the walking (or biking) environment. Area developers can substitute preferred amenities for parking or ensure profits by taking

advantage of lowered parking ratios, and deliver a desirable project: a livable place. People enjoy living, shopping and working (i.e., renting, buying and producing) in such places, and will often pay premiums to do so. Once a person is walking or biking, they are more likely to use (and to need) a convenient transit mode for longer journeys. TLM strategies can further leverage and expand the utility of the main transit backbone of a place. Especially if there is a limit on the number of cars using or parking in an area (see beginning of paragraph).

- **Pedestrian Primacy: Should We Rename the New Urbanism *Pedestrian-Oriented Design?***
  Every transit rider and every resident is also, somewhere during their trip or during their day, a pedestrian! The centrality of pedestrian access makes walkability an overwhelmingly strong candidate for focused treatment. For, if transit extends the range of walkers, so do alternative mobility providers extend the reach of transit to include *more walkers—and thus, more riders.* The connection to and integration of all modes within the community and within the larger built environment is vital, and is traditionally a component of *placemaking* achieved through good land use and urban design. Fortunately, there is growing recognition of the importance of walking and walkability on the part of participants from all industry groups.

Additional General Observations

- **Funding Constraints Affect All Three Industries, and All Aspects of the Issues Studied**
  The combined impact of normal funding constraints and the post 2000 and post 9/11 downturns in transit funding has pushed already conservative and risk averse transit agencies into survival mode. This has meant that agencies have jettisoned what limited in-house expertise in the form of departments and staff that were tasked with the types of strategies included in this study. Further, innovative programs have often been eliminated, indefinitely postponed or severely scaled back.

- **What Works, and Why? All Three Sectors Need to Know**
  Efforts to determine accurate ridership impacts of various strategies, including those that are the subject of this study, are hampered by a lack of rigorously designed studies of such impacts. Funding is again implicated in the lack of resources to conduct before and after comparisons, or adequately monitor and report ridership impacts over time. All this is further complicated by the difficulty in isolating the impacts of a specific strategy.

- **Appropriate Application of Customized Core Strategy Packages**
  In the transit world as elsewhere, it is tempting to search for one or two magic bullets—TLM/TOD strategies that can be applied more or less automatically, and that can be relied upon to produce positive impacts on ridership. First, it bears repeating that it is the *synergistic effects* that will likely be required to pull in the next level of transit riders—by definition, they demand higher levels of service than they currently have to choose from. Second, though it may be true that in "situation 123" a set of strategies "xyz" is generally effective in increasing ridership, the challenge lies first in assessing any given situation in sufficient detail and with sufficient accuracy, to guide strategy selection and implementation. The site-specific mix of essential core strategies—mixing traditional and alternative transit modes with land use and urban design components—is an art and science that takes more time and money than most transit operators feel they have. Success at this juncture requires more than a new toolkit—it requires a new integrative and collaborative approach, and a new set of processes to bring people's mobility needs and the set of transit and land use solutions available, closer together.

- **Culture Clash: Customer Orientation is in the Eye of the…Customer!**
  There is a significant disconnect between how the three different sectors develop and deliver their products and services, and how they see and serve their customers. A large portion of complaints from the mobility providers and developers was directed to what they perceived as serious deficiencies on the part of transit operators with respect to market orientation and customer service. This deficiency, say study participants, remains—despite most operators' professed interest in market research and customer-oriented product delivery, and notwithstanding demonstrated improvements in some areas, say the other two industries. In part, the clash of agency cultures is the culprit: transit operators work on a time frame defined by lengthy board review cycles and funding years. Developers, however, must get quick (or at least timely) responses and approvals from government agencies when they are assembling

land for development or putting together delicately balanced development and financing partnerships. For their part, transit operators are often saddled with "politically-based service that must be supplied, and a range of institutional and legal constraints that tie their hands as they attempt to innovate.

2.6.3 Study Recommendations: Identifying and Addressing Obstacles and Opportunities

In the area of transit ridership, opportunities represent the convergence of obstacles and technological innovation, coexistent with basic agreement on strategy effectiveness, and congruence of agency or business performance standards. This section links the major findings to a set of actions that present opportunities for Calstart/WestStart and/or FTA or other entities to assist the transit industry and its allies to move forward with a practical TLM/TOD implementation agenda.

These action steps advanced for consideration are based not only on the understanding of opportunities and obstacles that are noted in this executive summary, but the full complement of conclusions afforded us through the balance of study results found in the body of this report. Chapter 7 shows this in more detail.

Table 2.5: Industry Perspectives on Issues and Related Recommendations

Issue Category	Transit Operators (TOs)	Alternative Mobility Providers (AMPs)	Land Developers, Urban Designers and Architects (Developers)	(Selected) Relevant Recommendations*
Funding and Profitability	▪ Inadequate, uncertain funding ▪ Color of money problems ▪ Restrictions on use (capital vs. operations) ▪ Matching requirements ▪ TLM strategies such as feeder or noontime shuttles, etc., cost extra (more vehicle types, more maintenance, etc.)	▪ State DOTs/local jurisdictions sometimes pay for sprawl impacts ▪ Problems with insurance/liability ▪ Funding gaps and cycles mean that operator expertise on TLM/TOD issues ebbs and flows	▪ Need to show profitability on TOD projects ▪ Long term investors can't be attracted due to lack of information on potential long term profitability ▪ Funding gaps and cycles mean that operator expertise on TLM/TOD issues ebbs and flows	▪ Funding Solutions ▪ Identify TOD profitability curves ▪ Showcase Profitable TOD Projects ▪ Assist AMPs in finding funding/investment sources ▪ Address "culture gap" between grant-making organizations and needs of AMPs ▪ Address insurance and liability deficiencies
Institutional	▪ Operators have policy-based service they must always provide ▪ Conservative nature of TOs means they need proof of effectiveness to try new things ▪ Lack of staff time to keep current on new technologies or land use possibilities (not their core mission) ▪ Jurisdictional disconnect between some services or facilities (e.g. park-and-ride lots; pedestrian facilities on city land) ▪ Some TOs face union issues on contracting out	▪ Institutional discontinuity affects programs ▪ Problems with insurance/liability	▪ Joint development/TOD at stations difficult because of TO time lag and red tape ▪ Institutional discontinuity affects ability to work with TOs ▪ Developers and transit operators speak different languages ▪ Private sector profit motive means time is money for developers; operators work toward different performance standards, such as reliable provision of basic mobility. ▪ Operators lack expertise, even in sophisticated markets where they are generally familiar and in support of TOD. ▪ Risk-takers (developers) vs. Risk averse (operators)	▪ Educate the Stakeholders and the Public Conduct Real-World Design Competitions + Regional Workshops ▪ Consider stand-alone issue-focused conferences/workshops ▪ Clearinghouse ▪ E-newsletter ▪ Annual conference ▪ Develop core advisory group to serve as point team to advance these recommendations or develop others as issues evolve ▪ Identify missing stakeholders
Strategies (Technology, Operations, System Integration, Etc.)	▪ Lack of experience with strategies ▪ Critical "missing links" in strategy delivery prevent seamless implementation ▪ Difficult to get homebuilders to buy into TOD/new urbanism ▪ Need to service new suburban development	▪ Frustrated that operators too often choose strategies based on internal concerns, rather than customer needs ▪ Difficulty in explaining ▪ Ability to service new suburban development more effectively than traditional transit	▪ Lack of experience with strategies ▪ Fare Media Integration Project ▪ Can mitigate suburban development impacts with better planning and design (even in a suburban context)	▪ Promote ongoing study and reporting of benefits ▪ Directed Research on strategy effectiveness ▪ Fare Media Integration ▪ Integrated strategies for emerging markets ▪ Suburban Service Strategies ▪ Ride the BRT wave—focus TLM/TOD solutions there ▪ Probe park and ride vs. shuttle issues ▪ Develop "Core Strategy Packages"
Regulation	▪ Color of money issues, etc. is a regulatory problem, as well ▪ Possible conflicts between air quality mandates vs. performance standards, limiting flexibility	▪ Lack of protocols to approve new technologies ▪ Lack of standardized or easily adapted forms and processes for contracting with AMPs. ▪ Air quality mandates sometimes preclude TLM/TOD solutions	▪ Lack of experience with strategies ▪ Sometimes parking restrictions are not sufficiently reduced in TOD projects to make projects "pencil out"	▪ Develop R&D Prototype Approval Protocols ▪ TLM/TOD Model Contracts and Policy Guides ▪ Review of Regional Planning Processes

Issue Category	Transit Operators (TOs)	Alternative Mobility Providers (AMPs)	Land Developers, Urban Designers and Architects (Developers)	(Selected) Relevant Recommendations*
Technology Issues	▪ Resistance to innovation is "built in" to institutional culture ▪ Need for a variety of technological improvements to create seamless transit experience, improve service, etc.	▪ Need better automated scheduling for ▪ Need unified ridematching software and consistent 1-800 numbers, etc.		▪ "Missing Link" Technology Development"
Market Research and Market Development	▪ Market research is often valued, but seldom conducted extensively ▪ Operators have identified colleges/universities and retirement communities as potential markets	▪ Airports noted by several AMPs as potential market	▪ Developers are not familiar with possible customer appeal of TLM or TOD strategies ▪ Airports mentioned as potential market to be developed, since they typically have funding.	▪ Combine market research goals into one program to leverage market research dollars and expertise in the TLM/TOD sectors ▪ New market development --Suburban service strategies --Airports --University/colleges --Retirement communities
Marketing and Customer Orientation	▪ Marketing is often first or second items cut in downturn	▪ Frustrated with operators passive approach to customer relations and marketing ▪ Difficulty getting TOs to understand what real "customer service" is ▪ Little public awareness of the available AMP services, in some cases ▪ Operators don't understand importance of "branding"	▪ Developers have difficulty working around transit operators' lack of appreciation for customer service	▪ Assist transit operators in becoming truly customer-oriented (including industry customers such as alternative mobility providers and developers, and internal customers within transit agency)

* Recommendations are listed, with additional detail in some cases, in section 7.4.2 of this report.

3 Study Plan and Design

3.1 Study Goals

The goals of this assessment of transit-linked mobility strategies are as follows:

- **To assess perspectives and future plans for growing transit's mode share of person trips:** Are leading transit agencies focused on increasing the number of people that choose public transit over their personal car for a daily trip, and if so, how? What markets are they pursuing? What level of priority is this for them?

- **To understand how transit-linked mobility services are perceived by the three target industries.** How do leading transit agencies and land developers perceive these strategies and services in terms of effectiveness? How do alternative mobility service providers feel they are perceived by transit agencies and land developers?

3.2 Background

Transit-linked mobility services and strategies, as defined for the purpose of this study, represent the various means of linking people—more or less conveniently and seamlessly—from their homes to main transit lines, and at the end of the trip, linking riders to their final destinations. They are, at root, attempts to increase the customer appeal of transit relative to the automobile. Since 1946, which was the all-time transit mode share peak, and despite recent countervailing efforts and localized successes, we have seen an increasing divergence between the needs, preferences and expectations of travelers and the service options offered by our national transit systems. Yet, even as transit's share of total trips declined, the need for alternatives to the solo occupancy automobile increased, until today the pressure for those alternatives is fueled by a multitude of serious factors: the many unpleasant features of urban congestion and consequent sprawl; a growth in travel demand (absolute and per capita) which road-builders cannot meet—especially given fiscal and environmental constraints and NIMBY objections; the fact that we may be at or near the downside of the global oil supply curve without a market-ready fuel replacement; and the overwhelming consensus on the health and economic impacts of air pollution.

There are positive trends, however. During the past few years and U.S. cities have recently begun to experience population growth and downtown redevelopment centered on transit improvements. Many communities are seeking ways to create more multi-modal transportation options for travelers, and most of the transit-linked mobility strategies studied in this project are at least being considered as planners, operators and citizens work to reclaim their cities, towns and villages from the tyranny of the automobile.

The results of this study confirm common knowledge within the transit industry, that significant, sustainable increases in transit ridership occur because of a confluence of vision, institutional commitment to needed innovations, sufficient and stable resources, service excellence and technical proficiency—coupled with a favorable set of factors that are external to the transit agency or operator. The study concludes with integrated findings and recommendations for additional research, coordination and action that highlight how "transit-linked mobility strategies and services" can play a larger and important role in the future of transit generally.

3.3 Study Approach

3.3.1 Study Components

Key study components included:

- Literature review

- Identification of "innovative" transit operators, alternative mobility providers and land developers/urban designers
- Industry-customized on-line surveys of participants from all three groups (20 transit operators, 10 alternative mobility providers and four land developers)
- Follow-up interviews of participants (19 transit operators, 10 alternative mobility providers and two land developers)
- Survey and interview analysis, comparison and evaluation
- Develop recommendations that will address obstacles and take advantage of opportunities to use TLM/TOD strategies to increase transit ridership

3.3.2 Literature Review

The issue of Transit-Linked Mobility (TLM) is affected by continued and deepening, as well as new and changing trends in a number of factors that affect transit ridership, including demographics, workplace practices, land use, transit operator culture, costs and funding constraints, and bi-polar trends in transit market segmentation (including the very poor, transit dependent who make shorter trips, generally by bus, and the affluent, who tend to take longer, more heavily subsidized rail trips focused on the journey to work). In order to gain background and insight into state of the art practices in the three sectors that are the focus of this assessment (transit providers, alternative mobility providers, and land developers) a brief, and thus necessarily selective and partial, literature review was conducted. The literature selected for inclusion is that summarizing the necessary conditions and evaluating a number of strategies designed to link travelers from their homes to the nearest transit station with access to the regional network, and, at the end of the trip, strategies designed to help riders reach their final destination quickly and conveniently. A table with an informal bullet-point summary of key findings, drawn directly from the documents reviewed, was prepared for review by the WestStart project manager. The findings served as a background from which to construct a meaningful questionnaire to probe more deeply into the opportunities and obstacles associated with some of the most innovative transit-linked mobility strategies and land development trends identified to date.

Caveats to the "key findings" must be made clear for all the studies. Notwithstanding the prodigious effort and care required to prepare the documents reviewed, with the exception of case study data, each document describes various, and often severe, data collection and analysis issues. Authors often warn readers that many data tables represent gross levels of aggregation, simplifying assumptions, re-calculations to provide longitudinal data that are often based on sketchy information, due to numerous efforts made by researchers to compile series data over long trend lines (typically 1960 to 2000) that were not collected consistently, or for consistent definitions or geographic areas.

With respect to case studies, there are generally no before/after data sets to compare, nor are there controlled conditions of strategy implementation. This means that the causes of performance or behavior changes must often be inferred. The unique particulars of each case study, presenting a variety of innovative (or at least rarely implemented) strategies for first-mile/last-mile mobility make it difficult, though not impossible, to generalize from these cases to other situations. These methodological challenges confound efforts to draw specific lessons, cause and effect relationships or meaningful guidance on smaller-scale projects or individual strategy developments. However, they do ignite interest in a number of research areas, many of which were selected for inclusion in the questionnaire that, as noted, is part of this industry assessment.

It is worth noticing that New York represents an unusual case for most travel statistics, given its density and rich network of transit alternatives, as well as significant costs for auto use, access to Manhattan and parking. Whenever NYC statistics are included, the results are heavily impacted.

Some observers have pointed out that the commute trip is a small percentage of all trips (less than one-fifth), and so our focus should widen to other trips. This study does not focus exclusively on work-trips; however, there are a number of factors that argue persuasively for precisely such a focus:

- Work trips tend to be predictable and for many, routes and schedules do not change for months or y ears. Thus, work trips are more amenable to being completed with transit or other alternatives to the solo vehicle trip.
- Work trips in the peak periods impose the largest marginal costs on the system, on other travelers, and on the environment
- Work trips define an "activity sphere"—that is, the home and workplace sites tend to set the parameters around other trips, whether taken as "chained" trips or independently of commute travel

On the other hand, focus on off-peak trips can help the transit dependent, who make more off-peak trips. Off-peak travel makes use of existing capacity, and does not generally require significant additional costs to operate. Off-peak discounts could be applied to the benefit of low-income groups, with a resulting increase in ridership and no net loss of revenue to the providers. In addition, the mobility benefits afforded by integrating some of the transit-linked mobility (TLM) strategies into the traditional transit network can extend the effectiveness of transit further into the off-peak, through more efficient handling of (fewer) riders.

Carsharing may seem to be anomalous in a mix of strategies focused on linking to transit modes. However, by reducing the inevitability of car ownership, provides more incentive for its members to use transit when not using one of the cars available through membership. Studies indicate that those without a car, who suddenly acquire access to a vehicle, do, for a time, increase trip-making. However, this behavior subsequently settles down to a rate of trip-making below that of people who own cars outright. Further, carsharing strategies that are implemented or used as "station cars" are entirely within the strategies of concern in this assessment. And, more important, carsharing offers mobility solutions to high-density development at or near stations, where parking requirements have been reduced.

The following list of documents was developed by WestStart and Redman Consulting, the primary document author.

Journey to Work Trends in the United States and its Major Metropolitan Areas, 1960-2000, Publication No. FHWA –EP-03-058, Cambridge Systematics

2003 Annual Urban Mobility Report, Texas Transportation Institute

Socioeconomics of Urban Travel: Evidence from the 2001 NHTS *Transportation Quarterly*, Vol. 57, No. 3, Summer 2003 (49-77). 2003 Eno Transportation Foundation, Inc., Washington D.C.

Susan A. Shaheen, Ph.D., et al., U.S. *Shared-Use Vehicle Survey Findings: Opportunities and Obstacles for Carsharing & Station Car Growth,* Transportation Research Board (April 2003)

TCRP Research Results Digest—October 2002, Number 52: Transit-Oriented Development and Joint Development in the United States: A Literature Review

TCRP Legal Research Digest Number 12 (January 1999) The Zoning and Real Estate Implications of Transit-Oriented Development

TCRP Report 95, Chapter 18: Parking Management and Supply: Traveler Response to Transportation System Changes

Dr. Marcus Enoch, et al., *Intermode: Innovations in Demand Responsive Transport*, Department for Transport and Greater Manchester Passenger Transport Executive, December 2003, Final Report

TCRP Report 75: *The Role of the Private-for-Hire Vehicle Industry in Public Transit*, National Academy Press, Washington, DC (2002)

TCRP Synthesis 45: *Customer-Focused Transit, A Synthesis of Transit Practice*, Transportation Research Board, Washington, DC (2002)

3.3.3 Participating Agencies, Organizations and Firms

This study would have been impossible without the generous help and instructive insights provided by the industry leaders identified in the following tables.

Table 3.1: Transit Operators Participating in the Study

ALAMEDA CONTRA COSTA TRANSIT DISTRICT, BAY AREA, CA	Dallas Area Rapid Transit	Denver Regional Transportation District	Greater Cleveland Regional Transit Authority
City of Honolulu Department of Transportation Services	King County Metro, Seattle, WA	Lane Transit District, Eugene/Springfield, Oregon	Los Angeles County Metropolitan Transportation Authority
CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION	Pace Suburban Bus Service, Arlington Heights, Illinois	Massachusetts Bay Transportation Authority, Boston	Metropolitan Transit System, San Diego
Riverside Transit Authority, CA	SamTrans, San Mateo, CA	Santa Clara Valley Transportation Authority (VTA)	Tri-Met, Portland, Oregon
Twin Cities Metro Transit, Minneapolis/ St. Paul	Utah Transit Authority	Valley Metro/RPTA, Phoenix, Arizona	Washington (DC) Metropolitan Area Transportation Authority

Table 3.2: Alternative Mobility Providers Participating in Study

Bikestation (Long Beach, CA)	Caltrans High-Occupancy Vehicle Division (Sacramento)
Cybertrans (Group Rapid Transit)	Enterprise Rideshare (Bay Area, CA)
Metro (Los Angeles MTA) Commute Services	Mobility, Inc., DBA Flexcar (
Skyweb Express Personal Transit	VPSI Vanpool Services
WalkSacramento (Sacramento, CA)	Warner Center Transportation Management Organization (Warner Center, CA)

Table 3.3: Land Developers, Architects, Urban Designers Participating in Study

Synergy Real estate Corporation (Pittsburgh, PA)	Citiventure Associates, LLC (Denver, CO)
CIM Group (Hollywood, CA)	Moule & Polyzoides, Architect and Urbanists (Pasadena, CA)

3.3.4 On-Line Survey

Three similar but distinct survey instruments were designed for use in an on-line survey, an Internet link to which was included in email transmittal letters. The surveys varied in length, with the longest (the transit operator survey) taking an average of eight minutes to complete. The questions were designed to cover the major TLM and TOD strategies with which the operators would likely be familiar and have some experience that could provide meaningful direction on how to pursue further collaboration between the three industry sectors. The three surveys, which illustrate the questions targeted to each industry sector, as well as the summary data, are included in Appendix A of this report.

3.3.5 Follow-Up Telephone Interviews

The surveys were designed to provide the study interviewer with enough information to probe more deeply into relevant areas. Although it was difficult to schedule the interviews, the author found that once the participant was engaged on the telephone, they were generally willing to spend between 45 minutes and an hour and a half, discussing in some depth the range of strategies available to help transit operators reach their goals. The interviewer typed as the interviewee spoke, so that most of the detail was captured. The interview guides are found in Appendix B of this report.

3.3.6 Analysis, Evaluation and Recommendations

The 34 surveys (20 transit operators, 10 alternative mobility providers and four developers/urbanists) and 31 total completed interviews (19 transit operators, 10 alternative mobility providers and two developers) provided researchers with an exceedingly rich pool of insight and experience from which to make observations, draw inferences, and begin to frame a larger understanding of the interrelated issues affecting transit ridership, and involving land use and alternative mobility providers. The recommendations in Chapter 7 flowed naturally from the quite obvious, and very exciting opportunities at the juncture of the three industries. All of this was possible only due to the time the participants so generously shared, and the candor with which they described their own agencies as well as their perspectives from working with the other two sectors, respectively.

4 Transit Operators

4.1 Survey Respondents and Interview Participants

A total of 20 transit operators responded to a request to complete an on-line survey, between March 29 and May 21, 2004. Responses were received from a wide range of transit operators (TOs) across the United States. With the exception of Alameda Contra Costa Transit District, the list of survey respondents below also consented to a telephone interview that provided additional information:

Table 4.1: Transit Operator Survey Respondents and Interview Participants

Transit Operator/State	Interview Contact	Title
Alameda-Contra Costa Transit District (Bay Area, CA)	Anthony Bruzzone *(survey only)*	Manager, Service Planning
Dallas Area Rapid Transit (DART) (Dallas, TX)	Tim Newby	Assistant Vice President, Service Planning
Denver Regional Transportation District (Denver, CO)	Tony McCaulay	AGM, Customer Services
Greater Cleveland Regional Transit Authority (Cleveland, OH)	Joe Calabrese	CEO/General Manager
City of Honolulu Department of Transportation Services (Honolulu, HI)	James Burke	Acting Chief, Public Transit Division
King County Metro (Seattle, WA)	Matt Hansen	Supervisor
Lane Transit District, (Eugene/Springfield, Oregon)	Andy Vobora	Service Planning and Marketing Manager
Los Angeles County Metropolitan Transportation Authority (Los Angeles, CA)	Nancy Michali	Director of service Performance & Analysis
City of Los Angeles Department of Transportation (Los Angeles, CA)	Phil Aker	Supervising Transportation Planner II
Pace Suburban Bus Service (Arlington Heights, Illinois)	David Tomzik	Supervisor, Long Range Planning
Massachusetts Bay Transportation Authority, (Boston, MA)	Alan Castaline	Deputy Chief Operations Officer
Metropolitan Transit System (San Diego, CA)	Dave Schumacher	Principal Planner
Riverside Transit Agency (Riverside, CA)	Anne Palatino	Director of Planning
SamTrans (San Mateo, CA)	Richard Cook	Operations Contracts
Santa Clara Valley Transportation Authority (Bay Area, CA)	James Unites	Operations Planning Manager
Tri-Met (Portland, Oregon)	Ken Zatarain	Director, Transportation Planning
Twin Cities Metro Transit (Minneapolis/St. Paul)	Arlene McCarthy	Director of Service Development
Utah Transit Authority (Salt Lake Urbanized Area, Ogden, and Provo-Orem, Utah)	John Inglish	General Manager
Valley Metro/RPTA, (Phoenix, Arizona)	Jim Dickey	Deputy Executive Director, Planning and Operations
Washington Metropolitan Area Transportation Authority (District of Columbia)	Rick Stevens Elissa Hill (TOD issues only)	Director, Business Planning and Project Development Acting Manager, Property Planning and Development

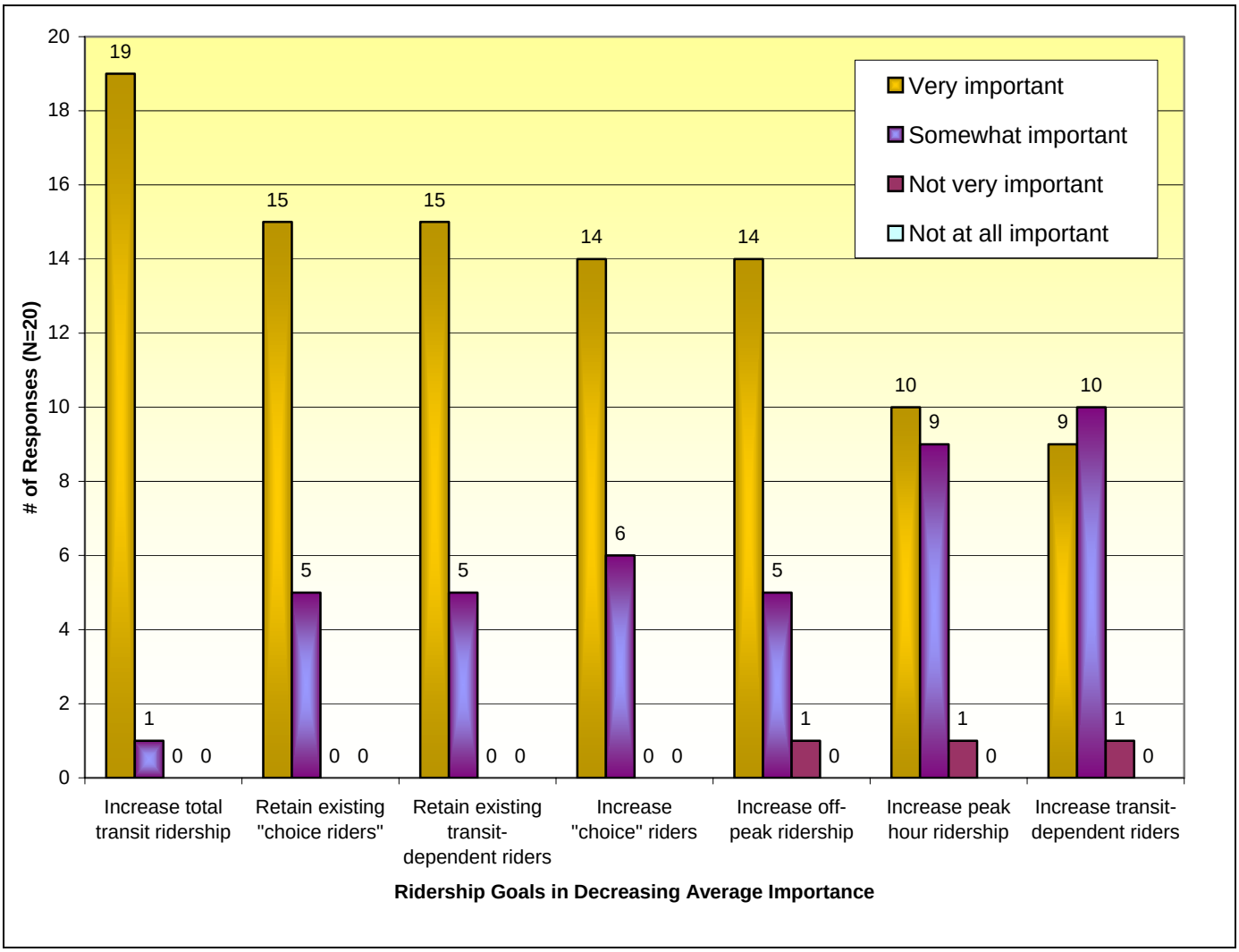
4.2 Increasing Transit Ridership

4.2.1 How Operators Rank their Ridership Goals

It was important to understand transit operators' own goals for ridership, as a foundation for exploring their views of the potential for TLM/TOD strategies. The first survey question listed seven possible ridership goals (focusing on typical large-scale markets such as transit dependent, choice, peak/off-peak) and asked how important they were "in terms of total institutional commitment." Operators' responses, summarized in Figure 4.1,Transit Operator Ridership Goals, reveal that "increasing total transit ridership" is their primary goal. Next in importance is retention of existing riders (both choice and transit-dependent). Following closely is the goal of increasing choice riders, and increasing riders in the off-peak hours.

Of somewhat less importance is increasing peak hour ridership and increasing transit-dependent riders. During the follow-up interviews, a number of operators noted that increasing peak hour ridership also increases marginal operating (and possibly capital) costs unless capacity was available on specific modes or routes. Only one operator (LA's MTA) specifically mentioned clear direction from its board to prioritize the transit-dependent population—with goals to retain them as riders and to improve their service and mobility. However, even for MTA, an increase in overall ridership was of equal importance.

Figure 4.1 Transit Operator Ridership Goals



Source: Transit Operator On-Line Surveys, Spring 2004

4.2.2 Where Will Future Riders Come From?

Interviewees were asked to look into the future and predict where new ridership would be found, based on local or regional work force changes, emerging cultural and land use patterns, and basic socioeconomic and demographic trend lines. The answers tended to fall into one of two categories, and are summarized in Table 4.1, Transit Operators Identify Possible Sources of Future Ridership Increases. The first category consisted of responses that indicated a "product-oriented" or "supply-driven" approach to identifying future customers. That is, operators viewed increased ridership as *resulting from* prior or proposed investment in transit services and facilities. The second general category was more market-oriented, and included operators best guesses on future travel demand that would emerge based on a variety of factors that were mainly outside the influence of the transit operators. With only a few exceptions, transit operators provided some answers that fell into the supply-side and others that fell into the demand-side of the equation—that is, operators tended to be eclectic as well as anecdotal about "where ridership comes from" and to conflate their operational goals, strengths or current direction with the causal factors hidden within the ridership puzzle.

This tendency not to distinguish between supply-driven and demand-based pools of ridership potential may simply reflect operators' understanding that some new ridership will, of course, result from what transit operators themselves *do* (i.e., provide new service) and that other sources of new ridership will come from external factors outside their control, such as planned development and projected increases in overall projected population as well as key ridership-rich population segments. However, an explicit awareness of the distinction could help convince policymakers of the value of TLM/TOD in optimizing transit investments and thus provide support (political and financial) to take best advantage of opportunities to integrate traditional transit with TLM/TOD strategies. For example, though not generally verbalized during interviews, Table 4.1 hints at the connection between new service and route restructuring (most frequent response on the supply-driven side) and new suburban development that topped the demand-driven list. However, without attention to innovative TLM/TOD strategies, there is also a potential disconnect between the many-to-many travel patterns that will characterize much of future new demand, and the bulk of service investments that are currently in the pipeline.

Table 4.1 shows that four operators had plans to engage in land use/TOD activities designed to create transit-friendly environments that, in turn, generate demand for transit. And though several operators noted the land use/transit connection, it affects operators in a wide variety of ways. San Diego faces challenges in the newer areas (cul-de-sac, walled communities) and looked for easier-won ridership gains from service to older, grid-system communities that are relatively transit friendly. Denver's Regional Transportation District, however, was focused on future development expected to spring up along multi-modal rapid transit corridors that will be completed over the next 15 years. Similarly, Greater Cleveland Regional Transit Authority looked for new riders along its planned BRT corridors, and Boston's Massachusetts Bay Transportation Authority expected ridership gains along new commuter rail lines.

Two systems (King County Metro in Seattle and Tri-Met in Portland, Ore) mentioned opportunities that would flow from providing new non-rubber-tire transit trunk routes, thereby freeing up buses to provide feeder service and/or cross-town service, as well as better service to less dense communities that had previously been underserved. King County Metro referred to this as "system integration".

Innovative marketing and market research were identified as means by which nearly 25% of operators say they will identify and serve future potential riders. In particular, the community-based approach, emphasizing engagement with the businesses and residences near transit lines, is seen operators as diverse as the suburban-based Pace system near Chicago and the sprawling, downtown-focused Los Angeles Metro system, as a way to match service and future riders more closely. Utah Transit Authority conducted surveys to identify user preferences, and found that people close to their destinations wanted reliability, while those farther away wanted speed. This information will permit the agency to deploy service with precisely targeted performance goals designed to satisfy a range of customer needs.

Four operators had had recent successes in expanding ridership at universities and colleges, and saw future student population expansion as a source of new riders.

In the Dallas area projected growth was identified to be coming from outside the operator's current service boundaries, and thus "expansion of service area" was seen as a means of meeting ridership demand. This issue entails, in turn, issues of expanded funding, jurisdictional turf and revising institutional relations.

At least one operator, WMATA, is reaping ridership benefits created by regional roadway congestion, now and projected into the future. WMATA cited good increases systemwide in recent years, and a future, which promised consistent demand from choice riders who felt they had no choice but to abandon the automobile and embrace transit. Steep downtown parking prices and strong employer (particularly government employers) support for non-auto mobility choices are expected to continue to help transit compete with the automobile in the greater Washington, DC area.

Table 4.2: Transit Operators Identify Possible Future Ridership Increases

Supply-Driven Approach to Future Riders "Build It And They Will Come"		**Demand-Driven Approach to Future Riders "Find Them And We'll Serve Them"**	
Source (or Cause) of Riders	# Of Responses	Source (or Cause) of Riders	# Of Responses
System restructuring; service expansion (bus and rail); new infrastructure	7	Suburban demand ("many-to-many" service)	5
Land Use/TOD	4	Universities, colleges, high Schools	4
Innovative Marketing/Market Research	4	Future planned development/population growth	4
BRT (existing or planned)	2	Downtown parking constraints	2
Technology solutions (better buses, ITS)	2	Unmet transit dependent need	2
Federal employee transit benefits	1	Elderly	1
Expansion of service area	1	Core local service will grow	1
Employer-based shuttles	1	Hispanic community (bus increases)	1
Expand finances (to pay for new service)	1	White-collar workers (rail increases)	1

Source: Transit Operator Interviews, Spring 2004

4.2.3 How Operators Are Trying to Meet Ridership Goals

Given their goals, and their views on where riders will come from in future years, it became important to understand how operators were now preparing to satisfy future as well as increase existing demand for transit. During the interviews, operators were asked to describe what service changes or other innovations their agency was implementing in order to meet the ridership goals. A summary of responses is provided in Figure 4.2, Strategies Transit Operators Use to Meet Stated Ridership Goals. Note that there is a good deal of overlap between strategies now in use to increase ridership, and the identified sources of new riders in the future, as described in section 4.2.2.

Most interviewees mentioned the challenge of maintaining ridership—or stemming the downward trend—due to impacts from the four-year long recession. Some areas were harder hit than others, notably those in the Bay Area, the northwest (Seattle and Portland) and southwest (Dallas). Boston was impacted not only by the stagnant economy, but also by public concerns about terrorism that appeared to impact subway ridership. A number of operators admitted that, given the economic downturn, they were holding off on planned service changes, and were simply trying to hold the line against further cuts and ridership erosion. Even San Diego's system, with one of the most aggressive long-term strategies to attract choice riders (called "Transit First") is currently focused on "keeping afloat" during this difficult period. Rather than going ahead with program implementation, they are engaging in planning studies and exploration of needed technologies such as smart card and innovative vehicle technology. Others are delaying costly programs such as market segmentation studies until their funding sources recover from recession levels.

In addition to these external issues, several systems had weathered strikes over the past year (Los Angeles, Honolulu and the Twin Cities). Some of the ridership goals for these operators were geared to bringing back those riders who had strayed during the strikes.

As discussed previously, instead of looking to external trends to spot market opportunities, many agencies view increased ridership more as a function of new or better transit service. New and restructured service was most often cited both as means to increase ridership, as well as the means to satisfy that demand. One agency executive summed up a prevalent attitude, saying, "We're bullish on BRT [bus rapid transit]." Many operators believe that BRT has the best chance of meeting agencies' goals for increased performance and customer satisfaction at a capital cost much lower than rail. The larger list of strategies to enhance ridership included:

- New service additions (rail and BRT most often mentioned)
- Service quality enhancements that took the form of meeting service reliability goals, revising or revoking service contracts with unsatisfactory contractors,
- Route restructuring (either ongoing or recent comprehensive efforts)
- Marketing (more aggressive marketing in general; new efforts on existing areas of ridership strength; Spanish-language marketing; special events marketing to games, etc.; new incentive programs;
- Rewarding employees based on service "report card" made available to public and
- Increasing funding in order to support planned service improvements.

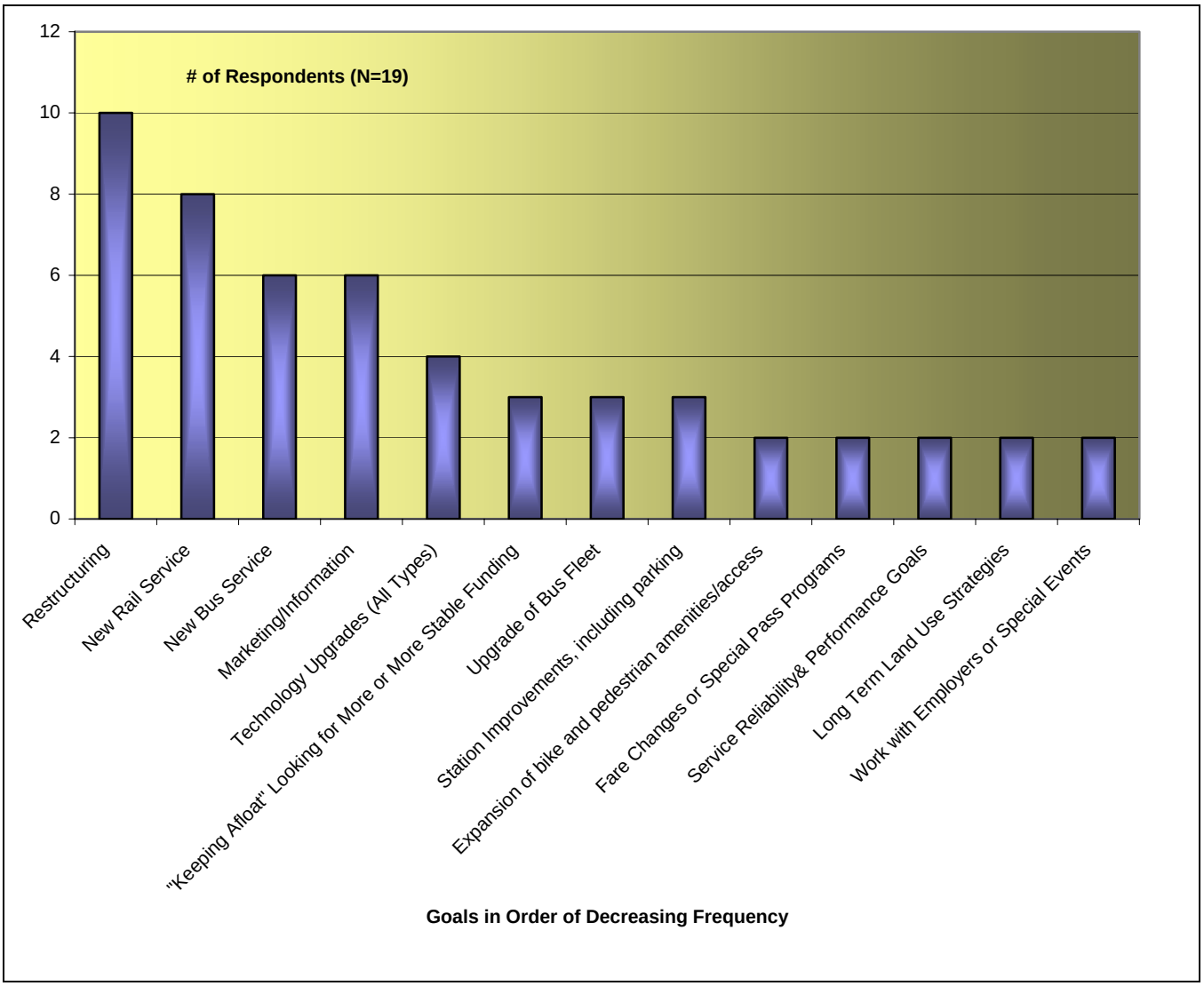
Service restructuring, review or redesign is a commonly cited strategy to increase ridership. This designation can include everything from ongoing service review and adjustments to comprehensive, system-wide re-visioning plans.

Bus Rapid Transit (BRT) has taken a lead over many other service improvements, because it provides (or can provide) a service quality comparable to rail at a fraction of rail's investment costs. It is seen as a good competitor with the automobile. However, like rail, it poses the same sorts of distribution questions at the home end of the trip (almost always) and at the destination (depending on the density and available infrastructure at the specific destination). A wide variety of service falls within the rubric BRT, so there is some difficulty in making generalizations about this service type.

It is interesting that operators pursue a variety of strategies that, in their description or in the details of their implementation, appear to be the opposite of those pursued by other systems. For example, some marketing efforts are geared to "fishing where the fish are"—that is, marketing more intensively or aggressively to groups or in areas where strong ridership already exists. Others are pursuing more general strategies, or are even pursuing those who are not yet riders, and who constitute more transit-resistant groups. Another marketing strategy used to increase ridership is "community-based" marketing which aims at increasing community ownership and engagement with transit service within its boundaries. And in a couple of cases, marketing was consciously limited, because of system capacity constraints, and the inability to satisfy new demand, especially during peaks. Yet, in the Washington, DC area, bus information is being aggressively instituted in hope that riders will use feeder buses to access the main bus and rail routes, due to severe capacity constraints at park and ride lots.

> Greater Cleveland RTA offers a "Ride Happy or Ride Free" unconditional guarantee. In the most recent month, they gave one free ride for every 24,833 customers served

Figure 4.2: Strategies Transit Operators Use to Meet Stated Ridership Goals



Source: Transit Operator Interviews, Spring 2004

The shift away from downtown commuter ridership base is seen in a number of opportunities identified by operators and the strategies they are developing, or have implemented, to begin to address the shift in ridership. For example, community-based marketing is used in a number of suburbanizing areas, in order to address trip-making needs *within* the suburban areas and *between* them, rather than solely on the suburb-to-CBD (central business district) trip. Training suburban social service organizations in how to help their clients teach other clients how to use the transit system to access services and facilities has proved to be popular and effective in Seattle. By leveraging training funds available through Jobs Access reverse Commute (JARC), Seattle gains ridership without necessarily providing more service.

Finally, of note is the fact that few operators, when asked unprompted, identified the kinds of transit-linked mobility strategies that are the focus of this study. The spontaneously mentioned strategies that could be categorized as TLM/TOD strategies according to this study's classifications, include the following:

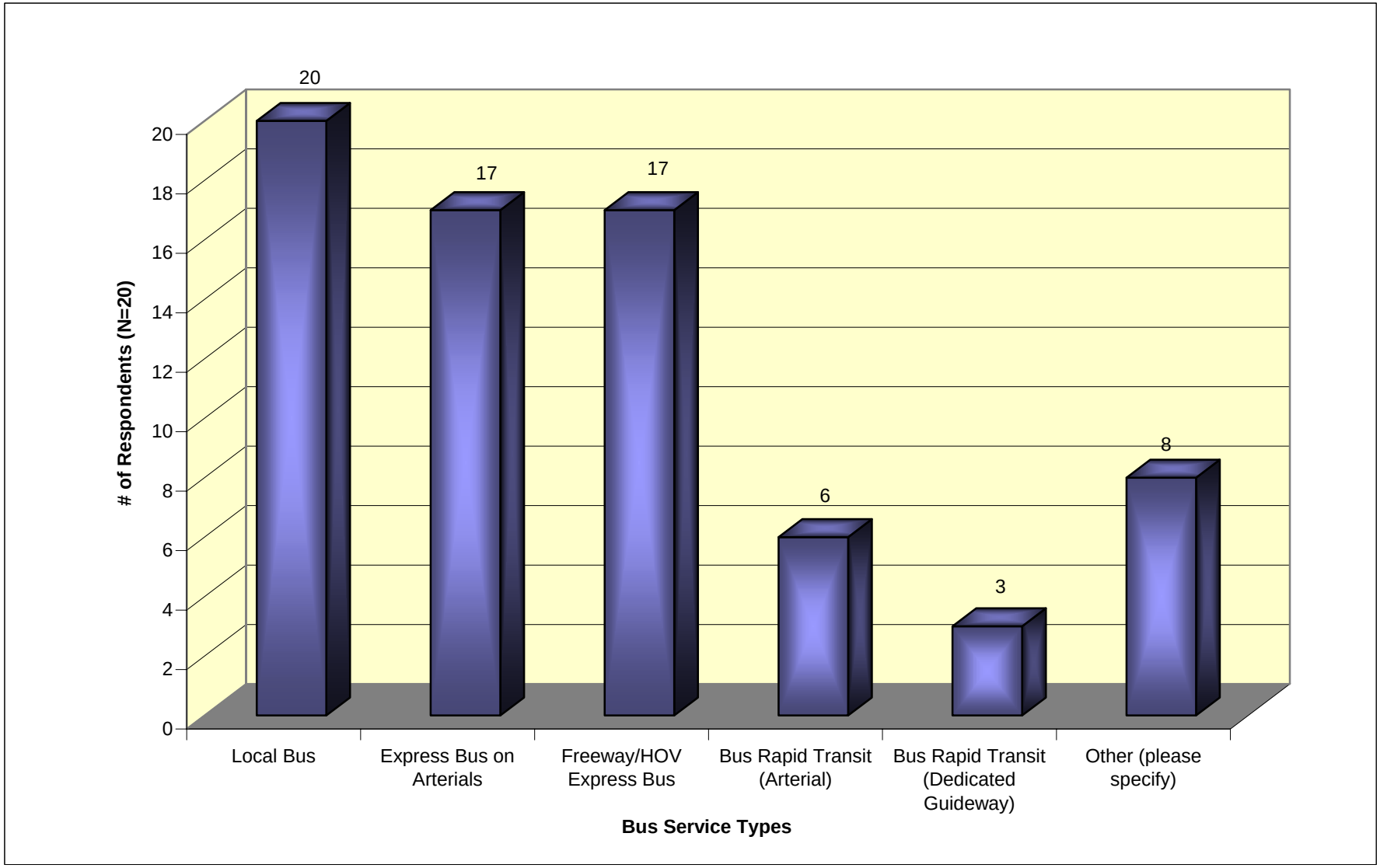
- Marketing/Information (6 responses)
- Station improvements, including parking, (3 responses)
- Expansion of bike and pedestrian amenities or access (2 responses)
- Long term land use strategies (2 responses)

4.3 Current Service Offered

4.3.1 Bus Service

One hundred percent of survey respondents (20 operators) offer local bus service as part of their transit network. Seventeen provide express bus service on arterials, and seventeen (not entirely overlapping) provide express bus on freeways and/or High-Occupancy Vehicle (HOV) freeway lanes. (See Table 4.3, Bus Service Offered by Participating Operators. The upward trend in bus rapid transit (BRT) is notable. Six operators provide BRT on arterials, and three have dedicated guideways for these buses. Another three operators (checking "other" on the survey instrument) have plans to build or complete BRT segments or networks in the near or mid-term future. Also included in the "other" category were three feeder routes and two neighborhood or community circulators.

Figure 4.3: Types of Bus Service Offered by Participating Transit Operators (2004 On-Line Survey)

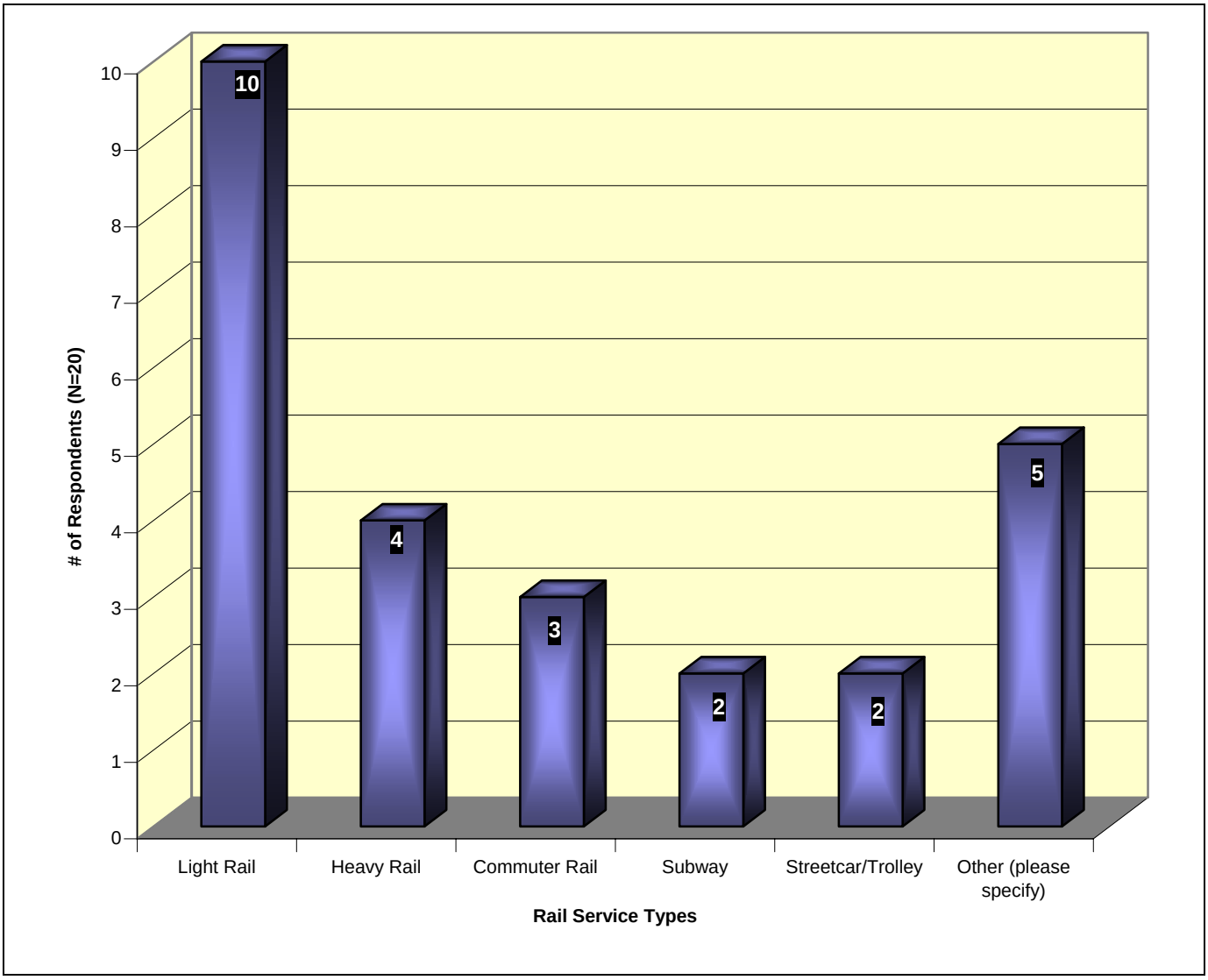


"Other" responses included: Employer shuttles to rail (2) Rail connection feeders (1) Neighborhood circulator service (1) Community access (service routes) (1) BRT on freeway (1) BRT transit in final design (1) BRT planned for 2005/2006 (1)

4.3.2 Rail Service

As Figure 4.4, Types of Rail Service Offered by Participating Transit Operators, shows, the last decade or so of light rail starts has translated into 50 percent of respondents indicating they provide that service within their service areas. Other rail modes (heavy rail and commuter rail) also figure in a good portion of the respondents. Rail service is, of course, dependent upon a trip-end distribution system, park and ride lot capacity and/or high density or transit-oriented development near stations.

Figure 4.4: Types of Rail Service Offered by Participating Transit Operators



Source: Transit Operator On-Line Survey, Spring 2004

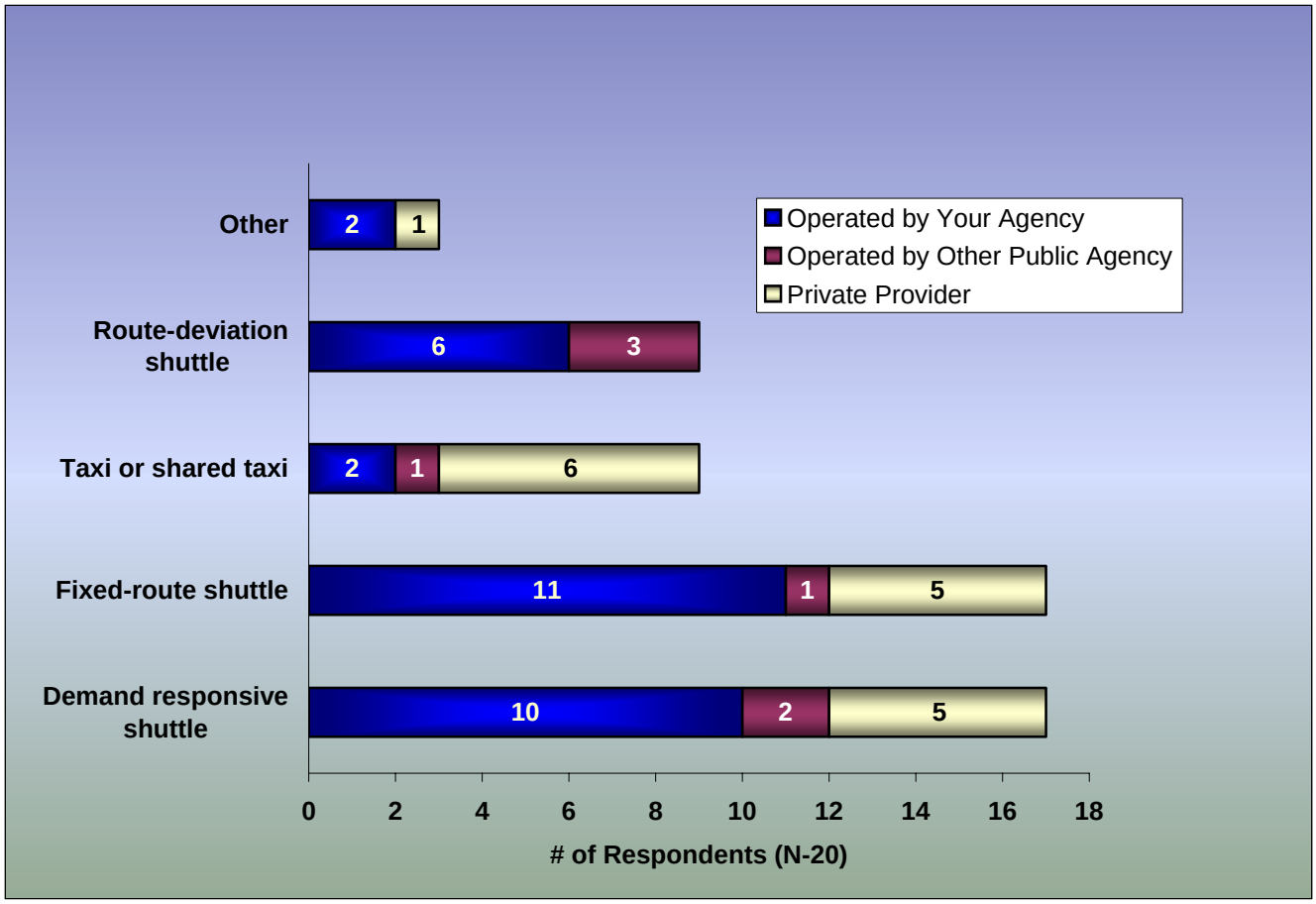
The five "Other" responses included the following rail service:

- No rail service (1)
- We are partners in heavy rail (1)
- Partners in two commuter railroads, ACE and Caltrain (1)
- Commuter rail operated by VRE and MARC; currently doing Aas for streetcars in DC and Arlington County, VA (1)
- N/A (1)

Two respondents also provide ferry service (MBTA in Boston and the MTS in San Diego).

4.3.3 Linking People to Transit (Shuttles, Feeders & Circulators)

Figure 4.5: Strategies Transit Operators Use to Meet Stated Ridership Goals



Source: Transit Operator On-Line Survey, Spring 2004

Shuttles, Fixed-Route and Demand-Responsive Service, Paratransit

While the term *paratransit* is generally reserved for service to eligible disabled or elderly riders, a wide range of generally available service that is called, variously, *shuttle service, feeder service or circulator service* links neighborhoods to each other, to local destinations and/or to the regional transit network, the majority of which are offered on a fixed-route/fixed-schedule basis, but also including a range of on-demand and route-deviation variations adapted to local contexts. The term *shuttles* will be used in this report to represent the general category of service. Most transit operators already use shuttles in a variety of operational configurations, providing service themselves, contracting out to one or more private entities, or cooperating with other public operators, in order to collect people at the origin and distribute them at the destination of transit trips.

Shuttles are often used to serve low-density areas, either as community circulators or as feeder service to the primary transit network. Fine-tuning these services, in terms of route design, schedule, fare structure and vehicle type is an art, and a slight miscalibration in customer needs can result in failure to meet performance standards. Interviewees sometimes lamented that, though communities and elected officials often cry out for shuttle service, when operators they provide the requested service, few people actually use it. There are happy exceptions to this pattern, but they appear to be in the minority.

Many regions provide employer-based shuttle service in a variety of arrangements with employers (either individual employers or property managers at office campuses or buildings). In addition to operating its own

feeder service to rail lines, Dallas' DART system arranges for shuttle service under one of two basic approaches: "site-specific shuttles" that link rail stations to specific locations (e.g., Southern Methodist University, Dallas-Forth Worth International Airport or UT Southwestern Medical Center) and "employer shuttles, serving individual employers or property managers who assume responsibility for operation of 15-passenger vans. The entity can use the van during the day for other purposes. DART helps underwrite the expenses of both types of shuttles, and they work as grants, so that the respective entities make direct arrangements with vehicle leasing companies, for insurance reasons. In the Bay Area, similar programs connecting employment sites to rail stations require employers to share a quarter of the cost.

The follow-up interviews revealed that much of the demand-responsive shuttle service identified by agencies in the survey was actually costly paratransit service mandated by Americans with Disabilities Act (ADA), and was eligibility-restricted. Mainstreaming senior citizens (i.e., encouraging them to use regular fixed route service) as well as the disabled who could be encouraged to use regular transit, were goals of many transit operators. The City of Honolulu provides ADA route deviation shuttle access to the hilly suburban residential areas, and which can be used by the general public, but only for the fixed portion of the route. To request deviation from the fixed route, riders must be ADA eligible. However, in Dallas, "DART on Call" is demand responsive service that has been implemented as a substitute on six or seven routes previously served by regular suburban feeder service, which was the system's least productive service. Though it is an "on-call" service for which people can call as late as an hour ahead of time, most riders are regular subscribers.

In some regions, operators allow fixed shuttles to become route-deviation shuttles during owl service (late night/early morning) or in fringe areas (Valley Metro, Phoenix). Metro Transit in the Twin Cities has had poor results with route deviation shuttles, so most of its circulators are provided as fixed-route service. They typically connect to park-and-ride lots.

Boston's MBTA does not focus on shuttles, which are not needed in most of its high-density service area. Experiments with shuttles at suburban rail stations were not successful for MBTA—the transfer time penalty proved too much for those commuters. MBTA has opted for paid parking near stations, and found that to be more popular with its system users.

In contrast, Greater Cleveland RTA has grown its community circulators to 11 over the past six years, and has good ridership, primarily seniors and students. RTA plans to convert the circulators to more of a demand-responsive service, using new automatic vehicle location systems and other new technologies as they become perfected. Fixed route shuttles, as well as the circulators, connect major trip generators with the regional transit network.

Shared Taxi and Other Transit-Related Uses for Taxi Vehicles

Shared taxi services are used by many operators to provide off-peak ADA service, or guaranteed ride home service. Denver RTD is now providing taxi stands at some stations, though the cost is entirely the rider's burden.

Several years ago, a taxi-based shuttle demonstration program implemented by Tri-Met provided door-to-station service in an affluent neighborhood along Portland's Westside Line. The service was provided to compensate for at-capacity park-and-ride lots (where parking is free). Now operated by in-house Tri-Met drivers, the program is financially unsustainable—providing about a $7 per person one-way subsidy to each rider, and also creating a reverse equity problem. Tri-Met is faced with the challenge of charging a reasonable fee for the shuttle and/or the park-and-ride lots, in order to improve station access at sustainable subsidies, but despite the public's desire for transit service, fee-based service is strongly opposed. The cost of feeder shuttle service is also an obstacle for the Metropolitan Transit System in San Diego, where market surveys indicate shuttle must run every 10 minutes (rather than the more typical 30 minute headway) in order to attract ridership. However, the cost of that high level of service does not give MTS a sufficient return on dollar of investment, without community or employer support (subsidy).

4.3.4 Non-Motorized Service & Facilities

Survey responses illustrated in Figure 4.6, below, show a stronger emphasis on bicycle facilities than on pedestrian amenities on the part of transit operators. Reasons for that, and other operator perspectives on pedestrian and bicycle issues, were elaborated during the interview process. Those comments are summarized below.

Pedestrians

New Urbanist trends have inspired many transit agencies to explore the relationship between transit facilities and the surrounding community environment. However, pedestrian facilities beyond the immediate station area, though they impact pedestrian comfort and safety, are often not within the control—and certainly not within the budget—of the operator.

> **"We always say that every transit rider is a pedestrian at some point in the journey."**
>
> Arlene McCarthy, Director of Service Development, Twin Cities Metro Transit

Safety issues at intersections impact transit users, and have generated solutions such as pedestrian islands. Pedestrian access and amenities are important issues in regions subject to weather extremes, and providing heated or sheltered waiting areas at major transit stops can pose a challenge to operators. In rural areas, lack of sidewalks and lighting at stations is a problem that requires funding and interagency cooperation.. The Twin Cities Metropolitan Council recently hosted eight bicycle and pedestrian oriented design workshops, focused on locations with transit centers. Community interest was strong, and the events educated transit planners on issues of walkability. Santa Clara VTA pays close attention to pedestrian links as it builds new facilities, and reviews development plans in its service area and regularly provides recommendations on layout and pedestrian pathways that would enhance access to nearby transit.

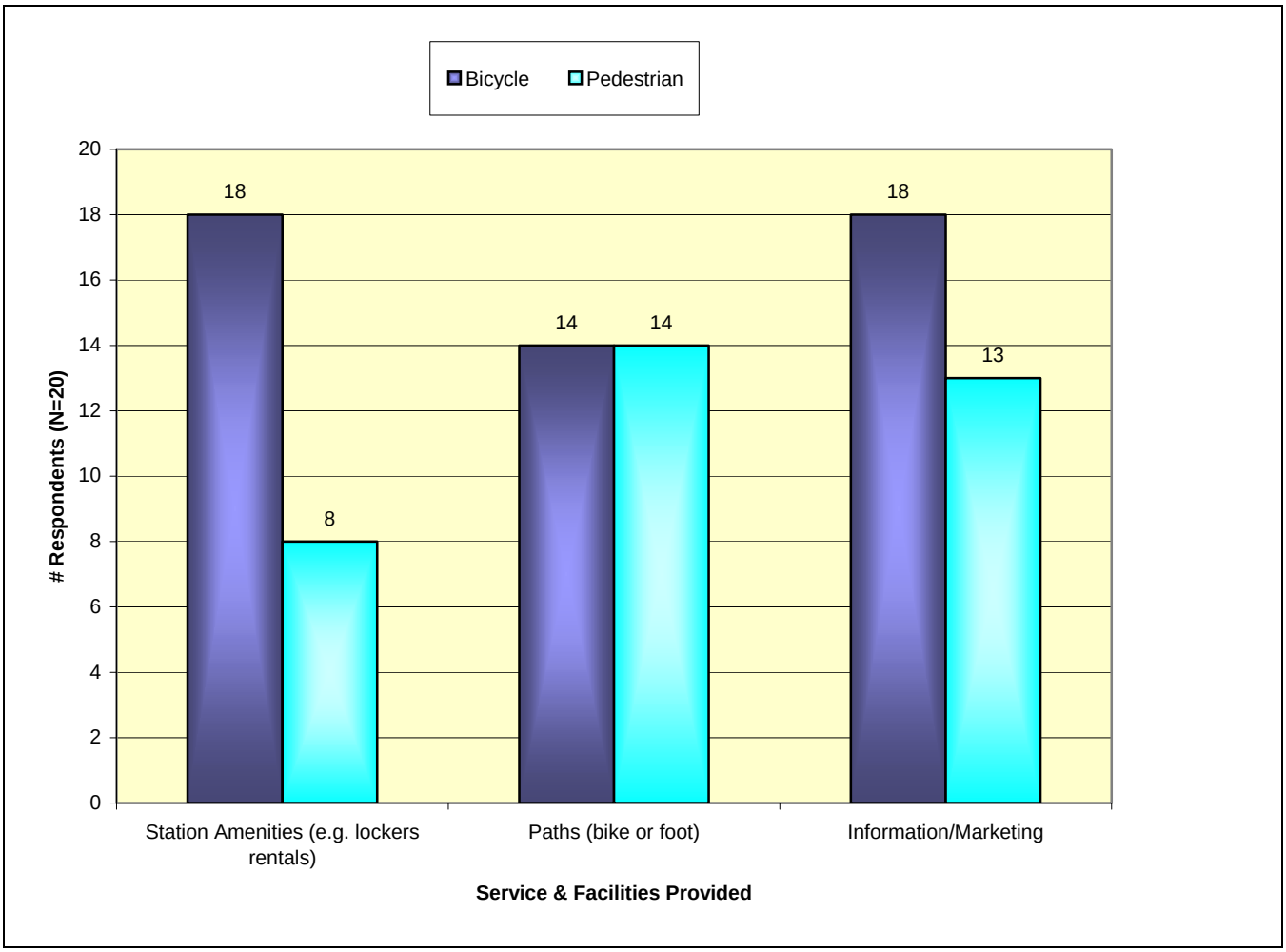
All stations in WMATA's service area are designed to be fully accessible to pedestrians—with curb cuts, sidewalks and so on. The agency is working with state departments of transportation (DOTs) to institute an accessible environment program, to put pressure on states and local government transportation departments. WMATA notes that where there are no sidewalks, where crosswalks are missing, where a bus rider steps off into a mud puddle—this is not only ADA non-compliant, but it is uninviting to *all pedestrians*. ADA standards provide WMATA with a bit of a "hammer" with which to forge policies that will benefit everyone.

Bicycles

Not surprisingly, operators in colder climates tend to focus less on bicycle facilities, though bikes-on-buses is becoming a universal feature, and seasonal use of bicycles is strong even where winters are cold or wet. For example, Denver RTD reports heavy use of bike racks on its regional buses and, at any one time, 42% utilization of its bike lockers at light rail stations, and 10% utilization of lockers at bus-based park-and-ride lots. Twin Cities Metro Transit has made bicycles a major focus, where usage by students at University of Minnesota (from April to October) has spurred introduction of bicycle lockers at key stations and park-and-ride lots. Lockers cost approximately $30 per month, and users bring their own locks.

West Coast operators, as well as those with significant student populations (and even the active elderly) have implemented a variety of bicycle facilities, and have experimented with approaches that tend to focus either on people who would want their bicycle at the destination end of the trip, or on those who need the bicycle primarily to access the transit stop at their trip origin. The approach determines the location and supply of bicycle lockers or racks and the space allotted to bicycles on transit vehicles.

Figure 4.6: Non-Motorized Services and Facilities



Source: Transit Operator On-Line Surveys, Spring 2004

SamTrans and Santa Clara Valley Transportation Authority (VTA), both in the Bay Area, are part of the entity that also operates Caltrain, which has the most extensive bike program in the United States, with dedicated "bicycle cars" designed with bike racks in them. These were full before September 11, 2001, and Caltrain was forced to consider adding more bicycle trains. In the post 9-11 world, however, transit throughout the region dropped, and has not yet recovered. SamTrans has a bike station in Palo Alto that includes a bike shop, where riders can drop their bike off for repair. It also sponsors bike lockers for employers all along the BART system, but while usage is heavy, it still represents a marginal percentage of total transit riders, according to the SamTrans head of Operations Contracts. VTA notes that bike lockers have grown less popular, as people prefer to take their expensive bicycles with them to their final destination. Utah Transit Authority reports a similar experience with bike lockers, which have not gained the trust of bicyclists.

King County Metro is working with WestStart/Calstart to develop its next generation of bike stations, and is considering e-lockers on a pay-per-use basis. It would locate the lockers at chokepoints along the network where the bike racks on buses are at capacity.

The bicycle is big in Portland, where Tri-Met provides hooks on rail cars from which to hang as many as eight transit riders' bikes. Buses have the standard two-bike racks. Bike lockers, available as monthly rentals, are located at major transit centers and park-and-rides, and are administered by the City of Portland (within City limits) and the Bicycle Transportation Alliance (the latter handles outlying stations). A new arrangement is being offered at Tri-Met's new light rail stations, where lockers are provided on a first-come, first-serve basis,

and requires the bicyclist to use his or her own lock. The lockers themselves are free, and see-through for security.

Eugene, Oregon's Lane Transit District experienced vandalism at its bicycle lockers. This was not a problem from a cost perspective, since capital funding was relatively easy to secure in order to replace the units, but the vandalism did have a negative impact on bicyclists concerned about security.

4.3.5 Transportation Demand Management

Operators were asked what kinds of transportation demand management (TDM) services were available within their service area, and how they were delivered. As Figure 4.7 shows, the services offered were primarily delivered by public agencies—about half by the transit operator surveyed, and another scant half by other public agencies. A significant exception was found (naturally enough) in the area of carsharing and station cars (not typically considered TDM, but included here because they are linking strategies). More than half the carsharing or station car facilities and services are privately provided. (Carsharing is the primary, if not sole, strategy in this composite group.) Note that whether a private operator or another public agency provides services upon which a transit operator relies, the institutional disconnect can translate into problems for the operator and the transit customer. This is the case in park-and-ride lots, where authority and responsibility are fragmented, leaving park-and-ride lots as orphans in some cases.

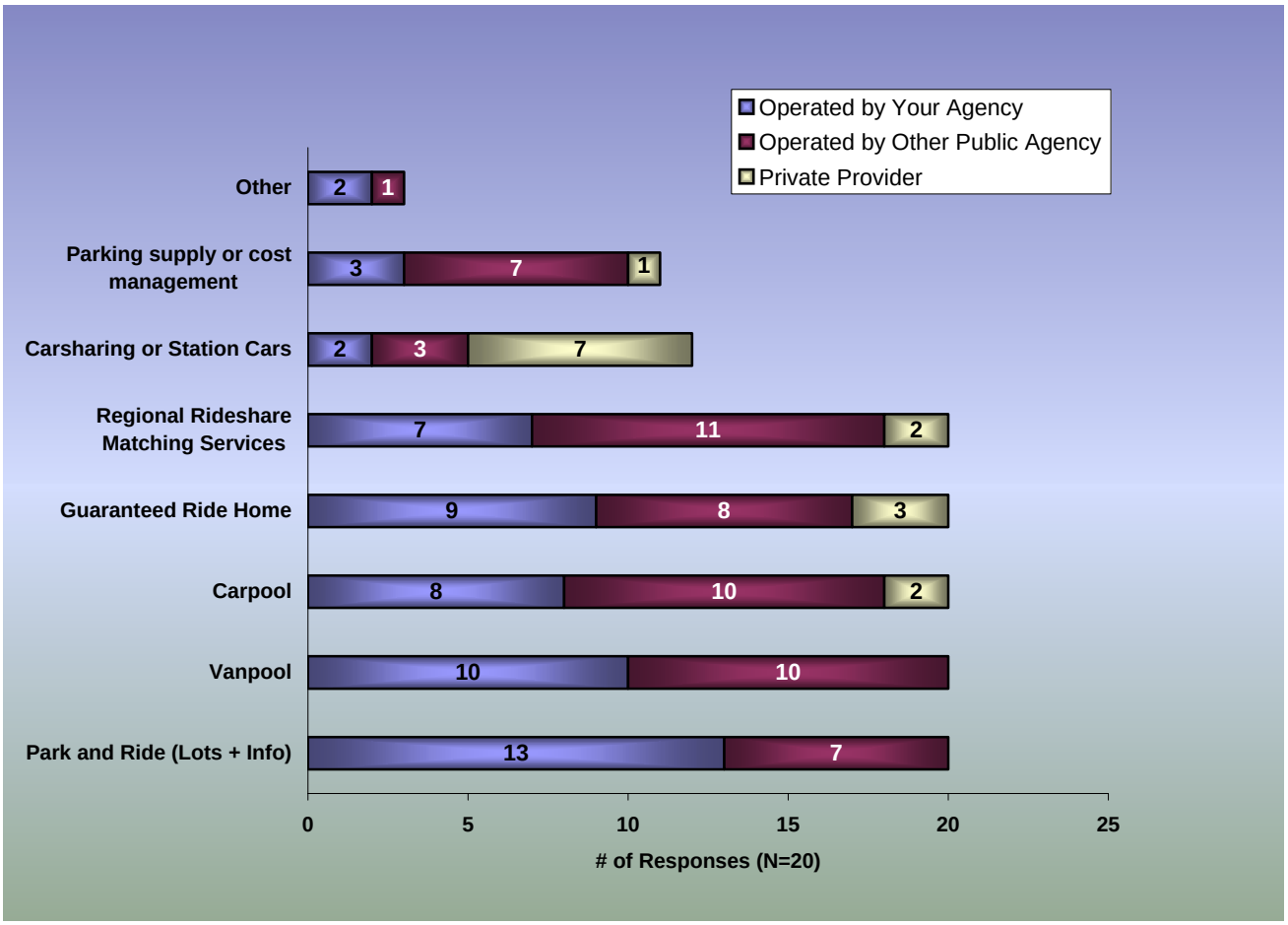
Carsharing
Carsharing has made inroads into some regions, including Seattle, where Flexcar made its debut in response to a King County Metro request for proposals, and where the company now has 10,000 members, and another 10,000 in Washington, DC, where it recently won a competitive bid against Zipcar with WMATA. Flexcar is also prominent in Portland, where Tri-Met permits the company to use its park-and-ride lots and where Flexcar also is a vendor for the transit agency's shuttle vans. City Carshare is established in San Francisco, and SamTrans has recently ended a demonstration program in Palo Alto. Zipcar is just getting started in Boston, and according to MBTA, its members do not seem to be focused on serving stations, but rather on avoiding buying a car for occasional travel needs. In addition to carsharing operations with transit operators, they often have their own independent operations

Carpooling
The contribution of carpooling to the overall mobility picture depends in large part on the network of high-occupancy vehicle (HOV) lanes, congestion in the main lanes, and is boosted when downtown parking fees are relatively steep. Park-and-ride lots are at capacity along many commuter routes, light rail and express bus lines across the nation, yet it has been difficult to introduce parking fees in most jurisdictions, so there is no means of managing the demand for scarce space.

Vanpooling
Vanpool programs, though variable in size, are found throughout the country. A few agencies operate their own vans (notably, Pace Suburban Bus Service in the Chicago area operates nearly 500 vanpools and 240 fixed route shuttles) but most contract vanpool service out to entities such as Enterprise Rideshare or VPSI. Vanpools tend to focus primarily on work trips, and are often sponsored or operated by employers themselves.

Station Cars
In contrast to carsharing, station cars have not "taken off," according to Tri-Met—a view confirmed by the lack of interest of most operators. One exception is the DART system in Dallas, which has met with Flexcar to provide station cars—but talks were discontinued because of personnel cutbacks.

Figure 4.7: How Transportation Demand Management and Related Strategies are Provided



Source: Transit Operator On-Line Survey, Spring 2004

4.3.6 Land Use Strategies

Though Figure 4.8, Land Use Strategies Used by Transit Operators to Increase Transit Ridership, shows that 19 of 20 respondents "encourage or facilitate" Transit-Oriented Design (TOD) and nearly as many (17 of 20) actually partner in such projects, what this means in practice varies from system to system. Follow up questions during the interviews revealed some of that variety.

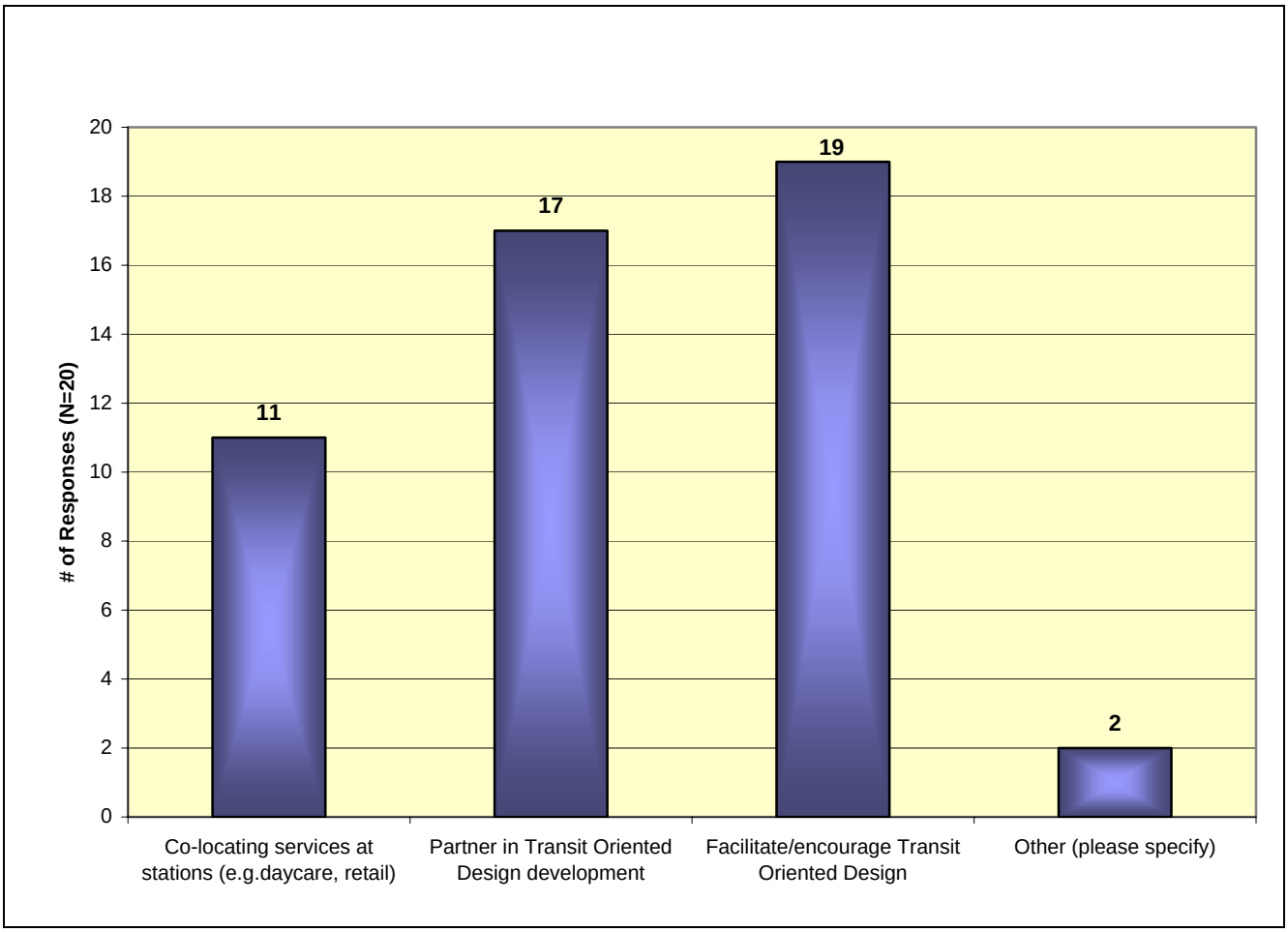
Those transit operator representatives interviewed understood the critical link between land use and transit—and most try to provide at least general support and encouragement of transit-friendly development and land use policies. In Dallas, DART has worked with a University of North Texas regional economist, who has helped the agency identify benefits of new rail stations to communities and property values, which has generated interest and support from DART's member cities.

King County Metro's TOD has involved placing residential development over park-and-ride lots, and has attempted to address affordable housing deficiencies in the process. It has not been a "money-maker"—and there are questions about the value of investment in these projects, compared to other possible system investments. To reduce this potential conflict, King County Metro hopes to leverage a minimal investment to move the next five TOD projects forward, possibly providing lower parking ratios as a developer incentive.

San Diego MTS is following a plan linking transportation and land use planning by developing smart growth opportunities associated with San Diego's City of Villages concept. Cooperation with individual cities in the MTS service area ensures that the best opportunities for high-density TOD projects are identified, and provides a carrot by linking possible transit investment to transit-friendly design and land use. In November 2004, voters

will consider a regional ballot measure (TRANSNET), which will give the agency funds to provide interested local jurisdictions with seed money for studies and for pedestrian planning and landscaping.

Figure 4.8: Land Use Strategies Used by Operators to Increase Transit Ridership*



Source: Transit Operator On-Line Survey, Spring 2004

*"Other" strategies included co-locating services at park and ride lots (one respondent) and a joint development program within the agency (one respondent.

WMATA has a long history of TOD and joint development, and has 60 projects approved throughout its system. Recently, it has become more critical of its own TOD projects, and has realized that some were merely "transit-adjacent"—not transit-oriented.

The City of Honolulu Department of Transportation works with other City departments on transit-oriented design issues, and because of its enormous local popularity and recent APTA awards, it carries sufficient weight within the City bureaucracy that its voice is heard.

> **"We have good relationships with the developers and retailers at the mall where a large transit center exists, with connections to regional, local, express and private service. But it's difficult to get the homebuilders to buy in. People are interested in [land use] alternatives, but it's a 'show-me' kind of thing."**
>
> James Burke, Acting Chief,
> Public Transit Division, City of Honolulu

Santa Clara VTA just hired a commercial development manager, who will attempt to find private developers for the agency's existing

land and park-and-ride lots. Previous projects include Ahlone-Chynoweth and Almaden station—both of which are residential developments on VTA light rail lines. VTA developed a childcare center at another station, with the remainder of the site the subject of a public/private joint development deal that will include two 11-story residential towers.

A number of operators engage the land use issue through formal or informal review of developers' plans. This process is "hit or miss" in many instances, however—especially in regions that require coordination between the agency and multiple local jurisdictions. Most agencies do not actively seek out new development plans, but, due largely to staffing issues, try to set agreements in place and thereafter are forced to rely on the cities or local agencies' referral.

DART is interested in strategies such as co-locating retail at rail stations, but it has not overcome a perception of fairness issue. That is, retailer selection, site location and other business contracting issues get bogged down in bureaucratic procedures, and—what's worse—completely lost because of the lack of bureaucratic procedures that can protect decision-makers from accusations of bias. The procurement process has yet to be developed, and it will take time and effort because it is outside the normal business practices of transit agencies. Despite that difficulty, however, DART has engaged in cooperative development with some rail stations, using multi-party agreements with one of its member cities and with an interested private developer or commercial enterprise.

4.4 Obstacles

The 19 transit operators interviewed were asked an open-ended question about obstacles to implementation of TLM strategies. The responses are shown in Figure 4.9. Although the question asked was specifically targeted to obstacles to implementing TLM, interviewees usually directed their responses to obstacles relative to implementing core services of the transit system itself. That is, TLM did not generally resonate with operators as a primary arena in which to focus service improvements.

The five obstacles identified most frequently were as follows:

- Funding (13)
- Institutional issues (8)
- Parking or park-and-ride lot issues (7)
- Land use (6)
- Transit can't compete with auto (5)

Funding Many operators interviewed noted the need for costly service improvements (e.g., more frequent service, late night service, better connectivity, better station and vehicle amenities), if transit is ever to shake the "less ripe" fruit from the ridership tree—that is, attract the next group of choice riders who might switch from their car to a form of transit. All of this costs money, not only in terms of capital costs, but in ongoing maintenance and repair of more sophisticated and luxurious transit vehicles, and the cost of training for maintenance and repair of an ever-greater variety of them intended for market niches.

As illustrated in Figured 7.2, (see page 71) the inadequate level of funding cited as an obstacle by the majority of transit operators means more than simply the inability to put new service on the street or on the tracks. It translates to putting innovative programs on hold (thus frustrating a large group of stakeholders); it means less flexibility in staffing, cuts to in-house staff with experience or expertise in innovative areas (technological advances and land use savvy, for example). Included in the topic of "funding" as obstacle is not only the amount of funding, but also the problem of unstable or fluctuating amounts over the time period needed to implement strategies deemed effective. A facet of the funding problem facing some operators relates more to the discrepancy between funds allocated toward downtown-centered routes and the emerging suburban markets. That issue borders another problem noted by operators, relating to their own internal structure and their inability to change with the times and trends. Finally, it is important to note that the discrepancy in social and individual

willingness to pay for auto transportation vs. public transit is a significant component of the last obstacle identified in the list above, "Transit Can't Compete with Auto."

Institutional issues were explicitly mentioned by (only) eight transit operators, but overall responses to interview questions reveal pervasive problems that implicate institutional issues. A few of the examples interviewees provided to illustrate institutional problems were::

- Difficulty in developing and negotiating agreements on traffic signal priority with multiple jurisdictions (many dozens of communities in large service areas).
- Customer dissatisfaction with the institutional arrangements involved in some instances of contracting out. . LA's Metro system currently frustrates efforts by the public to comment or become involved in service issues, because the contracting out of much service has meant a fragmenting of accountability among 79 jurisdictions. Citizens must travel to each jurisdiction to lodge complaints, and then too often witness cross-jurisdictional finger pointing, rather than coordinated problem solving.

- Several operators cited lack of clear or coordinated jurisdiction over park-and-ride lot funding, siting, policies and maintenance.

- Lack of protocols for

Park-and-ride lots: Many operators who depend on park-and-ride lots for linking people with transit are facing capacity shortages at lots, resulting in an artificial capping of ridership at those pinch-points. In order to maximize ridership potential on the many new BRT systems, operators will need to provide park-and-ride lots in many areas, yet this need has not always been considered or funded sufficiently. . In addition, many lots in the existing supply were located where developers happened to have extra land they could not use, and not necessarily where they are useful to transit riders.

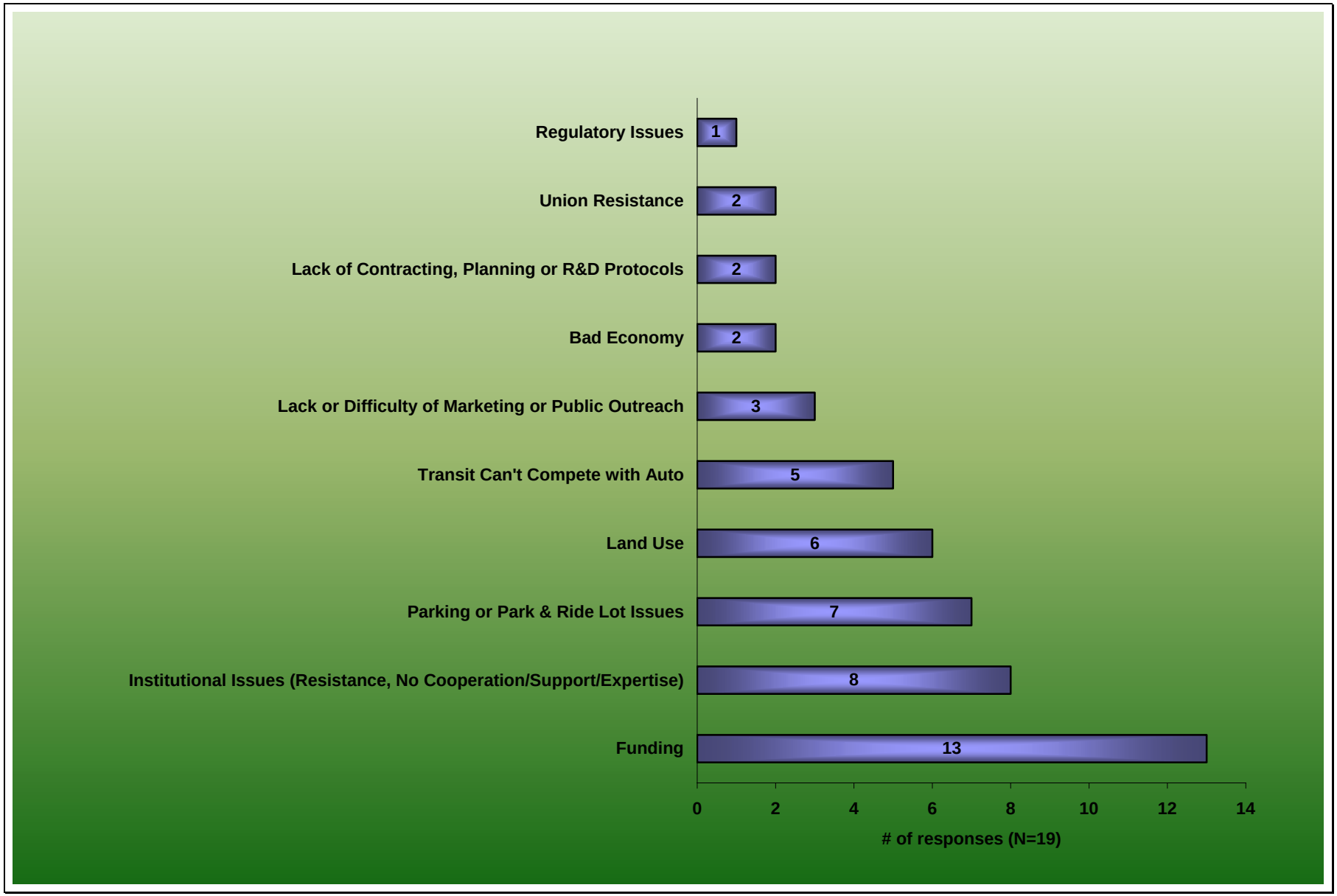
The need for slip-and-fall insurance coverage was given as a reason for many churches and shopping plazas declining to allow park-and-ride utilization of extra capacity—and in fact, many others are backing out of existing agreements with transit operators for fear of liability.

Land use: Operators are also clear about the dynamics of land use development, as they negatively impact their ability to provide service: sprawl development, cul-de-sac neighborhoods, and walled-off residential areas with no pedestrian access to nearby transit stops.

Missing Links in Technology or Support Systems: Other obstacles that were not explicitly identified as such, but can be inferred from various comments include:

- Need for better technology and software integration for automated vehicle location and automatic passenger counting systems, in part to permit mileage-based fare structures
- Better, cheaper fare collection methods
- Need for optical guidance systems for precise low-floor bus docking at curbs and stations
- Vehicles that allow quicker wheelchair transfer
- Automated scheduling systems to optimize transfers, route deviation and demand-responsive service.
- Better trip-matching and hubbing technology and software to support hub-and demand deviation service
- Better selection of good quality small vehicles for the increasing variety of community circulators or local feeder routes
- Education and training for engineers on benefits of bus signal prioritization for overall roadway capacity

Figure 4.9: Transit Operators Perspective on Obstacles



Source: Transit Operator Interview, Spring 2004

4.5 Opportunities

Transit operators' perspectives on opportunities for increasing future ridership in general were described above in Section 4.2. This section summarizes responses to two additional questions put to the operators. The first asked what they would do within existing resources to implement TLM; the second asked how they would implement TLM/TOD with additional resources. Note that these sets of questions (that is, how operators see the future of ridership and how they would reallocate existing resources or assign new resources) are related both theoretically and operationally. Again it is observed that the transit-linked mobility strategies that are the subject of this study appear to play a secondary role in the thinking of most operators. Their primary concern is geared to improving mainline service and meeting core policy goals of providing basic mobility options within their respective service areas.

4.5.1 Opportunities for Reallocating Service within Existing Resources

As stated previously, many operators have already reallocated resources as a result of the contraction in transit over the past four years or so, involving service and funding cuts as steep as 20 percent in some regions. When asked about "untapped opportunities" to implement "transit-linked mobility" strategies, many operators could only respond from the point of view of the spate of recent cutbacks. Quite understandably, when asked how they would reallocate existing resources or what they would do under a scenario that envisioned an influx of new resources—the most frequent actions would be to restore service to pre-recession levels, and to get waylaid planning efforts and postponed service implementation back on line. That is, their first responses related overwhelmingly to restoration or maintenance of traditional transit service.

Another exacerbating trend—the increasing need to service suburban areas—has meant that other areas have already had to endure service cuts, because so many operators are unable to expand the total number of vehicle service hours and the related costs. Thus, when asked about "reallocating service" many operators could not make further changes. Those who were in a position to adopt new strategies relayed the following ideas:

- Improve quality of service and/or equipment (2)
- Restructure to eliminate unproductive service (2)
- Combine shuttles or feeder routes to reflect changes in demand and/or reductions in regional workforce (2)
- Improve understanding of market demand and needs (market research); home-based marketing (2)
- Run express trains to cut out unproductive stops
- Replace costly suburban feeders with more cost-effective "on-call" zones
- Replace costly dial-a-ride with more fixed route service (mainstream seniors, etc.)
- Redistrict transit service areas to permit service to those whose residence is outside existing service area
- Add bicycle locker/rental facilities to reduce bikes on buses
- Upgrade to BRT on select routes
- Partner with private entities to improve service (leveraging the vehicle fleets of private shuttle or limo services, e.g.)
- Partner with TMAs, employers, large sites, to leverage CMAQ funding
- Secure more private sector funding

Some operators (LA Metro and UTA, for example) own land around stations that has become desirable, and this is providing new opportunities to develop and finance station improvements or TOD. The economic downturn has impeded some of these efforts recently, but interviewees were confident that projects would eventually proceed.

Of note is Tri-Met's (Portland, Ore.) interest in implementing a Long Beach-style bicycle facility, in order to reduce the number of bicycles on buses.

4.5.2 Opportunities for Promoting Transit-Linked Mobility Strategies If New Resources Became Available

In addition to what operators indicated they are already doing, continued probing on this issue with a focus on "additional resources" prompted responses centering around expansion of park and ride lots and upgrading or expanding basic trunk line service (both bus and rail):

- Add more park and ride lots or increase spaces at existing lots (7)
- Improve marketing and promotion of services; improve user information at bus stops (4)
- Upgrade productive bus routes to BRT or arterial express routes (4)
- Improve frequency of bus service or more service in general (3)
- Upgrade rail stations; improve bicycle and pedestrian environment around stations (3)
- Expand trunk lines (bus, BRT and rail) or bring on planned improvements faster (3)
- Expand hours of service to accommodate changes in work hours (2)
- Add new collector/feeder routes or increase frequency on existing routes(2)
- Raise the price of parking ("four-fold")
- Add demand-responsive service to ensure better match between service and demand
- Focus on directing development to station-adjacent areas
- Implement electronic fare collection to enable distance-based charges
- Make better efforts to integrate neighborhood circulator service and line-haul routes

Based on overall interview responses, other opportunities can be identified:

- Expand employer-based/site-based shuttles along the model used by DART (Dallas)

4.6 Effectiveness

The final survey question asked transit operators to rate a list of strategies for their ability or potential to increase transit ridership among choice (discretionary) riders. The ratings cluster into three tiers of effectiveness. The top tier includes:

- Park-and-ride lots
- Transit Oriented Design at stations
- Integrated fares or fare media
- Pedestrian access and amenities at stations
- Fixed route shuttles to stations
- Market research
- Marketing

> **"I rated park-and-ride lots high because the far ends of the subway and commuter rail lines are constrained by parking. We have more than 40,000 spaces, and they are largely filled. Every year we add more spaces, and they get filled.**
>
> Alan Castaline, Deputy Chief Operations Officer
> Massachusetts Bay Transportation Authority

Operators rated park-and-ride lots number one, because they appeal to choice riders' high-time value, and because, as LADOT's Phil Aker said, in the race for public affection, "The car is winning." On the other hand, when park-and-ride lots reach capacity, the effectiveness of fixed route shuttles to stations is enhanced.

> **"After providing high quality, frequent service, the overarching strategy for effectiveness is land use, starting with urban growth boundaries, nodes, high-density development. Parking management is number two in generating demand for transit.**
>
> Ken Zatarain, Director, Transportation Planning
> Tri-Met, Portland, Oregon

Santa Clara VTA rated TOD and shuttles as effective in part, because the agency had experience with these two strategies. VTA's James Unites voiced strong belief in the potential of high-density development at rail stations to produce ridership increases, though he did not have numbers to back that up. However, VTA contrasted the effectiveness of park-and-rides at light rail stations (poor performers in the Santa Clara area) and that of feeder buses or pedestrian access to stations (more popular). The reason? Those taking longer trips chose Caltrain; those riding VTA's light rail; and if potential light rail users have to drive to a park-and-ride lot, they are more likely just to continue in their vehicle all the way to their final destination. Dave Schumacher of San Diego MTS agrees: "Nobody used the shuttle services tied to the coaster—it required a transfer, and people just used their cars." In Denver, the RTD's Tony McCaulay views park-and-ride lots as an essential link. "People are not getting rid of cars, and the transit system that embraces the fact that people do like the flexibility that the automobile provides them when they return to the park-and-ride lot will do better." Denver RTD also provides shuttle service to stations—in part because the park-and-ride lots fill up quickly—but these are more expensive for transit operators than are the lots. Yet, if shuttle funds are leveraged, as they are in Dallas, then an operator is more likely to find that strategy effective, as well as cost-effective.

> **"We believe that market research and marketing are very effective. How can you match service to your customers without knowing what the customers want, and where they are?"**
>
> Matt Hansen
> Supervisor, King County Metro

Sustained marketing efforts are important to maintaining ridership in the Twin Cities, where commuter turnover is high, so that new groups of travelers need to be informed about transit options available to them. King County Metro emphasizes home-based (community-based) marketing. Instead of focusing on employers and getting people to employment sites, the agency is looking at a new opportunity to reallocate its resources based on destination from home, which may or may not be an employer. In its effort to target service more effectively, San Diego MTS has begun to use tightly focused market research to provide increasingly refined understanding of market niches and unique demographics associated with specific neighborhoods.

The second tier of effectiveness, according to operators surveyed, includes the following strategies:

- Rideshare services
- Co-locating service and retail at stations
- Guaranteed ride home service (to meet late trains/buses)
- Carsharing [inadvertently dropped from survey strategy list, but ranked by report authors, based on interviewee comments]

Finally, tier three strategies, deemed least effective by the participating transit operators, includes:

- Parking cost/supply management at stations
- Demand responsive shuttles to stations
- Bicycle lockers rental/repair etc. at stations
- Station cars
- Taxi or shared ride taxi to stations

The rating of this last group reflects significant unfamiliarity with either the details or the likely impacts of such strategies as using taxis or shared ride taxis, station cars, carsharing. With parking cost and supply management at stations, the 25 percent of respondents citing "don't have an opinion" frequently stated that the results of the strategy are highly dependent upon specific circumstances and policies utilized, making it difficult to assess the strategy "in general".

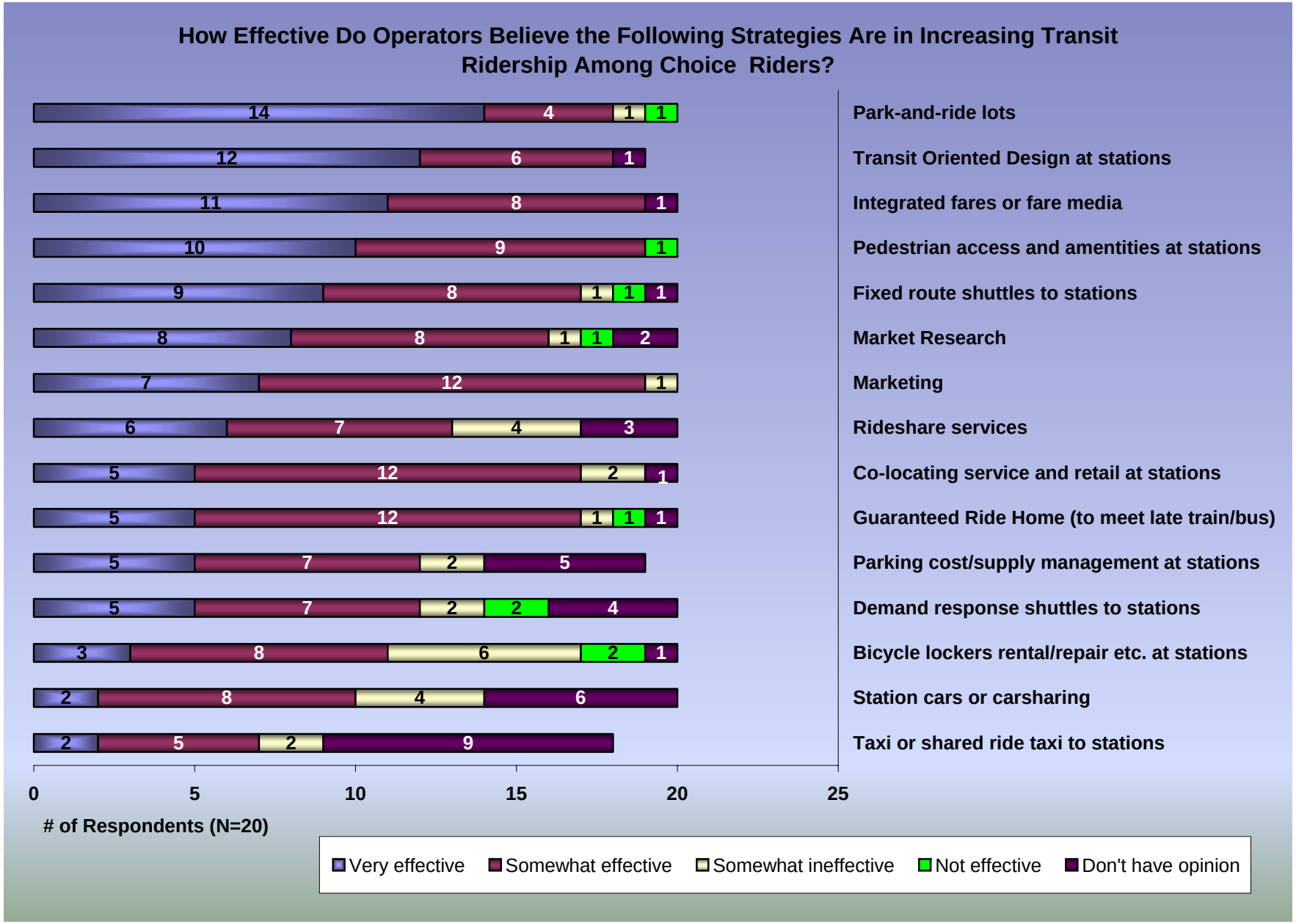
> **"If I don't see ridership growing from these strategies, they're not effective. Our number one goal is ridership. The next effectiveness measure we use is investment per rider, or IPR. It's a factor we created that represents the amount of money we spent to provide service, divided by the number of riders, net of revenues."**
>
> John English,
> General Manager, Utah Transit Authority

Though numerous operators echoed the sentiments of LA Metro's Nancy Michali, who rated bicycle racks on buses as very effective, others assigned a lower ratting because, even if they are effective, the strategy is not sufficiently widespread to cause a significant increase in transit ridership. Bicycle facilities are, of course, very important to bicyclists, but there just are not enough bicyclists to budge transit's overall mode share. Still, support for bicycle programs remains high and is seen as important to a multi-modal strategy. Another aspect of the lower rating derives from observations by operators in Utah, Denver and the Bay Area who have all noted increasing preference for keeping expensive bicycles at their destination, thus making lockers at stations unnecessary.

During the follow-up interviews, operators explained some of their ratings, and made a number of points.

- Most strategies can be effective if they work together
- Any strategy that improves service quality for the customer will tend to increase ridership
- Though not on the list of strategies to rate, many operators have found deeply discounted passes to employers or colleges and universities to be highly effective means of increasing ridership
- Vanpools can be very effective to move small groups between cross-regional destinations not covered by regular fixed route service, as is the case in Phoenix, where Valley Metro operates over 220 vanpools

Figure 4.10: Transit Operators Effectiveness Ratings of Strategies (2004 On-Line Survey)



5 Alternative Mobility Operators

5.1 Survey Respondents and Interview Participants

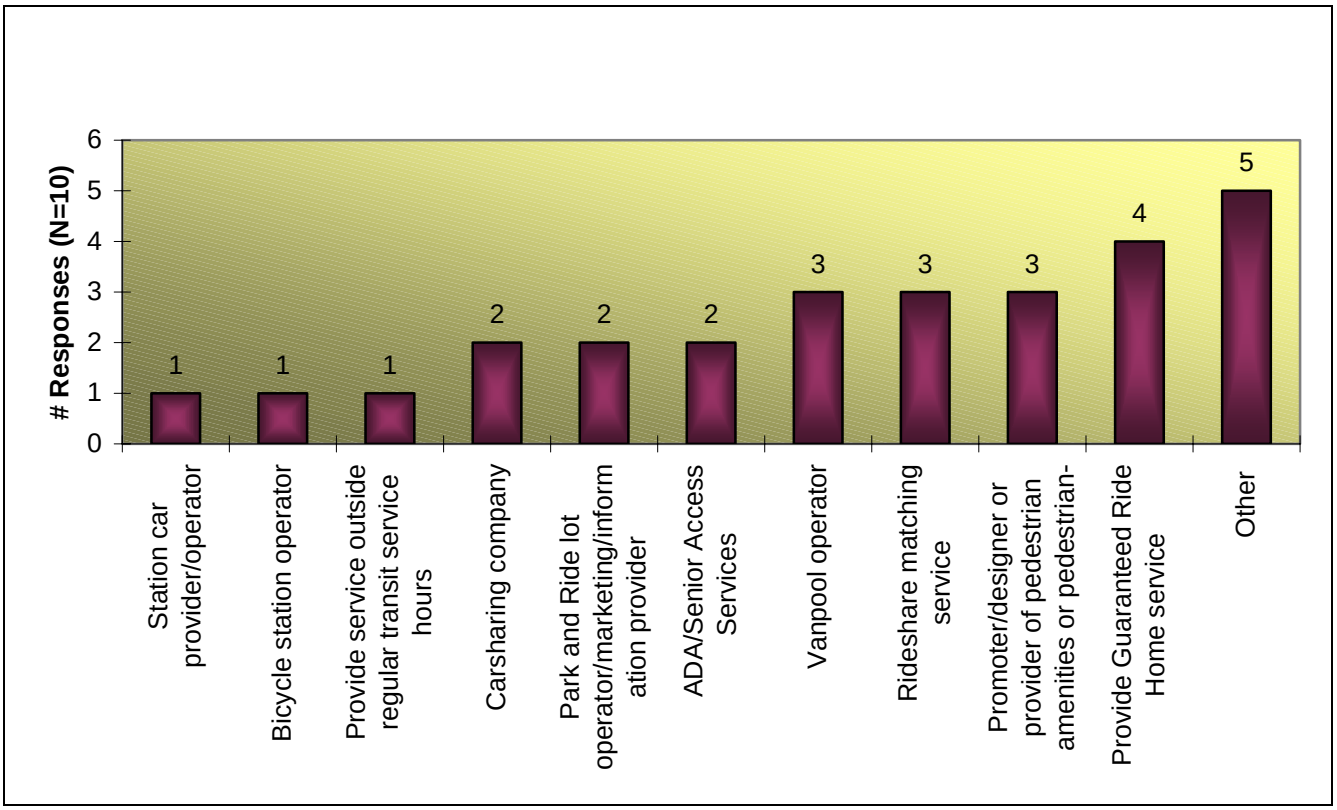
A diverse range of businesses, termed here "Alternative Mobility Providers" (AMPs) includes those private and public entities that support or complement the efforts of transit operators to link people to transit. The methods by which they do this include everything from innovative (and currently in the prototype stage) person- or group-rapid transit to commute services to facilitation of non-motorized access to transit. Then ten respondents (to both survey and requests for telephone follow up interview) included the following:

Transit Operator/State	Interview Contact	Title
Bikestation (Long Beach, CA)	Mark Shandrow	Project Director
Caltrans High-Occupancy Vehicle Division (Sacramento, CA)	Antonette Clark	Statewide HOV Coordinator; Co-Manager of Caltrans Bus Pool Project
Cybertrans (Group Rapid Transit)	Neil Garcia-Sinclair	VP Corporate Development
Enterprise Rideshare	Connie McGee	Rideshare Manager
Metro Commute Services (Los Angeles County Metropolitan Transit Authority)	Al Rangel	Account Executive—Employer Programs
Mobility, Inc., DBA Flexcar (Carsharing)	Tim Vogel	General Manager, DC Region
Skyweb Express Personal Transit	Jeral Poskey	Director of Applications
VPSI (Vanpool Services)	Michael B. Norvell	Vice President—Business Development
WalkSacramento (Pedestrian advocacy)	Anne Geraghty	Executive director
Warner Center (CA) Transportation Management Organization	Chris Park	Director

5.2 Services Offered

In response to a survey question asking respondents to characterize their businesses, a range of answers was recorded (shown in Figure 5.1, Alternative Mobility Providers' Services) that reflected the study objective to obtain a good cross-section of business types. Many AMPs listed more than one service their business provided, which is characteristic of this transit-gap closing multi-functioning group of businesses and public organizations.

Figure 5.1: Alternative Mobility Providers' Services



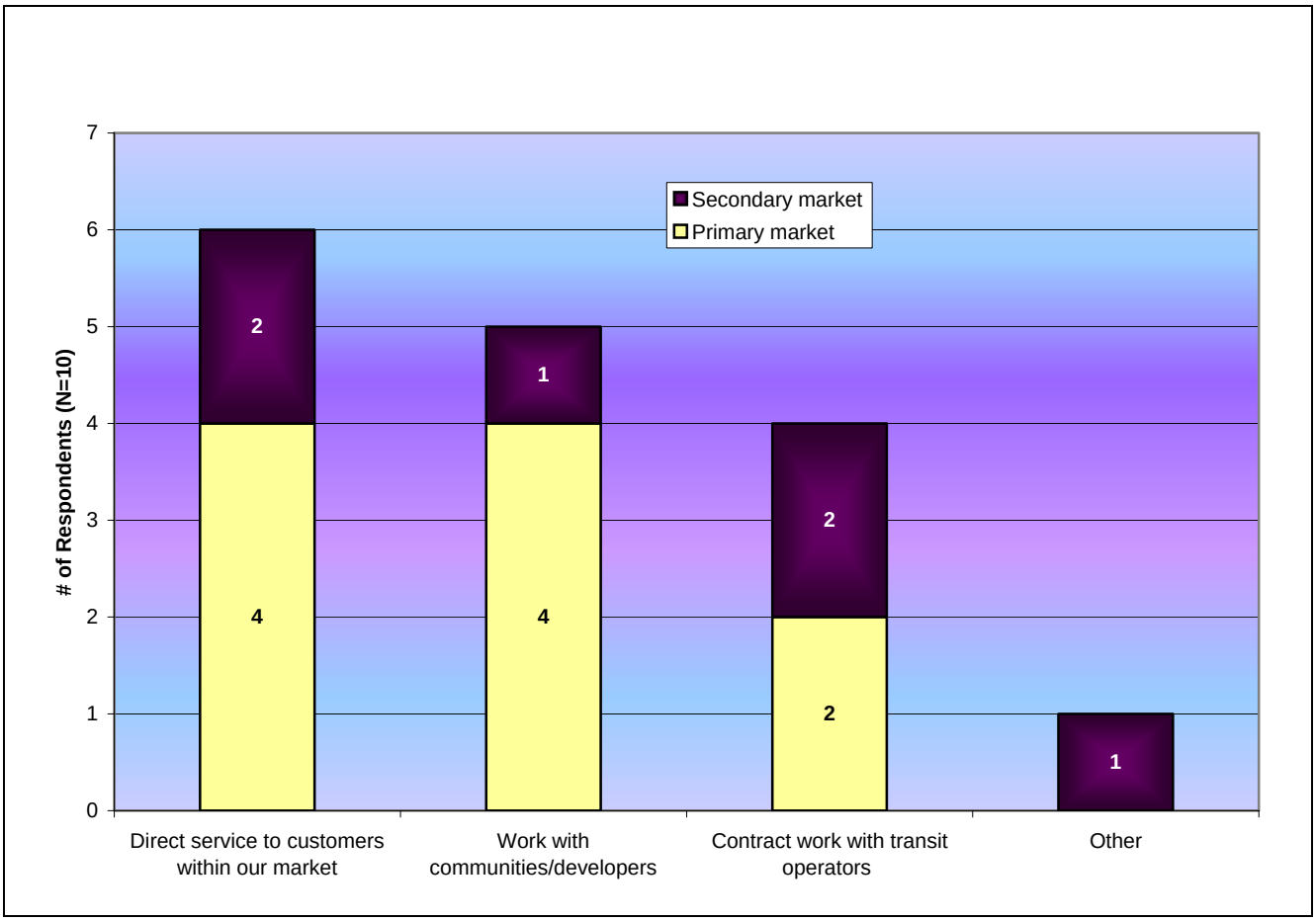
Source: Alternative Mobility Providers On-Line Survey, Spring 2004

In addition to the types of services checked off on the survey, "Other" self-reported services identified by the respondents were:

- Transportation Management Association
- Manage pre- and post-transport (shuttle) programs. Organize and manage special event transportation; Sell transit fare media on-site to client's employees; Corporate communications focused on employee transportation services including website design and development
- Transit system supplier
- Group Rapid Transit (Ultra light Rail)
- Outside tasks include: Providing employer services that address mobility and air quality issues.

The institutional arrangements and pathways these businesses chose to use in order to deliver services were also of interest to the researchers. Figure 5.2, Alternative Mobility Providers' Target Markets, shows that most of the AMPs surveyed deal directly with customers or work with communities or developers to provide their products or services. Only two of 10 indicated that their primary market was contract work with transit operators. This may point to the need for additional coordination and familiarization between transit operations and the possible benefits offered by the AMPs.

Figure 5.2: Alternative Mobility Providers' Target Markets



Source: Alternative Mobility Providers Survey, Spring 2004

5.3 Opportunities and Plans for Increasing Operations

5.3.1 Plans for Increasing Operations or Expanding to Other Transit-Related Areas

Metro Commute Services finds that it is easier to market commuter options now that there is more transit and carpool infrastructure to sell. LACMTA has significantly widened its product line in the last 15 years, meaning that commuters are more likely to find one or more modes that work for them in a variety of circumstances.

Caltrans' bus pool study (a statewide, ongoing study) will develop a master list of projects for Caltrans park-and-ride lots and HOV lanes, designed to increase transit utilization. Caltrans Statewide HOV Coordinator, and co-manager of the study, Antonette Clark, hopes to move the study from a list of good ideas into actual implementation of identified projects. Caltrans as a whole is now more focused on managing the existing roadway network more efficiently, and transit must play a more central role in increasing person carrying capacity.

Enterprise Rideshare plans to expand its carpooling and vanpooling fleet, based on increased need across the entire Bay Area and Sacramento. After the lull of the dot.com bust, demand for services is beginning to climb again.

VPSI is currently seeking expansion at business parks or individual company locations, to which it can offer a menu of transportation-related services that will enable a given workforce to take better advantage of nearby transit opportunities. VPSI can also provide service where there is none—by supplying vans and shuttles.

Flexcar is focused on growing its existing carsharing markets and achieving profitability, which it has nearly accomplished in several of its markets. The company also has long-term plans to expand into new markets.

5.3.2 Where New Markets Lie

Al Rangel, an Account Executive for Employer Programs at Metro Commute Services (part of LA County Metropolitan Transportation Authority) believes the best way to expand non-auto usage in the Los Angeles area is to focus on marketing at the home-end, rather than marketing to the employers, at the employment sites.

Bikestation has a specific strategic plan that is focused on the West Coast—the Bay Area is its number one market in the US, followed by Seattle, Portland and Los Angeles. Its market has everything to do with land use and culture. Bikestation Project Director Mark Shandrow notes the cultural bias here that identifies transit with poverty, with people who can't afford a car. Bikestation, however, views itself as much a transit advocate as a bike advocate, with a vision of the bicycle as part of the overall transit system. Bicycle access to stations expands transit opportunities where parking is scarce or expensive. If funding were not such a major issue for implementation, Bikestation would work more closely with colleges and universities, business districts and corporate campuses.

> **"I've found that everyone is a pedestrian advocate, once they get in touch with the fact that their environment has been so damaged by the way we've grown. That being so, I think there are opportunities everywhere, especially near smart growth and TOD where destinations are close. Transit is wonderful for walking—it increases the range of the walker! "**
>
> Anne Geraghty, Executive Director
> WalkSacramento

Cybertrans believes its first market for group rapid transit will be at airports, where most existing people movers have been deployed. Cybertrans plans to offer a much more cost effective alternative to expensive systems such as the San Francisco Airport people mover which cost $420 million for a five-mile system. Most airports cannot absorb a cost that high. The Cybertrans system is expected to cost between $10 and $20 million per mile. This also could make group rapid transit attractive to communities who will never get to the head of the line for federal rail starts.

Skyweb Express sees future markets everywhere. Jeral Poskey, Director of Applications for Skyweb Express, sees future markets everywhere. "Personal rapid transit works well for cities, lifestyle centers, mixed use developments and TOD around rail." PRT works well in many-to-many travel patterns—the where traditional transit fails.

Chris Park, long-time Director of Warner Center Transportation Management Organization (in the western portion of the San Fernando Valley) knows it's difficult to bring people to Warner Center from the far suburbs by transit. He believes that vanpools in his area will remain stable, but notes how hard they are to organize, and to find drivers for. A brighter future market area is carpooling, if ride matches can be found.

Enterprise Rideshare's current market focuses on suburban-to-urban travel, but growth in California's Central Valley is providing opportunities in the suburban-to-suburban market.

VPSI services will grow with the continued decentralization of downtown business districts, and the increase in suburban and exurban business parks that are poorly served by transit. Another market opportunity exists in selling fare media for people who can use transit, on the premises, helping employees embrace a commuter choice that involves transit and VPSI's vanpooling business.

Flexcar sees its future markets in dense urban areas that have a good transportation and transit infrastructure already.

5.4 Obstacles

5.4.1 Survey Ratings

The on-line survey provided AMPs with a prepared list of possible obstacles and asked them to rate how serious a hindrance each one was to their business operations. The compiled results are shown in Figure 5.3, Alternative Mobility Providers Rate Obstacles to Business.

Land Use and Free Parking
The top two "serious" obstacles were free parking (either downtown or at employer sites) and land use patterns.

Transit Operators
AMPS were roughly split on whether the quality of transit service in their areas served to help or hinder them. However, the knowledge base and general attitudes of transit operators do pose challenges to their operations.

Lack of awareness of AMPs' services and potential benefits
Enterprise Rideshare mentions how difficult it is to communicate the idea of vanpooling to potential customers, as well as to employers who could sponsor programs from their worksite. Both Skyweb Express and Cybertrans have difficulty (at least initially) in conveying the benefits, as opposed to imagined problems, of their prototype personal/group rapid transit systems. Carsharing is also a difficult concept to explain to people, and Flexcar has discovered that growth is slow, and requires one-on-one efforts.

Red Tape and Regulation
Again, for some AMPs, the red tape is associated with transit operator behavior and institutional culture, although the problems extend as well to research and development issues, land use planning and city codes. For those with prototype projects, such as Cybertrans and Skyweb Express, a host of regulatory issues come into play, and have been difficult to resolve. Cybertrans works with airports, which is regulated for rail safety issues in California by the Public Utility Commission (PUC).

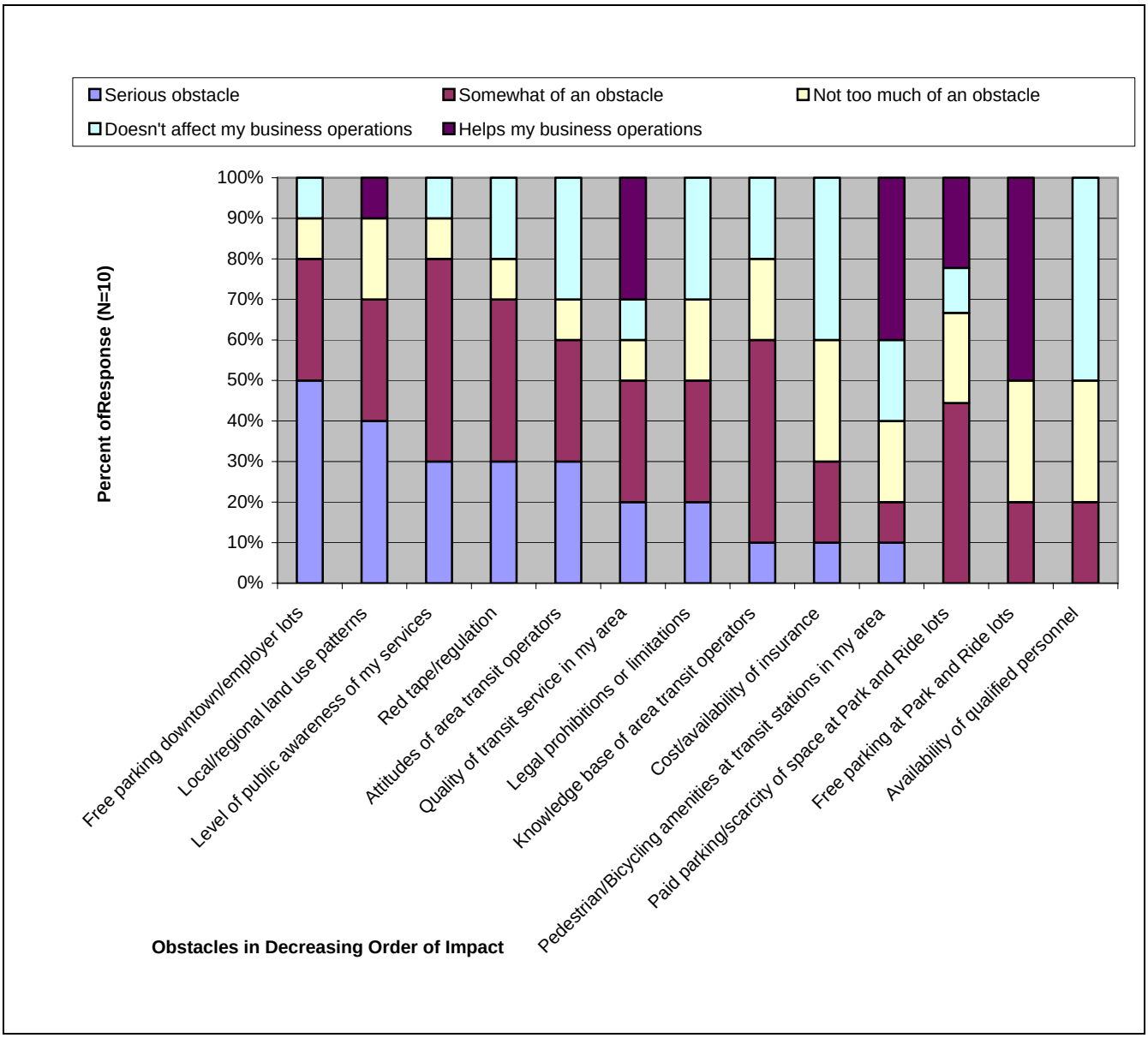
Absence or erosion of the regulatory "stick" can be an obstacle, as well. Enterprise Rideshare's Connie McGee agrees with Al Rangel of Metro Commute Services: employers' current lack of interest in commute alternative such as vanpooling and carpooling is due in part to the lack of commuter requirements (parts of Northern California) and the erosion over time of the commuter rule in Southern California.

Park and Ride Lots—Free or Not?
Four out of ten AMPs say free park-and-ride parking helps their business, while five out of ten AMPs say that charging for park-and-ride lot spaces helps their business. It appears that the issue of charging or not is more important to transit operators than to AMPs. And, as Bikestation's Mark Shandrow states, "Charging for parking is a double edged sword."

Other Obstacles
In addition to the obstacles included in the chart above, interviewees identified the following:

- Lost expertise about strategy/Lack of technical knowledge (one response)
- Resistance to new technology (one response)
- No "champion" or advocate for strategy (one response)

Figure 5.3: Alternative Mobility Providers Rate Obstacles to Business

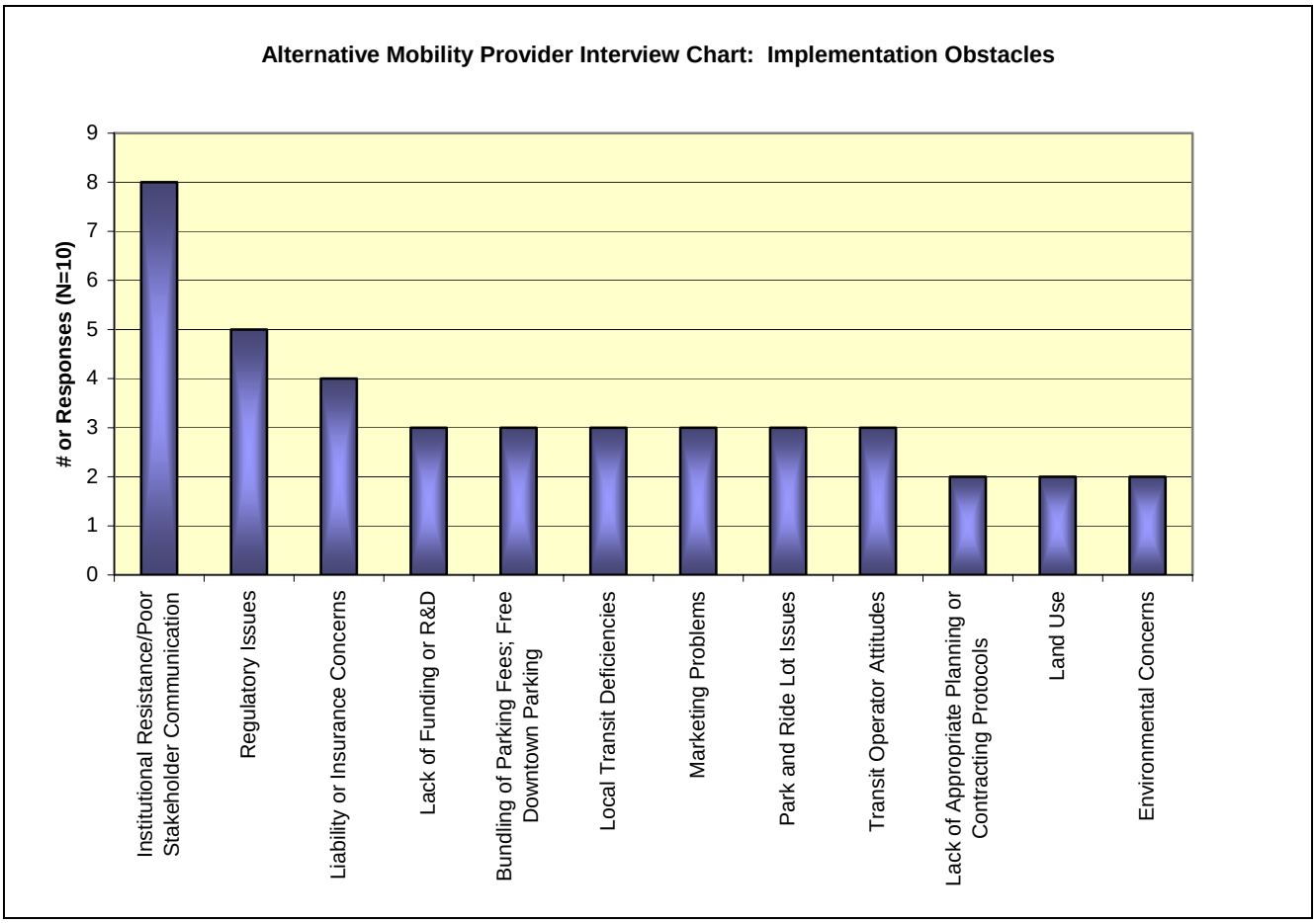


Source: Alternative Mobility Provider On-Line Survey, Spring 2004

5.4.2 Interview Discussion of Obstacles

To verify and elaborate the survey responses, the interview offered participating AMPs a second opportunity to describe the problems they were facing or had overcome, in order to get their respective strategies up and running. In this open-ended format, although some new or overlapping categories of obstacles were identified, the overall range of categories correlates roughly to those included in the survey. How the AMPs ranked them, however, was different.

Figure 5.4: Obstacles to TLM Implementation as Identified in AMP Interviews



Source: Alternative Mobility Provider Interviews, Spring 2004

A few details culled from interviews with the AMPs shed light on their understanding of the nature of obstacles they have overcome, or that they have yet to resolve. Note that though the details are case-specific, the problems and related insights are not usually unique to the state or agencies involved, and contain lessons with wide applicability.

Institutional Issues:

- Institutional discontinuity—LA Metro Commute Services recently moved from the metropolitan planning organization (Southern California Association of Governments) to the county transportation commission (LACMTA). In so doing, LA Metro decided to "reinvent everything, and it's still not put back together." In the LA area, the matching software, Ridestar, was changed to Ridepro, and brand identify was lost. Travelers can no longer do "one-stop commute shopping."

Marketing Problems:

- Some operators are pulling back from marketing—even basic marketing such as working 1-800 INFO numbers, modest public outreach involvement, and so on. A passive, non-responsive approach will not get the word out about existing services.

Park-and-Ride Lot Issues:

- In California, Caltrans no longer provides liability insurance to property owners, so churches and stores won't donate available parking capacity for use as park-and-ride lots.
- Operators approach Caltrans to borrow state-owned land for park-and-ride lots; but the amount of red tape involved in agreement protocols often frustrates good intentions.

Funding & Lack of R&D Dollars:

- LA Metro cutbacks has reduced commute services staff from a ratio of one staffer per 30 employers 10 years ago, to the current ratio of one staffer per 178 employers.
- Bikestation reports color-of-money problems. Though capital funding is generally more available, what they require is operating funds. Matching funds and restrictions on use of funds also create obstacles.
- The entire Federal Transit Authority budget for technology development is $5 million—at a time when a mile of rail runs at $40-50 million. The Federal Rail Authority's technology budget specifically excludes new systems—that is, it is intended to prevent innovation, according to Cybertrans' Neil Garcia-Sinclair.

Transit Operator Attitudes/Interagency Communication:

- Caltrans has had difficulty convincing transit operators to use HOV lanes. Bus Rapid Transit (BRT) networks are popular, but many of them are on arterials, not the freeway HOV lanes. Now that HOV networks are extensive and include expensive freeway-to-freeway connections in many places, Caltrans is committed to working more cooperatively with the operators to see that the HOV networks—representing significant public's investment—are utilized.

Pedestrian Issues:

- Anne Geraghty of WalkSacramento noted that, though of course land use practices needed to change, right now basic needs such as sidewalks or safe walkways, and crosswalks, were the biggest obstacles to pedestrians.
- As a culture, we have lost important understanding and knowledge about how to create a good pedestrian environment. Collectively, we must re-learn this.
- Transit systems tend to be oriented to their own needs—not to the pedestrian. For example, bus stops are located for the convenience of the bus, not that of pedestrians.

5.5 Working with Land Developers and Transit Operators

5.5.1 Experience with Transit Operators

Nearly every AMP who worked with transit operators mentioned the long lead-time required for implementation due to the bureaucratic process. In numerous instances, this was cited not only as an obstacle, but also as an outright project-killer. Bikestation's Mark Shandrow was part of the chorus, saying, "For an organization like ours, which relies on the project revenue stream, we cannot sustain a two-year implementation timeline that stretches a small revenue stream over such a long period. In a lot of cases, public agencies have not shown strong willingness to implement these programs."

A notable exception to the view that operators are difficult is Flexcar, which reports good relationships with numerous transit operators across the country, and considers them to be core to Flexcar's business.

Caltrans Statewide HOV Coordinator, Antonette Clark, knows the rough history between California transit operators and the state DOT, and is also subject to difficulties created by turf battles between county transportation commissions and the transit operators. She is eager to meet the operators halfway and solve common problems, but memories of previous poor experiences make operators reluctant to work with Caltrans, and bad blood persists.

Enterprise Rideshare has been developing a working relationship with Tri Delta Transit, to provide vanpools where other service is unfeasible. This was seen by Enterprise as a bold move for an operator.

5.5.2 Experience with Land Developers

Bikestation has found that developers don't have funds for the significant outlay typically required for a good bicycle facility; the company feels the responsibility belongs more appropriately to the public sector.

Caltrans has an intergovernmental and environmental review process where developers must consider and mitigate the traffic impacts, but Caltrans cannot require the developer to pay for the needs identified. Taxpayer money is used to subsidize the developments.

Flexcar works with property managers and land developers, and has positioned itself successfully as a tenant amenity for residential buildings. According to Tim Vogel, Flexcar's General Manager for the District of Columbia, they've found that if they put a Flexcar vehicle in their 100+ unit apartment complex, they can attract more people to their property, especially buildings that are transit friendly. People won't need to have a car.

Warner Center TMO worked with the City of Warner Center to amend the specific plan. From a transportation demand management perspective, it turned out to be a better model than many cities, and in Chris Park's opinion, better than the City of Los Angeles.

5.6 Opportunities

Alternative Mobility Providers Can Help Transit Operators Solve Chronic Problems

Common characteristics of the people who tend to gravitate to the businesses comprising the AMP category, include creativity, commitment and initiative. Many of them expressed frustration that their potential as sources of expertise or as catalysts and problem solvers was not seized upon more readily by transit operators in their areas. Sometimes, this neglect of their possible benefit persisted despite their efforts to make various transit staff aware of their willingness and ability to help. This too often "lost opportunity" could be turned around, perhaps in a venue that addressed TLM-related transit problems.

> **"The future lies in the opportunity to become part of the land use solutions, instead of having to browbeat the transit agencies."**
>
> Mark Shandrow
> Project Director, Bikestation

In addition to the personal characteristics of AMP principals and staff, the specific innovations and services they provide have largely untapped potential benefits for transit operators. The following represent a small sample from the interviews:

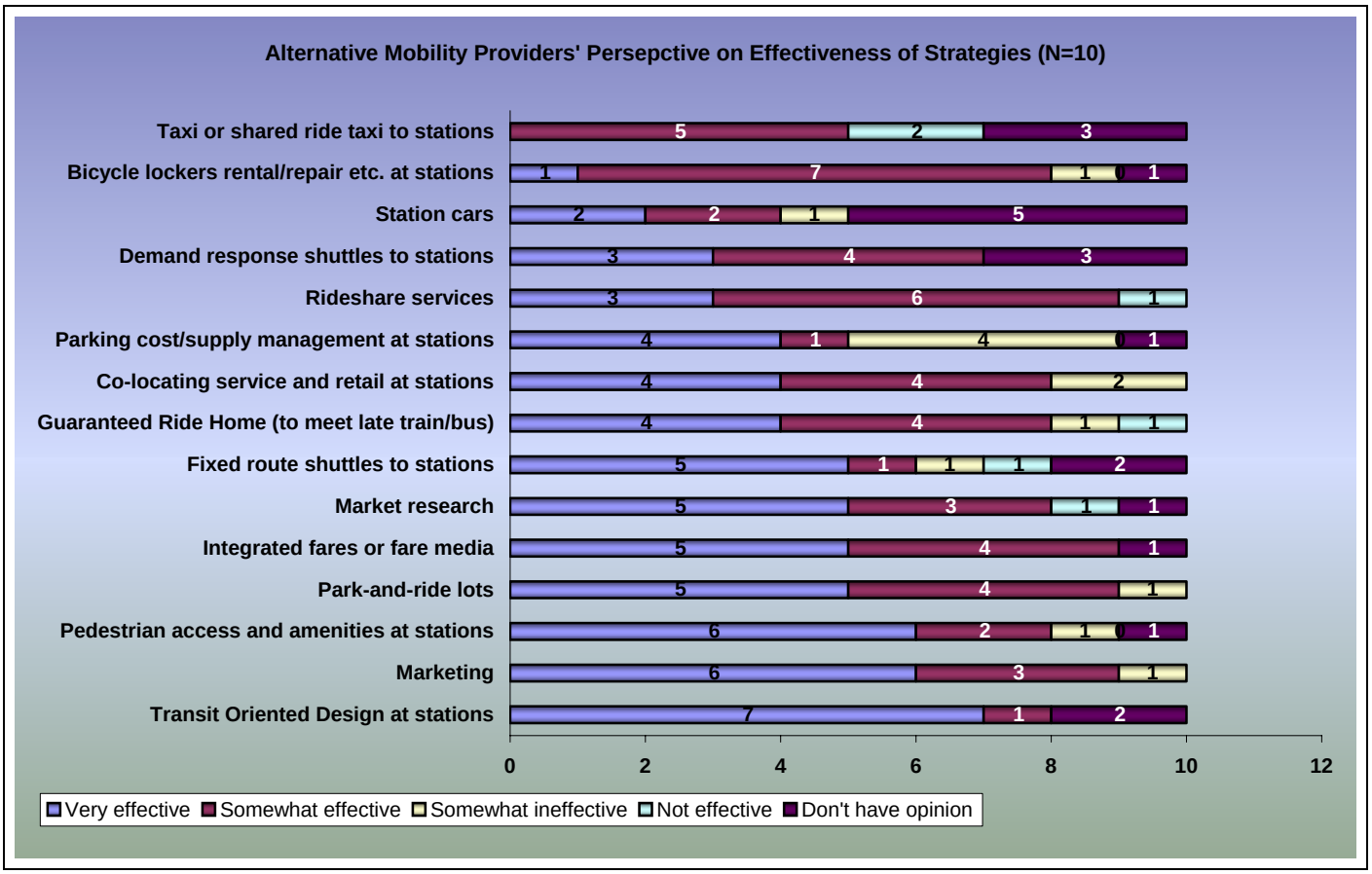
- Cybertrans' rail-based group rapid transit (20 passenger cars) can easily tie into a transit network, using sidings for stations. For example, if BART wanted to add stations without slowing everyone down (by introducing another stop) it could use Cybertrans' off main-line stations and increase ridership and access without increasing average travel time.
- Vanpooling can help transit operators fill in the gap between carpools and express buses. As Enterprise Rideshare points out, it's easier to find 14 people than a busload of people headed for the same spot.
- Shuttle operations can be especially effective and attractive to customers when used with in-line transit stations (bus, BRT or rail) along freeway HOV lanes
- Integrate an individual's driver's license along with the wide variety of AMP services, transit fares, parking fees and toll road charges into one multi-modal smart trip value card—basically an extension of the card in use now by WMATA.
- Many opportunities to promote green transportation and sustainable places—and enjoy the support of environmental groups.
- VPSI recommends developing strategic partnerships to bring well-crafted packages of services to companies or communities, rather than having them approached in a piecemeal fashion by numerous providers. The easier and more integrated that transit and related strategies are for the user or purchaser of a comprehensive package, the more they will be embraced.
- Encourage the transit community to improve the pedestrian/transit interface, because it will improve both transit ridership and the nearby environment.

5.7 Effectiveness

Based on the rating "very effective" (see Figure 5.5 Alternative Mobility Providers' Perceptions of Strategy Effectiveness) the strategies can be divided into three tiers. The first tier, those rated by AMPs as most effective, is:

- Transit Oriented Design at stations
- Marketing
- Pedestrian access and amenities at stations
- Park-and-ride lots
- Integrated fares or fare media
- Market research

Figure 5.5: Alternative Mobility Providers' Perceptions of Strategy Effectiveness



Source: Alternative Mobility Provider On-Line Survey, Spring 2004

Integrated fare media was discussed at length by a number of AMPs, because in order to provide it to users, the necessary coordination and collaboration between now disparate elements of the transit network will have occurred. That is, an integrated fare card presupposes a better-integrated system for those considering an alternative to solo-driving.

Park-and-ride lots were considered essential to operations of half the alternative mobility providers, especially vanpool and carsharing businesses. AMPs also recognized that park-and-ride lots act as pinch points to transit access, if there is insufficient capacity, or if they are unsafe or poorly located.

Personalized marketing (transit or walking/biking buddies) and social marketing that informs people about the benefits of walking (along the lines of the anti-tobacco ads) were seen as important. Also, community-based marketing, as some of the transit operators are undertaking now, was another marketing effort deemed effective.

The second tier includes:

- Fixed route shuttles to stations
- Carsharing [inadvertently dropped from survey strategy list, but ranked by report author, based on the body of interviewee comments]
- Guaranteed Ride Home (to meet late train/bus)
- Co-locating service and retail at stations
- Parking costs/supply management at stations
- Rideshare services

"Obviously carsharing is rated very effective. We've actually done a survey of all Flexcar members trying to determine car ownership, mass transit usage. We've come to the conclusion that about 72% of our members are car-free, and everyone who joins Flexcar increases their transit use by three trips per week. So carsharing is allowing people to have a different lifestyle."

Tim Vogel, DBA Flexcar
General Manager, DC Region

Fixed route shuttles were favored by a few AMPs for specific purposes, but Chris Park at Warner Center TMO noted that they needed to be very frequent to attract riders, and that was generally too costly to achieve. Co-locating retail at stations, and also at park-and-ride lots, was deemed effective because it recognizes commuter behavior and works with it. Guaranteed ride home costs little, but addresses everyone's first concern when they abandon their automobile—"what do I do if I need to get home or to my son's school?"

The third tier of effectiveness includes:

- Demand response shuttles to stations
- Station cars
- Bicycle lockers rental/repair etc. at stations
- Taxi or shared ride taxi to stations

"In terms of bikes on buses vs. bikes at lockers, I think we need both systems. You need it all—park-and-ride lots, too. If we had a better system on the other end with Flexcar at the destination, you wouldn't need to take the bike on transit, but we're not there yet. I don't like to take my bike on the bus, it's not convenient. As for station cars, we've tried it, but haven't seen them be real successful, and I know how complicated they are."

Mark Shandrow,
Project Director, Bikestation

Few people had experience with station cars. Demand-responsive shuttles had challenges at Warner Center TMO, where the reservation process was hard to explain, and the contractor was late a few times. Poor performance needs to happen only once to dissuade people from using it.

6 Land Developers

6.1 Land Developer Survey Respondents and Interview Participants

In its efforts to ensure a broad range of opinion through adequate numbers of responses within each of the three sectors, the WestStart team faced its biggest data collection challenge within the land developer sector. Only four developers or urban designers/architects responded to the survey, and of those, only two were available to participate in the follow up interviews. Table 6.1 summarizes the participant information.

Table 6.1: Land Developer Survey Respondents and Interview Participants

Developer/Architectural Firm	Survey/Interview Participant	Title
Synergy Real Estate Corporation (Pittsburgh, PA)	Mark H. Smith	Senior Associate
Citiventure Associates, LLC (Denver, CO)	Marilee Utter	President
CIM Group (Hollywood, CA)	John Given (survey only)	Principal
Moule & Polyzoides, Architect and Urbanists (Pasadena, CA)	Stefanos Polyzoides (survey only)	Partner

The two interviewees, who proved to be exceedingly generous with their time and very forthcoming with important insights, were Mark Smith (Synergy Real Estate Corporation) and Marilee Utter (Citiventure Associates, LLC). So, while this group of four surveys and two interviews is far from an ideal sample even for qualitative analysis, the author believes the generalities that can be drawn from the anecdotal experience reported on transit-linked mobility issues were probably compatible with views of other leading firms in this industry sector. Further, the two interviewees proved to be experienced and knowledgeable experts whose committment to making transit and land use work together, yielded a host of insights of immediate relevance to this study. As such, the interviews were extremely valuable, and the summary interview material presented in this chapter (identified by the firm names) is in a form intended to be faithful to the holistic views that informed the wide-ranging and extended comments of both interviewees. Additional information derived from the survey responses of all four distinguished firms is provided in the appropriate subsections of this chapter.

6.2 Types of Services and Business Activities

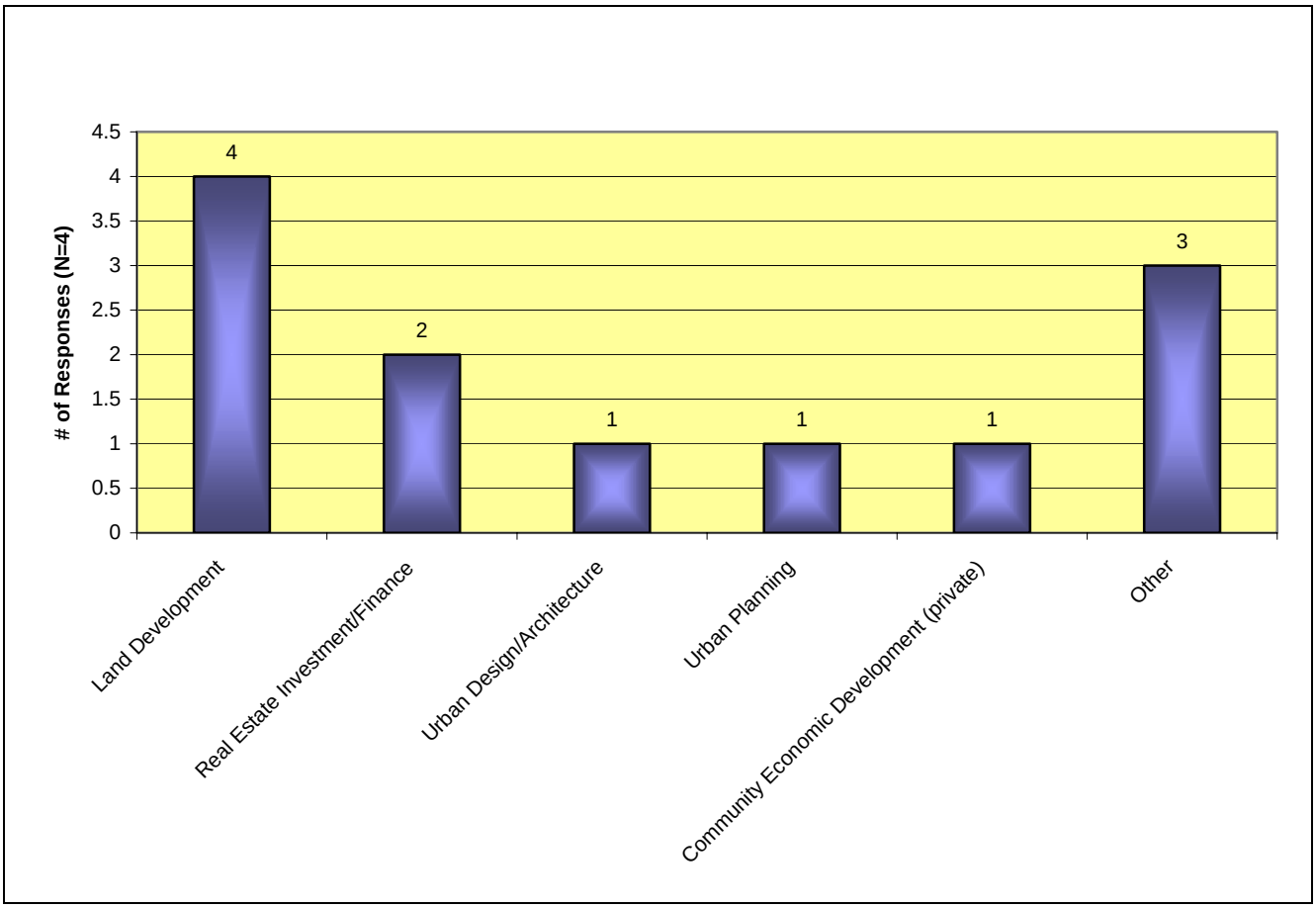
6.2.1 Survey Responses

The initial survey question for the land developer sector was intended to reveal more specifically the range of services or business activities that firms involved in transit-oriented design and development actually provide or participate in. Figure 6.1, Land Developers' Business Activities, shows that all four of the respondents include "land development" as part of their normal business. Survey tallies show that two are involved in real estate finance and investment, and one response was received for each of three activities identified as urban design/architecture, urban planning and privately implemented community economic development.

Three respondents identified additional activities ("other"), including:

- Mixed-use and TOD development
- Mixed-use and TOD advisory services
- Real estate consulting
- Urban mixed use acquisition, development and investment

Figure 6.1: Land Developers Business Activities



Source: Land Developer On-Line Survey, Spring 2004

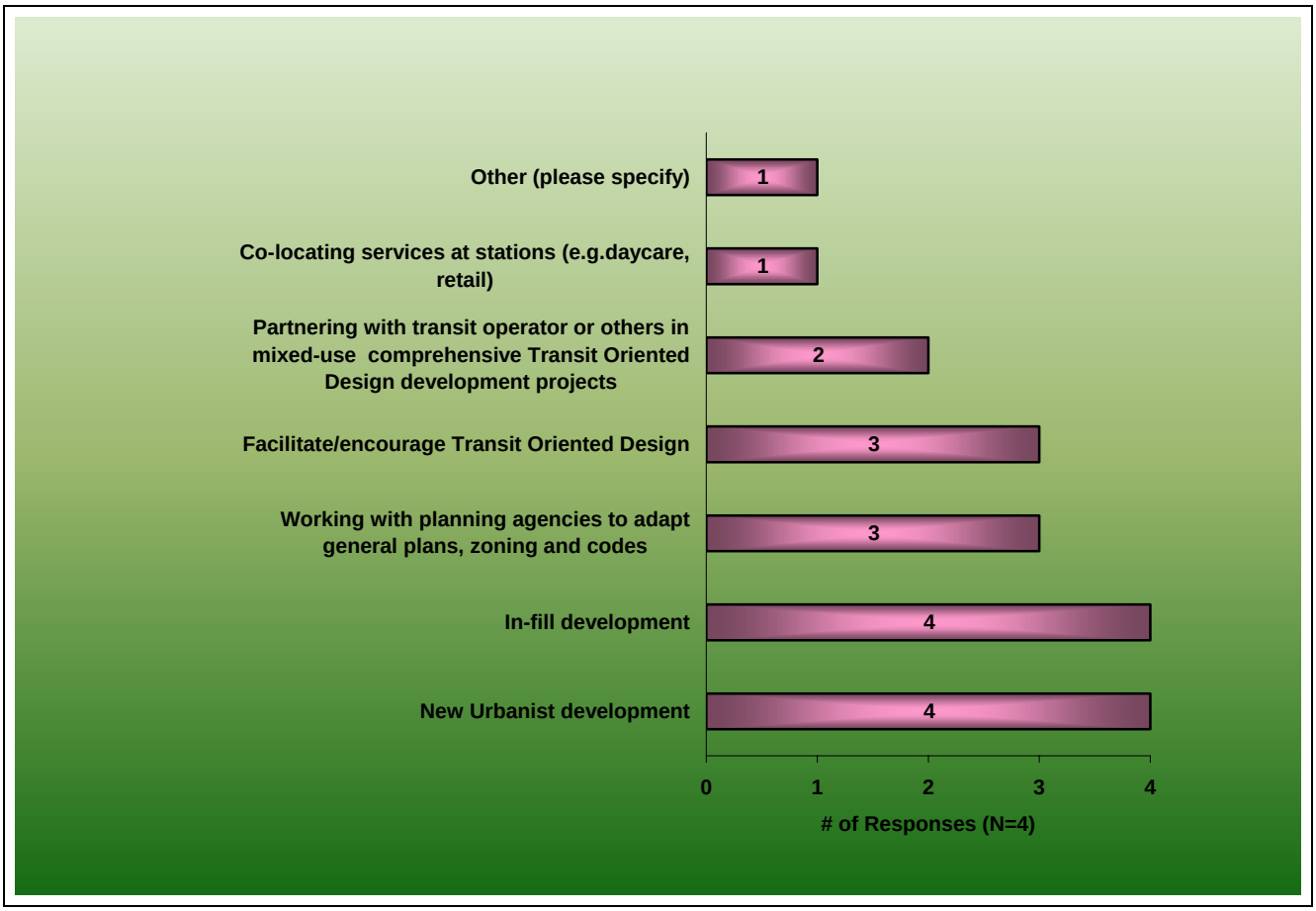
Figure 6.2, Transit-Oriented Land Use Strategies Used by Developers, shows that all four of the survey respondents use "new urbanist" and in-fill development as part of their transit-oriented development repertoire. Three of the four developers also said they either facilitate or encourage TOD, and that they work with planning agencies to adapt general plans, local zoning and codes to support TOD implementation. Two of the four have partnered with transit operators (or others) in TOD projects, and one has experience in providing services or retail space at or near transit stations. The "other" category was checked by a developer that provides transit-oriented design planning for environmental impact studies.

6.2.2 Citiventure

The interviews were helpful in providing a more three-dimensional perspective on the kinds of activities that TOD-specialist firms undertake, and, also important, why they do it. Marilee Utter, President and founder of Citiventure Associates, LLC, in Denver Colorado finds joy in the fact that every TOD project is different. She understands that her work serves to develop models that other people will follow up on, and the hope is that they'll 'get it' if she does it right. Utter believes that developing a profitable business model for TOD projects will thereby contribute to change in the world, by stopping sprawl, which is one of Utter's—and Citiventure's—goals.

> **"TOD is really a subset of mixed-use development. Why do I do it? First, it's interesting work. Second, it changes the world, which is important to me."**
>
> Marilee Utter
> President, Citiventure Associates, LLC (Denver)

Figure 6.2: Transit-Oriented Land Use Strategies Used by Developers



Source: Land Developer On-Line Survey, Spring 2004

6.2.3 Synergy

Synergy Real Estate Corporation is a small firm, with four or five employees (most of whom are licensed real estate brokers) and several freelance associates, engaging primarily in commercial real estate consulting, from which it derives approximately 70 to 90 percent of its income. Synergy's clients are most often public agencies or entities, including transit agencies, airports, in some cases utilities and universities—usually larger institutional clients that have lots of real estate but not necessarily the expertise to deal with it.

The firm operates primarily in Pennsylvania, but maintains offices in Sarasota, Florida and has significant work at two airports in Denver and Colorado Springs, along with other projects in Colorado. Five years ago, one of (now) Senior Associate Mark Smith's first jobs was to try to find interested concessionaires for the downtown Pittsburgh subway stations—cafes, newsstands and mini-convenience operations. Currently, Smith and his colleagues conduct numerous market studies and feasibility studies for their public agency clients, which involves making recommendations, developing marketing programs, and in rare cases, implementing the marketing as well.

In some cases, Synergy gets directly involved with a development opportunity, playing the role of developer. Sometimes, its clients just want market information, and not necessarily conclusions or recommendations. In that case, the next step is often a feasibility analysis—designed to tell the client what will work best economically. The third step is finance and market recommendations, which is where the firm might be asked to provide more detail regarding the best project to build, given the context.

6.3 Integrating Transit and Development: Current Projects

6.3.1 Citiventure

Tenth and Osage, Denver
Citiventure is looking at sites right now. The project area is in downtown Denver, in an affordable neighborhood, and the community is terrified of gentrification. They want affordable housing, and Citiventure is working with the housing authority to replace some of that.

6.3.2 Synergy

State College, PA Transit Center/Transit Village Development
Synergy just started a transit study in State College, PA, where Penn State is located. The University just bought the bus station in town, and is funding this study, which is being done in cooperation with the surrounding town and some of the other municipalities and the regional planning organizations. Rather than limit itself to building another bus station, the University wants a transit center that may, in turn, become a transit village. In a college town, where a lot of students bike and most of them walk, there is opportunity to learn a lot about non-motorized mobility.

6.4 Developers' Experience with Transit Agencies

In response to an open-ended survey question that asked developers to describe their experience (if any) in working with transit agencies to ensure good transit access to your projects, the survey participants told us:

- "Good, ready to help, but solutions are capital intensive and transitive."
- "Timely response is a big hurdle for developers."
- "Worked with transit agencies on developments."
- "They are accommodating if transit is not modified; few are willing to take initiative with TOD."

Synergy has established good relations with Pittsburgh area transit agencies, and thus working with transit operators on service development and provision to transit-friendly projects is not a problem for them. However, Mark Smith noted that in newer market areas such as Colorado Springs, the firm is being asked to make a set of recommendations toward development of airport's non-aviation land into a business park. In this less familiar environment, Synergy is facing a local learning curve to understand the possibilities for transit linkage, given local capability. Because the firm has worked hard to understand the viewpoints of transit operators, and thus speaks their language, it is easier than it might be for non-transit savvy developers. Fortunately, the local transit agency is very much open to serving a TOD project.

6.5 Developers' Experience with Alternative Mobility Providers

Only one of the four developers responded to the survey question about experience with non-traditional mobility providers in supplying connectivity between their projects and the transit network. That lone responder indicated that although the developer and a number of providers were very interested, they were "invariably underfunded." The three remaining developers either had no experience or did not supply any response at all.

Synergy's Smith indicated they hadn't worked with or been approached by carsharing firms—but if the market was appropriate, they would be interested. He expects that as Synergy's work in Colorado and Florida grows to the magnitude of business it now enjoys in Pennsylvania, it may indeed find more opportunities for application of carsharing strategies.

6.6 Developers' Experience with Community Stakeholders

6.6.1 Citiventure

Working with the community stakeholders depends on the neighborhood. One project that Citiventure is currently involved in is in downtown Denver, in an affordable neighborhood, and they're terrified of gentrification. They want affordable housing, and Citiventure is working with the housing authority and replacing some of that. The site is the next station down from the Stadium. On the other hand, the City of Englewood (CO) said, "we've got plenty of affordable housing—we want the fancy residential lifestyle stuff."

> "In terms of bringing in the alternative modes, and the design piece of it, you do that at the very first. One of the things I do on every project I work on now, is we first do a conceptual design. We visit with the city, and see what their list of "stuff" is—some want affordable, some have height limits, some people want green space, historic preservation—you get that list; you figure out what your land boundaries are, and you have good, good, good designer buildout a development program to maximum density, respecting the list from the city. When they give you a building program that says "x sq. ft of this, y sq ft of that" then you run a pro forma. After that, you never draw a picture of the site without a pro forma. You're going to do many many iterations of all of this, because it's all very iterative as you go through the process. But that first design will have some things you can't forsake, and the multi-modal connections are part of that. TOD is mixed use with a transit anchor. You have to respect that just as you would a cinema anchor or any other anchor. So they come right in at the beginning. Transit agencies have their own special needs, as well—they're no different than Walmart in that regard. They've got their list of stuff, too. You need to talk to them at the beginning. One of the nice things about transit agencies is that they're increasingly realizing they need to work with communities on this. They're being more flexible than they used to be." Marilee Utter, Telephone Interview 2004

6.7 Obstacles

Because the issue of obstacles was addressed only in the land developers' interviews (rather than using both surveys and interviews to probe the issue) we have only two participants' viewpoints. Nonetheless, the obstacles identified appear to be hard-won lessons based on close experience working with transit operators, and so have value for this study. The obstacles also gel with the kinds of issues raised by the alternative mobility providers. Because the two developers interviewed were so eloquent, the text below represents slight editing and selection of the interview contents.

6.7.1 Citiventure

Mariliee Utter, Citiventure, noted the following obstacles:

Few Profitable Examples: There is a lot of discussion in development circles about the failure of TOD to make money for developers. Part of this is learning curve: they don't make the right choices on how to spend money. In some cases, bad market timing or bad luck (fires) created problems, but the result is that developers hear about TOD failures. Even the big firms who can spend from deep pockets to make very nice environments say they can't make money at it. They do it because it's good, it's interesting, it's good for the community—but they don't make money. The City Center Englewood project that Citiventure did with Trammel Crowe Residential was a success story. It was developed in a blue-collar community as one-step up in lifestyle, and a year after it opened, the whole project was sold and Trammel Crowe made a $10,000 per unit premium, because the whole project was rented out to transit riders. More of these stories are needed, and they need to be heard by the development community.

Adding Affordable Housing is an Additional Challenge: Utter explains that In any of those deals, it's just arithmetic—a developer has to make money on part of it to pay for the goodies people want—whether it's affordable housing, or whatever. "You can't make money on affordable housing. If you're lucky, when you use all the tools everyone offers you, you can at least justify doing affordable housing if all the stars align and people help you. It's a tradeoff, so maybe they get a little less park or they don't get a water feature."

Short-Term vs. Long-Term Investment: TOD projects create "A+" locations out of what were "B" locations, and there will be yields from that in the future. More research needs to be done on this potential, so that at least long-term investors might be attracted.

Land Assemblage: Getting land is hard. It has to be a certain size in order to make the economics work.

Parking: Reconciling the parking within the development, affording the parking—particularly in the early stages, is hard. It depends on the transit agency—their policies on replacement of parking, whether they permit you to charge for parking and how much they participate in solving the problem.

Parking Space Discount: Another problem is that cities don't always reduce parking requirements, even thought the project is TOD. Parking drives all development, especially mixed use and TOD.

No Expertise, Lack of Funding/Political Will: Even in sophisticated markets where they know about TOD, what happens is they always have demand for more service, and they people attack them when they move outside their "job" description. They get dinged for subsidizing rich developers, sometimes. There's little TOD expertise in cities, and transportation agencies are in the 1800s. It's terrible. I used to be in transit asset management, and transit agencies are even more old fashioned, and they hire "experts" who know one thing: eminent domain, with backgrounds in appraising typically. They know nothing about development or putting together deals, or joint development agreements. They're not risk takers, they're not financial analysts, they're not policy-makers, they're not urban designers. What they're really good at is following all the very stiff rules you have to follow for eminent domain. They're terrified. They don't know the range of possibilities, they don't know the range of approaches, and they tend to be low in the organization, cut out of all the strategic and policy conversations. They're order takers. In San Diego, they've done a lot of good stuff- Jack in charge of TOD for San Diego—he's their chief counsel. He does TOD as a sideline, which is typical, but at least he's a lawyer, he's of counsel so he's at the top levels of the management. He knows how to structure deals, but even he can be a little risk averse, and even there, in San Diego, they are reactive, not proactive. I asked 'do you go out and try to get deals going?' and they said, "No no no, what we do is, if an adjacent property owner comes to us, then we work with them." That's all they do. There's a growing amount, but it's very slow where developers have been coming back to cities, to the public sector where there's a transit agency, or just the public sector, and saying, "Will you please hire a consultant that we can talk to? Someone who knows how to do a pro forma, knows the kinds of yields, knows the deal structures, knows what we need to have to get financing, knows the institutional real estate world, so that we can get this deal done?" That's the kind of person developers need to be able to work with, rather than someone who's whole life is the rules and regulations of one transit agency.

6.7.2 Synergy

Mark Smith identified a number of obstacles , many aspects of which overlap with comments from Ms. Utter:

Public Agency Culture: The biggest obstacles are the agencies themselves. Synergy's expertise is to marry the two worlds, and they stress public private partnerships. Most of the staff have private sector development backgrounds. Alan Wampler, the founder, was Economic Development Director of Allegheny County for a year and worked for a private developer for many years before that. So it's an interesting marriage of worlds, and Synergy can help developers and transit operators understand each other sometimes—it isn't always easy, however, adds Mark Smith.

Private Sector Values vs. Public Process: Public and private entities tend to differ in how they see the value of time. And they differ in the way the profit incentive is used to get something to happen. For example, with the Port Authority site Synergy is working on, it is very important to them, as the developer, to move quickly so we don't lose the parties we have interested, but to the Port Authority, it doesn't really matter—nobody is going to lose their job if it takes two years. Also, the profit motivation has to balance the public agency's emphasis on how pretty the development is going to look.

Transit Agency Funding: Agency funding is down, so there's just not a lot going on right now. In contrast, much is happening at airports. The Port Authority of Allegheny County eliminated its business development staff, which included the people Synergy worked with. Even little things they looked into like ATM machines at subways, or vending machines, it all was left undone. Most of these agencies are run by engineers, and they know how to build and design bus and rail routes, but not necessarily how to generate revenue in creative ways.

6.8 Opportunities

6.8.1 Citiventure

The two interviewees were asked to identify any untapped opportunities to increase their work on projects that involved transit-linked mobility strategies and/or TOD. In response to interview questions about potential Mariliee Utter, Citiventure, noted the following opportunities:

Change Transit Operator Corporate Culture From the Top Down:
Transit agency leadership at higher levels need to see they are members of a larger community. Unlike city departments, who generally say, "We're responsible for quality of life" the goal of the transit agency is *not* the greater good of the city—it's getting the buses on time and on budget. Now there are trains, which are sexier, but the goal is the same. Although this single-mindedness is understandable, because these agencies operate transit 24-7, the leadership must have an expanded vision of responsibility, because transit impacts more community issues than just how many people get on and off a bus. To make this shift in orientation will be hard, because managers tend to climb the ranks, and move from smaller to larger and larger cities, and they form a club of people with a similar background. They will have to develop the political will to make some concessions in the shorter term and take a broader view and longer term view.

Focus On Walkers for New Riders: The other thing that has to happen is they have to realize they get more ridership from people that walk than from people that ride.

Focus on Connectivity of Stations: One mistake Utter sees in planning TOD, is that people think that one isolated building constitutes a village, and it doesn't. They're not creating *places.* There's got to be a certain size and critical mass and there's the whole real estate development parameters that come into play. The second big mistake is they look at the site plan, however big it is, and that's the boundary of the planning. The paths into the neighborhood and the connectivity are so often overlooked. Where are people coming from and what path will they follow, what's their experience on the path? Is it on bikes, or motorcycles or scooters or what? Those connectivity lines are all "people hoses" and you structure your development around in terms of the use, the design.

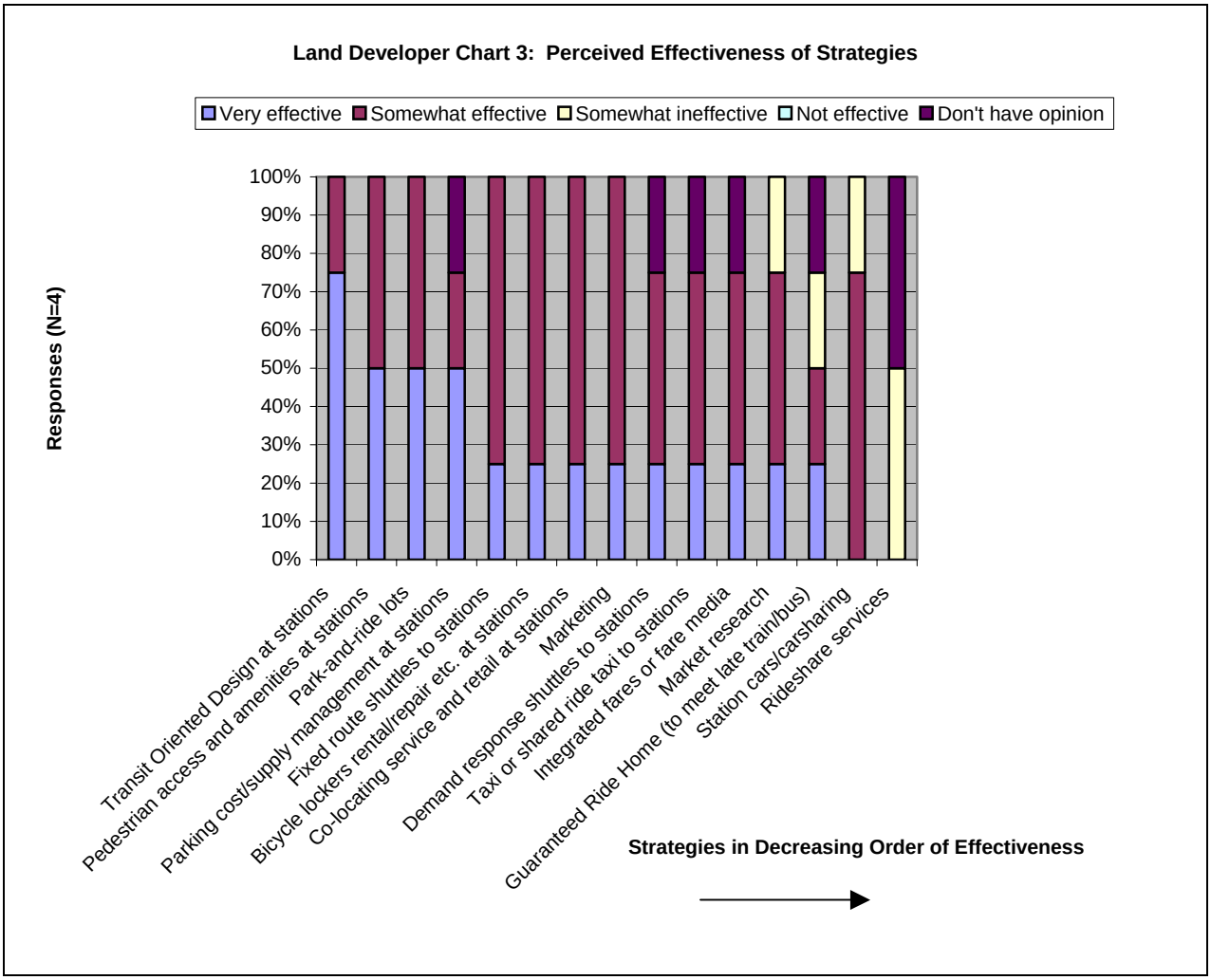
6.8.2 Synergy

Mark Smith thinks that, although TOD is a priority for most transit agencies, they haven't begun to "scratch the surface" of potential opportunities. Synergy's experience with airports indicates near term opportunity in linking air transit, associated ground transportation and land use. A key reason, according to Smith: "Airports seem to have more money to spend."

6.9 Developers' Perceptions of Effective Transit Strategies

Perhaps not surprisingly, developers rated transit-oriented design (TOD) at transit stations as the most effective strategy. Other top contenders in developers' views were bicycle and pedestrian access and amenities at stations, park and ride lots, co-locating services and retail at stations, and marketing. Parking cost and supply management at stations was designated as very or somewhat effective by three of the four respondents, but one had no opinion (perhaps indicating lack of experience with the strategy.

At the other end of the spectrum, developers were less enthusiastic about rideshare services (the lowest ranking strategy); station cars and carsharing, guaranteed ride home and market research. To some extent, these lower rankings are also the result of unfamiliarity with the potential or the operation of the strategies.



Source: Land Developer On-Line Survey, Spring 2004

6.9.1 Synergy

In follow up interviews, Mark Smith (Synergy) stated that transit agencies should make it easier and more convenient for people to use their services. That view contributed to his assessment of the TLM/TOD strategies.

Park-and-Ride Lots with Co-Located Retail & Services have been effective in Pittsburgh. The safer and more convenient the park-and-ride lots are, the better they seem to work. Traveler convenience is enhanced if services that people use every day are included as part of the lot development. This approach has been successful in the DC area, and was offered by Smith as a "best example" of this trend.

Carsharing: Synergy just doesn't have much experience with this strategy, but is open to using it where appropriate.

Bike Lockers: The Port Authority of Allegheny County just started installing bike lockers, but the results were not yet in.

7 Integrated Findings: Transit Operators, Alternative Mobility Providers and Developers

7.1 Key Findings: Obstacles

7.1.1 The Three Industries Share Basic Agreement on Obstacles

Figure 7.1 shows that the three sectors are in agreement about the top candidates for most serious obstacles to transit-linked mobility strategies or land use and transit-oriented development strategies (TLM/TOD). The top four: funding, institutional issues, parking or park-and-ride lot problems, and land use are common problems for the three industry groups. Some divergence of opinion is then evident: Alternative mobility providers (AMPs) find that regulatory issues are the next most serious issue, while transit operators cite the inability of transit to compete with the automobile. Both those groups agree that marketing problems, and the difficulty of communicating with the public is a moderately level obstacle. Liability and insurance concerns is a problem for the AMPs, but was not mentioned by transit operators during interviews.

7.1.2 Money Isn't Everything…But It's Close

Funding is a problem for most operators. Although it can be seen as an indefensible "easy fix" to throw more money at the problem, the contraction in transit funding impacts TLM/TOD opportunities specifically. (See Figure 7.2)

Funding, or, in the case of commercial enterprises, profitability, is a key factor that determines the success or failure of many transit operators to meet their agency goals, and to work effectively with those providing transit-linked mobility strategies or developers working to create transit-friendly communities. Though increased ridership, and increased choice ridership are important goals for most operators, many programs designed to achieve those increases are on hold during the current difficult economic climate.

Both operators and alternative mobility providers noted the need for costly service improvements (e.g., more frequent service, late night service, better connectivity, better station and vehicle amenities), if transit is ever to shake the "less ripe" fruit from the ridership tree—that is, attract the next group of choice riders who might switch from their car to a form of transit. Though transit doesn't have to compete with every automobile, the new ranks of choice riders have cars. So, to compete with the car, service must not only be solid and reasonably time competitive: today's bus must have laptop outlets, luggage racks and upholders. Low floors multiple door access and clean fuels don't hurt. All of this costs money, not only in terms of capital costs, but in ongoing maintenance and repair of more sophisticated and luxurious transit vehicles, and the cost of training for maintenance and repair of an ever-greater variety of them intended for market niches.

As illustrated in Figured 7.2, the inadequate level of funding cited as an obstacle by the majority of transit operators means more than simply the inability to put new service on the street or on the tracks. It translates to putting innovative programs on hold (thus frustrating a large group of stakeholders); it means less flexibility in staffing, cuts to in-house staff with experience or expertise in innovative areas (technological advances and land use savvy, for example). Transit funding cuts usually cause operators to retreat to a conservative "bunker approach" to the very change and innovation that could help them rise above some of their problems, and it's hard to blame them. Transit operators simply don't have much room to make a mistake, and therefore are famously, and somewhat understandably, risk-averse.

From the customer service standpoint, the service cuts that result from budget cutbacks make riders less willing to make the switch to transit—much less do something as drastic as give up a second household vehicle—because they observe that transit funding cycles mean that today's mobility option might tomorrow disappear, leaving the hapless transit riders stranded. This factor is part of what plays into a preference for rail on the part

of many commuters—rail seems more "permanent" and reliable, and provides some with a stronger confidence in a continuing mobility option as they plan household tripmaking strategies.

- **"Transit-Linked Mobility" Strategies Do Not Resonate with Transit Operators**
  Especially in times of cutbacks, transit operators behave conservatively—that is, they fall back on what they know best. They typically look to improvements such as increasing the frequency, reliability or amenities associated with their existing service types as the best way to boost ridership. They too often underestimate, overlook or are unaware of the ridership benefits to be gained by collaborating more actively with alternative mobility providers. Additionally, the term "transit-linked mobility" had to be explained to all transit operators—it is not a familiar term, nor, apparently, a self-evident one.

- **Culture Clash: Customer Orientation is in the Eye of the…Customer!**
  There is a significant disconnect between how the three different sectors develop and deliver their products and services, and how they see and serve their customers. A large portion of complaints from the mobility providers and developers was directed to what they perceived as serious deficiencies on the part of transit operators with respect to market orientation and customer service. This deficiency, say study participants, remains—despite most operators' professed interest in market research and customer-oriented product delivery, and notwithstanding demonstrated improvements in some areas, say the other two industries. In part, the clash of agency cultures is the culprit: transit operators work on a time frame defined by lengthy board review cycles and funding years. Developers, however, must get quick (or at least timely) responses and approvals from government agencies when they are assembling land for development or putting together delicately balanced development and financing partnerships. For their part, transit operators are often saddled with "politically-based service that must be supplied, and a range of institutional and legal constraints that tie their hands as they attempt to innovate.

Figure 7.1: Sector-Based Comparison of Obstacles (Interviews)

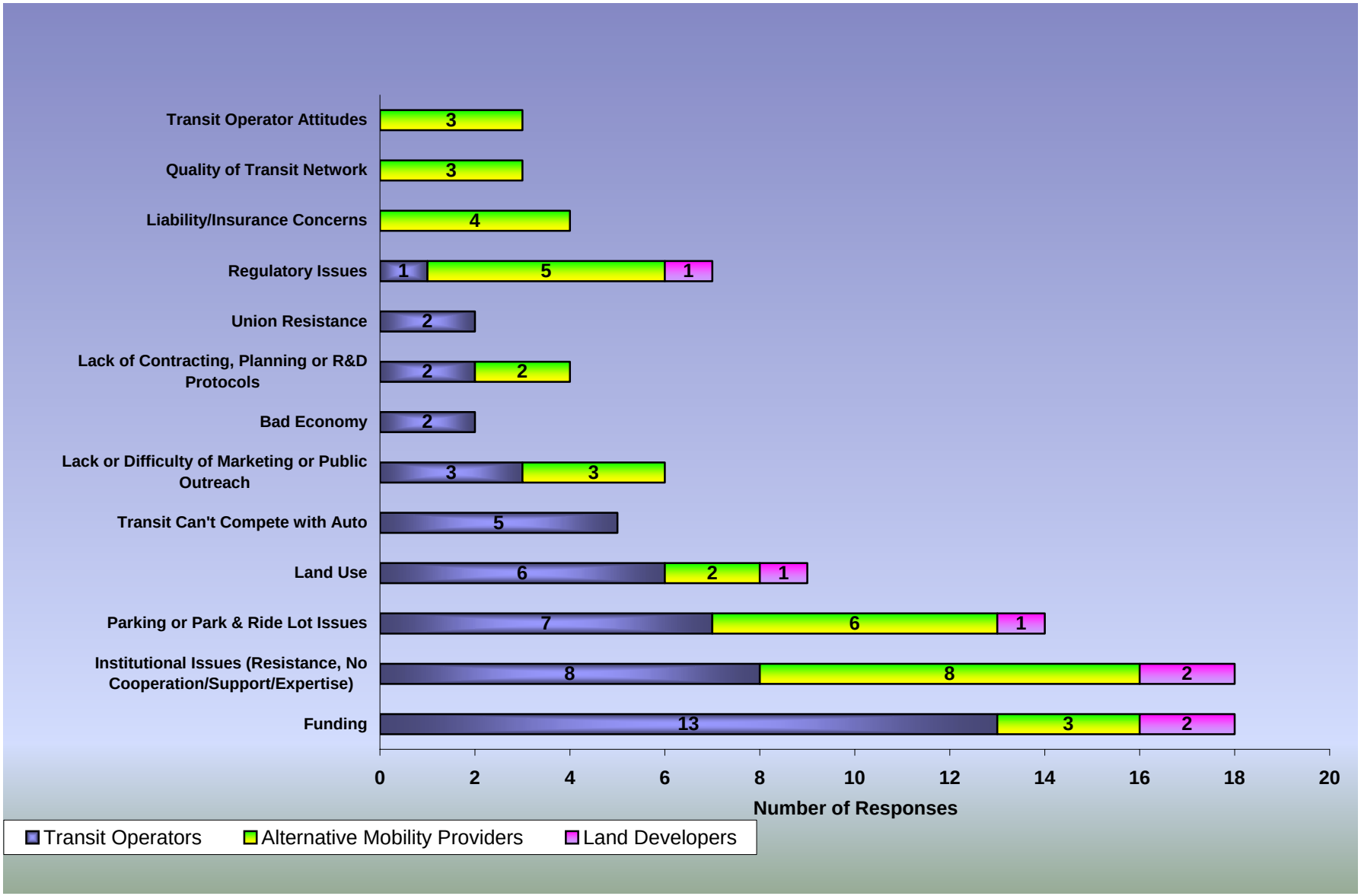
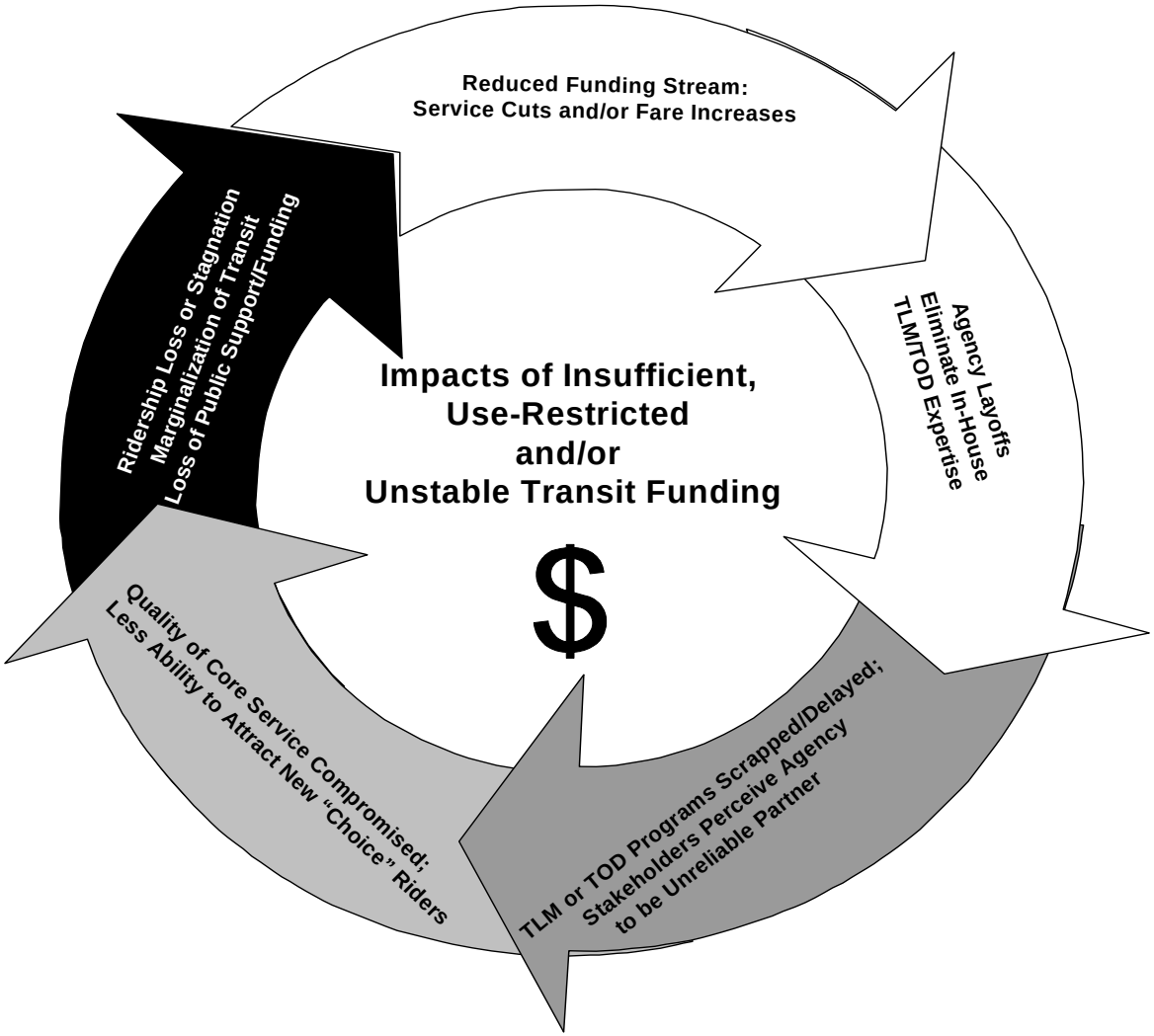


Figure 7.2: Impact of Transit Funding Cuts on TLM/TOD



7.2 Key Findings: Obstacles

In the area of transit ridership, opportunities represent the convergence of obstacles and technological innovation, coexistent with basic agreement on strategy effectiveness, and congruence of agency or business performance standards.

This section links the major findings to a set of actions that present opportunities for Calstart/WestStart and/or FTA or other entities to assist the transit industry and its allies to move forward. These action steps advanced for consideration are based not only on the understanding of opportunities and obstacles that are noted in this executive summary, but the full complement of conclusions afforded us through the balance of study results found in the body of this report.

7.2.1 The Power of Three

- **Strategies Work Synergistically and Require Tri-Partite Cooperation**
  The responses from all industries studied revealed, either from explicit statement or easily drawn inference, that few successful strategies are implemented in isolation. Further, the overlapping organization goals and combined interest and enthusiasm of all industry groups—fueled by transit operators' needs, mobility providers' profit motive and new urbanist/TOD land developers' vision—are required to create the critical mass needed to shift operators, city and regional government and elected officials out of their comfort zone. Finally, there is room for improvement of interagency coordination even within the realm of "traditional transportation" institutions. An example from this study is the need, recognized by the California Department of Transportation (Caltrans) to work more closely with transit operators, statewide, to ensure that transit vehicles are both able to use and are actually making use of the state's extensive and expensive network of high-occupancy vehicle lanes.

- **The Future Success of Transit, Alternative Mobility and Land Use are Tied by Natural Market Affinities**
  On the large scale, the future of transit ridership lies 1) in its ability to serve existing and planned transit-hostile suburban development; and 2) in its ability to influence future development to support and be capable of benefiting from efficient and cost effective modes of mass transit. The first challenge cannot be met without the creative collaboration of traditional transit and alternative mobility providers. The second challenge demands that both traditional transit and alternative mobility providers unite to provide seamless service to transit-oriented land use in general, and specific projects as they are developed.

  At the level of specific strategies, the shared fate of the three study industries is evident, too. For example, a limit on the number of cars using or parking in an area improves the walking (or biking) environment. Area developers can substitute preferred amenities for parking or ensure profits by taking advantage of lowered parking ratios, and deliver a desirable project: a livable place. People enjoy living, shopping and working (i.e., renting, buying and producing) in such places, and will often pay premiums to do so. Once a person is walking or biking, they are more likely to use (and to need) a convenient transit mode for longer journeys. TLM strategies can further leverage and expand the utility of the main transit backbone of a place. Especially if there is a limit on the number of cars using or parking in an area (see beginning of paragraph).

7.3 Key Findings: Effectiveness

Views on Effectiveness of Transit-Linked Mobility Strategies Despite the wide range of different services and strategies, agency structure and mission included in these three industry groupings, substantial agreement on the top tier of "effective" strategies was evident from the survey results, shown in Figure 2.2. The top performers, in the consensus of the three industries studied, were:

- Transit Oriented Design at stations

- Pedestrian access and amenities at stations
- Market research/marketing
- Integrated fares or fare media
- Park-and-Ride Lots (and, less so, fixed route shuttles to stations)

7.3.1 More Study of Strategy Effectiveness and Interactions Needed

- **What Works, and Why? All Three Sectors Need to Know**
  Efforts to determine accurate ridership impacts of various strategies, including those that are the subject of this study, are hampered by a lack of rigorously designed studies of such impacts. Funding is again implicated in the lack of resources to conduct before and after comparisons, or adequately monitor and report ridership impacts over time. All this is further complicated by the difficulty in isolating the impacts of a specific strategy.

- **Appropriate Application of Customized Core Strategy Packages**
  In the transit world as elsewhere, it is tempting to search for one or two magic bullets—TLM/TOD strategies that can be applied more or less automatically, and that can be relied upon to produce positive impacts on ridership. First, it bears repeating that it is the *synergistic effects* that will likely be required to pull in the next level of transit riders—by definition, they demand higher levels of service than they currently have to choose from. Second, though it may be true that in "situation 123" a set of strategies "xyz" is generally effective in increasing ridership, the challenge lies first in assessing any given physical area (and its community infrastructure) in sufficient detail and with sufficient accuracy, to guide strategy selection and implementation. The site-specific mix of essential core strategies—mixing traditional and alternative transit modes with land use and urban design components—is an art and science that takes more time and money than most transit operators feel they have. Success at this juncture requires more than a new toolkit—it requires a new integrative and collaborative approach, and a new set of processes to bring people's mobility needs and the set of transit and land use solutions available, closer together.

7.3.2 Linking People to Stations: Shuttles vs. Park-and-Ride Lots

The strategy perceived to work best depends in part on views unrelated to the sector from which the participant was drawn. For example, a difference in the relative effectiveness of strategies related to park and ride lots depends upon philosophical preferences for or against appeasing and appealing to the predominance of the automobile, as well as local or regional experience that may argue for or against trying to swim upstream against the force that supports the automobile against transit use.

A disadvantage of reliance on a shuttle link between home and transit station (in addition to the cost of good service) relates to the notorious "transfer penalty"—a behavior trait that has been studied and discussed at length. Though some researchers have tried to measure this penalty in terms of relative attractiveness of transit, its impact is often verified through anecdote, and is relatively unquestioned. Another dividing line in approach to linking people to transit is how many transfers people will accommodate before they abandon transit for their cars. Leaving their front door, if they then have to call a shuttle or wait for or walk for a fixed route shuttle, then wait for a train or express bus, and at the end of a 40 minute ride make a third transfer to an employer shuttle connecting the station to the worksite, many people will say "the heck with it" and drive.

An alternative proposed by Dave Schumacher of MTS in San Diego, for example, would take new resources and add to the service range of neighborhood collector routes, and employer distribution routes on trip ends, in order to provide one-transfer rides to as many riders as possible. Though this change might add to in-vehicle travel times, this is generally thought to be less onerous than waiting or transferring.

A possible downside to parking is that, if people rely on, or get in the habit of driving to park and ride lots to access rail or bus line haul routes, then constraints in parking (either supply or cost) will kick people out of the transit system. Additionally, reliance on park and ride lots can result in policies that preclude or at least discourage station-adjacent transit oriented development. This has happened, in fact, in a" number of regions,

including Washington, DC, where the requirement to replace park and ride lots mean that potential TOD projects don't pencil out. This is especially the case when surface lots must be replaced by structures.

Finally, a number of transit operators made the point that satisfying both drivers and potential shuttle riders would be the safest strategy. People do have different needs and tolerances, and though the auto is still king in this country, more and more people are eyeing the savings to be had if one of their two or three household vehicles could be let go. Shuttle service (if it is frequent and reliable enough) facilitates such a household decision.

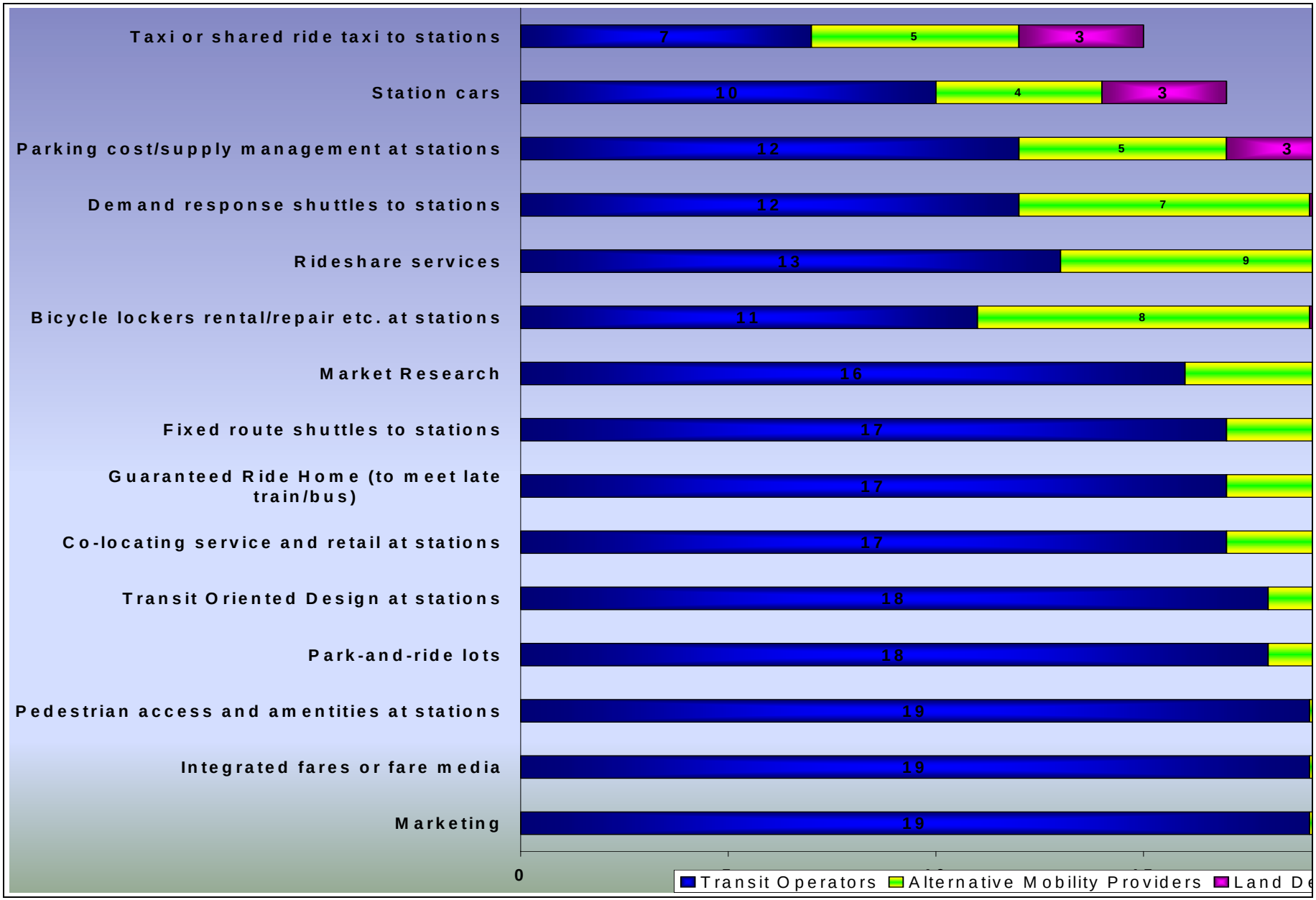
7.3.3 Walking is a Not an "Alternative Mode"

Pedestrian Primacy: Should We Rename the New Urbanism *Pedestrian-Oriented Design?*

A number of operators explicitly recognized that all transit riders have one thing in common: they must at some point walk to access the station. Whether that is a short walk or a long one, an enjoyable or unpleasant walk, is determinative of ridership to a significant degree. Further, the TOD community draws its strength from the strong relationship of walking and transit, and to a project's connection to the larger community—which must include a walking connection. The centrality of pedestrian access makes walkability an overwhelmingly strong candidate for focused treatment. For, if transit extends the range of walkers, so do alternative mobility providers extend the reach of transit to include *more walkers—and thus, more riders.* The connection to and integration of all modes within the community and within the larger built environment is vital, and is traditionally a component of *placemaking* achieved through good land use and urban design. Fortunately, there is growing recognition of the importance of walking and walkability on the part of participants from all industry groups.

> **"Here we're building all these systems going to suburban locations, and without a distribution system, who's going to use them? I spoke with [an expert] from Seattle, and he claims unless people walk to the rail station, they're not going to use it. It comes down to the mode-change penalty. Here in Denver, they all believe in park-and-ride—that's typical of the western U.S.—they think it's the key to rail success. But if you drive to the station, get on the train, and then a shuttle at the end of the trip, you're at three modes, and people won't do that. In a way, it's a huge statement of support for TOD, but it's a terrible indictment of the way we do things now. Operators don't really believe this yet—that it's the development that gets them ridership. If you look at the mature systems in the eastern US and Europe, they don't surround stations with park-and-ride lots. There's intense real estate development."**
>
> Marilee Utter, President
> Citiventure Associates, LLC
> (Denver, CO)

Figure 7.3: Combined Categories ("Very" Plus "Somewhat" Effective) Strategies, Rated by Sector (2004 Survey)



7.4 Integrated Findings: Opportunities and Recommendations

7.4.1 Opportunities

Everyone Loves a Winner! We need better evidence that TLM/TOD strategies work

Transit operators behave conservatively and when faced with cyclical budget cuts, they will jettison all but their core activities (bus and rail operations). However, if TLM can demonstrate both effectiveness at enhancing ridership—and cost effectiveness relative to operators' traditional activities, TLM advocates both within and outside the transit industry will fare better during program cutbacks and personnel layoffs. Yet there is surprisingly little rigorous or useful evidence of specific results of these strategies. Likewise, developers do not have many TOD success stories—in terms of profit—that inspire them to explore this alternative to sprawl. Finally, alternative mobility providers with prototypes can find few avenues to demonstrate the effectiveness of their innovation, or to advance new ideas into state and federal planning processes.

The Power of Three: Synergistic combination of transit operators' needs, mobility providers' profit motive and new urbanist/TOD developers' vision.

At the end of the study, findings validate the basic study approach—to look at TLM strategies through the lenses of the three industry groupings—transit, alternative mobility providers, and developers. Despite differences in approach to customer satisfaction, product delivery and market development, numerous opportunities exist to leverage overlapping organizational goals and combined interest and enthusiasm of all three sectors. Transit operators well understand that the largest influences on ridership are factors traditionally outside their influence—including, importantly, land use. By bringing land use into the tent with the other two sectors to solve problems they hold in common, and by engaging innovative TLM strategies to support mainline transit networks, transit increases its relevance to communities, to business and to the environment. Enhance the view (already held by some operators) that private entities and outside public operators of alternative mobility service provide an extension of the core transit service delivered by traditional transit operators.

Seamless Technology Can Make a Strategy "Sing"
Some of the progressive transit scenarios floated in "innovative" circles are still missing one or more pieces of technology or software required to make the strategy perform up to the exacting standards typical of "choice" transit riders.

Parking Strategies Leverage Natural Market Affinities Between the Three Industry Sectors
A limit on the number of cars using or parking in an area improves the walking (or biking) environment. Area developers can substitute preferred amenities for parking or ensure profits by taking advantage of lowered parking ratios, and deliver a desirable project: a livable place. People enjoy living, shopping and working (i.e., renting, buying and producing) in such places, and will often pay premiums to do so. Once a person is walking or biking, they are more likely to use (and to need) a convenient transit mode for longer journeys. TLM strategies can further leverage and expand the utility of the main transit backbone of a place. Especially if there is a limit on the number of cars using or parking in an area (see beginning of paragraph).

Strategies Work Synergistically and Require Tri-Partite Cooperation: The responses from all industries studied revealed, either from explicit statement or easily drawn inference, that few successful strategies are implemented in isolation. Further, the overlapping organization goals and combined interest and enthusiasm of all industry groups—fueled by transit operators' needs, mobility providers' profit motive and new urbanist/TOD land developers' vision—are required to create the critical mass needed to shift operators, city and regional government and elected officials out of their comfort zone.

Table 7.1: Industry Perspectives on Issues and Related Recommendations

Issue Category	Transit Operators (TOs)	Alternative Mobility Providers (AMPs)	Land Developers, Urban Designers and Architects (Developers)	(Selected) Relevant Recommendations*
Funding and Profitability	▪ Inadequate, uncertain funding ▪ Color of money problems ▪ Restrictions on use (capital vs. operations) ▪ Matching requirements ▪ TLM strategies such as feeder or noontime shuttles, etc., cost extra (more vehicle types, more maintenance, etc.)	▪ State DOTs/local jurisdictions sometimes pay for sprawl impacts ▪ Problems with insurance/liability ▪ Funding gaps and cycles mean that operator expertise on TLM/TOD issues ebbs and flows	▪ Need to show profitability on TOD projects ▪ Long term investors can't be attracted due to lack of information on potential long term profitability ▪ Funding gaps and cycles mean that operator expertise on TLM/TOD issues ebbs and flows	▪ Funding Solutions ▪ Identify TOD profitability curves ▪ Showcase Profitable TOD Projects ▪ Assist AMPs in finding funding/investment sources ▪ Address "culture gap" between grant-making organizations and needs of AMPs ▪ Address insurance and liability deficiencies
Institutional	▪ Operators have policy-based service they must always provide ▪ Conservative nature of TOs means they need proof of effectiveness to try new things ▪ Lack of staff time to keep current on new technologies or land use possibilities (not their core mission) ▪ Jurisdictional disconnect between some services or facilities (e.g. park-and-ride lots; pedestrian facilities on city land) ▪ Some TOs face union issues on contracting out	▪ Institutional discontinuity affects programs ▪ Problems with insurance/liability	▪ Joint development/TOD at stations difficult because of TO time lag and red tape ▪ Institutional discontinuity affects ability to work with TOs ▪ Developers and transit operators speak different languages ▪ Private sector profit motive means time is money for developers; operators work toward different performance standards, such as reliable provision of basic mobility. ▪ Operators lack expertise, even in sophisticated markets where they are generally familiar and in support of TOD. ▪ Risk-takers (developers) vs. Risk averse (operators)	▪ Educate the Stakeholders and the Public Conduct Real-World Design Competitions + Regional Workshops ▪ Consider stand-alone issue-focused conferences/workshops ▪ Clearinghouse ▪ E-newsletter ▪ Annual conference ▪ Develop core advisory group to serve as point team to advance these recommendations or develop others as issues evolve ▪ Identify missing stakeholders
Strategies (Technology, Operations, System Integration, Etc.)	▪ Lack of experience with strategies ▪ Critical "missing links" in strategy delivery prevent seamless implementation ▪ Difficult to get homebuilders to buy into TOD/new urbanism ▪ Need to service new suburban development	▪ Frustrated that operators too often choose strategies based on internal concerns, rather than customer needs ▪ Difficulty in explaining ▪ Ability to service new suburban development more effectively than traditional transit	▪ Lack of experience with strategies ▪ Fare Media Integration Project ▪ Can mitigate suburban development impacts with better planning and design (even in a suburban context)	▪ Promote ongoing study and reporting of benefits ▪ Directed Research on strategy effectiveness ▪ Fare Media Integration ▪ Integrated strategies for emerging markets ▪ Suburban Service Strategies ▪ Ride the BRT wave—focus TLM/TOD solutions there ▪ Probe park and ride vs. shuttle issues ▪ Develop "Core Strategy Packages"
Regulation	▪ Color of money issues, etc. is a regulatory problem, as well ▪ Possible conflicts between air quality mandates vs. performance standards, limiting flexibility	▪ Lack of protocols to approve new technologies ▪ Lack of standardized or easily adapted forms and processes for contracting with AMPs. ▪ Air quality mandates sometimes preclude TLM/TOD solutions	▪ Lack of experience with strategies ▪ Sometimes parking restrictions are not sufficiently reduced in TOD projects to make projects "pencil out"	▪ Develop R&D Prototype Approval Protocols ▪ TLM/TOD Model Contracts and Policy Guides ▪ Review of Regional Planning Processes

Issue Category	Transit Operators (TOs)	Alternative Mobility Providers (AMPs)	Land Developers, Urban Designers and Architects (Developers)	(Selected) Relevant Recommendations*
Technology Issues	▪ Resistance to innovation is "built in" to institutional culture ▪ Need for a variety of technological improvements to create seamless transit experience, improve service, etc.	▪ Need better automated scheduling for ▪ Need unified ridematching software and consistent 1-800 numbers, etc.		▪ "Missing Link" Technology Development"
Market Research and Market Development	▪ Market research is often valued, but seldom conducted extensively ▪ Operators have identified colleges/universities and retirement communities as potential markets	▪ Airports noted by several AMPs as potential market	▪ Developers are not familiar with possible customer appeal of TLM or TOD strategies ▪ Airports mentioned as potential market to be developed, since they typically have funding.	▪ Combine market research goals into one program to leverage market research dollars and expertise in the TLM/TOD sectors ▪ New market development --Suburban service strategies --Airports --University/colleges --Retirement communities
Marketing and Customer Orientation	▪ Marketing is often first or second items cut in downturn	▪ Frustrated with operators passive approach to customer relations and marketing ▪ Difficulty getting TOs to understand what real "customer service" is ▪ Little public awareness of the available AMP services, in some cases ▪ Operators don't understand importance of "branding"	▪ Developers have difficulty working around transit operators' lack of appreciation for customer service	▪ Assist transit operators in becoming truly customer-oriented (including industry customers such as alternative mobility providers and developers, and internal customers within transit agency)

* Recommendations are listed, with additional detail in some cases, in section 7.4.2 of this report.

7.4.2 Study Recommendations: A Menu of Potential Actions to Address Obstacles and Seize Opportunities

This section elaborates on some of the possible strategies to solve identified obstacles and take advantage of opportunities in the TLM/TOD arena. Note that the interrelationship of the issues means that crafting some strategy packages would make sense, perhaps to provide a short- and longer-term set of blueprints that target region-specific contexts and issues.

Funding/Profitability

- **Funding Solutions** Work with operators and federal agencies to develop new and stable sources of funding for innovation. Make sure that the problem is correctly identified. (Is it lack of funding? Lack of stability? Lack of flexibility?) This effort could include legislative, advocacy or administrative work to help develop new funding categories and criteria—all of which would educate stakeholders about the cost-effectiveness of strategic implementation of core strategy packages.
- **Identify TOD Profitability Curves** To help encourage longer term investors, those who would be satisfied with longer term profits, it will be necessary to track TOD projects over time, or research past TOD efforts and determine likely range of time needed to see returns on investments, as well as the range in magnitude of those returns.
- **Showcase Profitable TOD Projects** Help get the word out on any successes, especially in the area of profitable TOD. Identify components that increase profitability.
- **Address Culture Gap** between grantmaking organizations and needs of AMPs
- **Address Insurance and Liability Issues**

Institutional Issues

- **Real-World Design Competitions & Regional Workshops**: Develop, in close collaboration with the study participants and other key stakeholders, a one-day outcome-oriented workshop that brings obstacles and opportunities together in a problem-solving context. Based on results, refine and conduct similar regional workshops throughout the country. Steps would include:
  - Identify candidate locations, select best site
  - Obtain supporting funding and sponsorships
  - Generate excitement with design competition
    - Get local experts to serve as juries
    - Brainstorm on meaningful prizes
    - Get media attention for competition and workshop—and the transit/TLM/TOD agenda
  - Use design competition to guide workshop agenda
  - Showcase *effective and profitable* TLM/TOD
  - Develop targeted action squads for follow-up activities
  - If successful, carry model to other regions
- **Follow-up or Stand-Alone Study, Symposia, or Workshops to Include More Developers** A follow up study would be useful to explore views of a broader range of firms that fall in this category. Such a study would to this preliminary understanding of relationships between

developers and the other two legs of our tripod, the transit operators and alternative mobility providers. A broader net of participants would ideally include more developers (variations in geography, scale of operations and track record of experience), landscape designers and "placemaking" urban designers, sustainable land use advocates, public community redevelopment agencies or economic development departments, and a larger number of real estate investors or financiers.

- **Educate the Stakeholders & the Public**
  - Educate the "expert" community—get facts on the table, research the unknowns
  - Bring Transit Operator "traffic engineer" crowd up to speed on TLM/TOD benefits and needs
  - Continue dialogue with federal agencies on key issues (funding, color of money, support for research, development of necessary national standards, protocols, policies)
  - Engage the public with clear, pointed programs to build consensus for transit funding and longer term land use reform package
  - Identify success stories, and circulate sound-bite fact sheets
  - Support operators with TLM/TOD effectiveness arguments to present to their boards
  - Develop a coherent action message for affected markets and communities of interest (what's the plan? How long will it take, what are the benefits, what are the first steps? How much will it cost me?)

- **Information Clearinghouse**: Develop, identify or expand a clearinghouse role for an appropriate agency (possibly WestStart)
- **Identify Missing Stakeholders** And involve them, as appropriate, in selected activities. Possible candidates are cities, MPOs, state regulators.
- **Develop Core Advisory Group** to serve as point team to advance these recommendations or develop others as issues evolve
- **Support Development of In-House Expertise Support development of an appropriate, practical** and sustainable level of in-house expertise (or contracting abilities, for example) for transit agencies in the areas of technological innovation, TOD project skills, and related
- **Help Transit Agencies change** attitudes, understandings and practices so that they can be more effective collaborators with AMPs and developers. This process can begin through the familiarization with the language, needs, and benefits of the TLM/TOD strategies, via conferences and workshops, clearing houses and studies included in this menu of recommendations.

Specific TLM/TOD Strategies

- **Directed research** Direct research to the confluence of these sectors (land use, transit, and linking providers)
  - **Strategy Effectiveness** on an ongoing basis. As existing TLM/TOD strategies evolve and new ones arise, TOs need to hear impacts on ridership and cost effectiveness. All sectors need to be up to date with accurate information regarding effectiveness of strategies in producing new ridership.
  - **Fare Media Integration** that pivots off and presupposes a truly integrated multi-modal system linking traditional and alternative transit and mobility options with land use, through unified fare card.

- **Suburban Service Strategies** linking the three sectors and optimizing their reciprocal impacts. TOs are struggling to adapt from CBD-focused systems to a distributed, decentralized network.

- **Leverage enthusiasm for BRT systems** by focusing TLM/TOD solutions on BRT system implementation; Note that BRT faces first-mile/last-mile issues not too different from any line-haul service, and can thus benefit from TLM/TOD.
- **Probe issue of shuttles vs. park and rides**—where are they effective and where are they hindrances, and why? How can TLM/TOD strategies combine to appeal to widest range of potential choice riders?
- **Core Strategy Package Development** Continue to investigate and identify first-mile/last-mile "core strategy packages" that define the minimal necessary strategies or services and their necessary complementary or supporting services that have been successful in different situations for a variety of operators

Regulation

- **Develop R&D Approval Protocols** Identify new or prototype TLM/TOD technologies, policies, financial arrangements, and concepts that are currently stalled because of inability of institutions to advance them through normal development hoops. Work collectively to solve problems, develop templates to apply to multiple agencies, multiple states, or across industry types.
- **TLM/TOD Model Contracts and Policy Guides** Help operators develop planning and contracting protocols and modify or develop policies to support implementation of innovative strategies and TOD. Focus on
  - Joint development
  - RFP and RFQ development
  - Technical specifications
  - Selection criteria (re-examine "buy-America" if no satisfactory US product is available)
  - Contracts
- **Regional Planning Process Review** to ensure that new technologies are being considered—especially since planning study horizons are typically in the 10-25 year range.

Technology Issues

- **Address "Missing Link" Technology Development** Investigate, identify and seek solutions to technology-related obstacles to implementation of strategies listed in "Strategies" recommendations, and others under consideration nationally and internationally. Those brought up by study participants include:
  - Need for better technology and software integration for automated vehicle location and automatic passenger counting systems, in part to permit mileage-based fare structures
  - Better, cheaper fare collection methods
  - Need for optical guidance systems for precise low-floor bus docking at curbs and stations
  - Vehicles that allow quicker wheelchair transfer
  - Automated scheduling systems to optimize transfers, route deviation and demand-responsive service.
  - Better trip-matching and hubbing technology and software to support hub-and demand deviation service

- Better selection of good quality small vehicles for the increasing variety of community circulators or local feeder routes
- Education and training for engineers on benefits of bus signal prioritization for overall roadway capacity

Market Research and Market Development

- **Combine Market Research Goals** Identify ways that the three industries can leverage existing efforts by pooling resources for common goals
  - (E.g., leveraging private sector market research expertise and resources by incorporating land use and mobility provider issues into ongoing transit operator market research).
- **New Market Development** such as at airports, universities/colleges, retirement villages, or any emerging suburb-to-suburb market can be sites where the three industries work effectively together to reduce automobile trips.

Marketing/Customer Relations

- Assist operators in developing more effective and comprehensive "customer service" orientation—perhaps having interdisciplinary teach-ins and exchange workshops, within regions.