

TRANSIT + EMPLOYMENT

**Increasing Transit's
Share Of The
Commuter Trip**



Reconnecting America and
the Center for Transit-Oriented Development

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16. Abstract (Limit: 200 words) This book discusses the commute trip and its impact on communities, and strategies that can be used to increase transit's share of the commute trip. A great deal of practical and academic activity in the past several decades has been devoted to understanding how land use can support robust transit ridership and realize transit's potential benefits. But to date most research and discussion has been about residential and retail development at stations. Clearly, in order for TOD to deliver the most riders for transit, the discussion about TOD needs to be more comprehensive, extending to considerations of where the people who live in transit-oriented development work, how they travel to work, and whether they'll need a car to get to meetings and to lunch once they're at work. The goal is an increasingly efficient and complementary land use pattern that provides more mobility and accessibility and responds to consumer demand for fast, convenient public transportation.			
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TRANSIT + EMPLOYMENT

Increasing Transit's Share Of The Commute Trip

*The second in an ongoing series
of manuals explaining transit-oriented
theory, facts and tools.*

*Written by
Ellen Greenberg and Dena Belzer
Edited by Gloria Ohland*

THOMAS HAWK/FELICKR

*Rail, bus, streetcars, wide
sidewalks, density, a rich mix of
uses and concentration of origins
and destinations – San Francisco's
Market Street is a premier example
of why corridors are the "natural
habitat" of transit.*

The Center for Transit-Oriented Development (CTOD) is the only national nonprofit effort dedicated to providing best practices, research and tools to support successful transit-oriented development. CTOD is a partnership of Reconnecting America, Strategic Economics, and the Center for Neighborhood Technology. CTOD also partners with national experts to conduct research, publish books and reports, and provide technical assistance to cities, transit agencies and regions. This report is a collaboration of Ellen Greenberg, Dena Belzer of Strategic Economics and Gloria Ohland of Reconnecting America.

Ellen Greenberg is an urban planner working at the intersection of land use, transportation, and urban design. Her independent consulting practice provides planning, research and education services to public, private and non-profit clients.

Strategic Economics is a consulting and research firm specializing in urban and regional economics and planning. The firm helps local governments, community groups, developers and non-profit organizations understand the economic and development context in which they operate in order to take strategic steps towards creating high-quality places for people to live and work.

Reconnecting America is a national non-profit organization that is working to integrate transportation systems and the communities they serve, with the goal of generating lasting and equitable public and private returns, giving consumers more housing and mobility choices, improving economic and environmental efficiency, and providing concrete solutions to climate change and dependence on foreign oil.

Special thanks to Erica Spaid of Strategic Economics and Jeff Wood of Reconnecting America for their contributions to this project.

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TOD 202

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WHY THIS BOOK?

To Inform Strategies That Can Increase Transit's Share of the Commute Trip



The freedom and flexibility provided by the automobile comes at a very high price.

THE DAILY COMMUTE is a fact of life for 90 million Americans. While some commuters value the “down time” this trip provides them, others experience financial, emotional and physical stress. The societal cost is also significant – the freedom and flexibility provided by the automobile exacts a high price in terms of environmental and climate impacts, infrastructure costs, accidents and injuries, and dependence on foreign oil, and rising gas prices make commuting by car a heavy personal financial burden. Moreover, it has proven to be impossible to reduce traffic congestion by keeping up with the ever-expanding demand for road capacity – the amount of driving, measured in vehicle miles traveled or VMT, has increased three times faster than the U.S. population since 1980, and is expected to increase another 59 percent by 2030, according to the Environmental Protection Agency.

Transit and transit-oriented development is an essential part of the solution to both the traffic and climate change problems, and can address the personal and societal costs of our dependence on the automobile. A great deal of practical and academic activity in the past several decades has been

devoted to understanding how land use can support robust transit ridership and realize all of transit's potential benefits. But to date most of the research and discussion has been about residential and retail development at stations. There has been less consideration about where the people who live and shop in transit-oriented neighborhoods will work, and how they will get to work.

Clearly, in order for TOD to deliver the most riders for transit, the discussion about TOD needs to be more comprehensive, extending to considerations of the work trip, its origins (where workers live) and its destinations (where they work). The goal is an increasingly efficient and complementary land use pattern that provides more mobility and accessibility and responds to consumer demand for fast, convenient public transportation.

The good news is that the market is responding to consumer demand for more housing and transportation choices. American households are becoming older and smaller and more ethnically diverse, and whereas the family used to be the dominant demographic group, singles are becoming the new majority. These demographic changes have resulted in more demand for in-town living, 24/7 neighborhoods, transit and TOD. This has opened a window of opportunity for communities to make the land use patterns associated with employment centers as transit friendly as residential and mixed-use TOD.

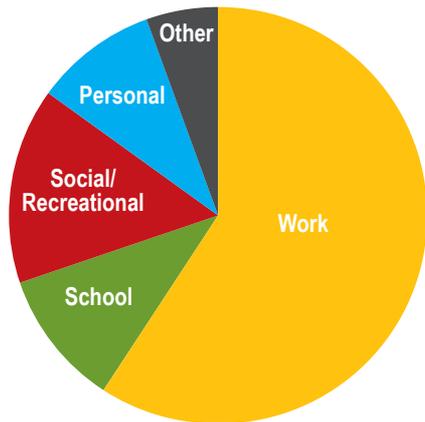


The Transit Commute:

Work-Related Trips Are The Majority Of All Transit Trips

WHILE WORK-RELATED trips total just under 20 percent of all trips by all modes of transportation, they are the largest category of trips by transit, comprising 59 percent of total transit trips. While non-work-related trips are increasing faster than work-related trips, work trips continue to represent a large share of total travel during the Monday-to-Friday work week, and the decision about how to commute has a significant impact on the livability and sustainability of communities.

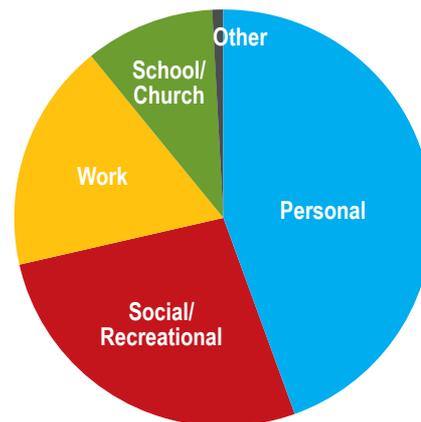
FIGURE 1 Trip Purpose - Transit Trips



Transit Trip Purpose	% Of Trips
Work	59.2
School	10.6
Social/ Recreational	15.3
Personal	9.3
Other	5.7

Source: 2007 APTA Transit Factbook

FIGURE 2 Trip Purpose - All Modes



Trip Purpose	% Of Trips
Personal	44.5
Social/ Recreational	26.9
Work	17.8
School/Church	9.8
Other	0.9

Source: Commuting in America III

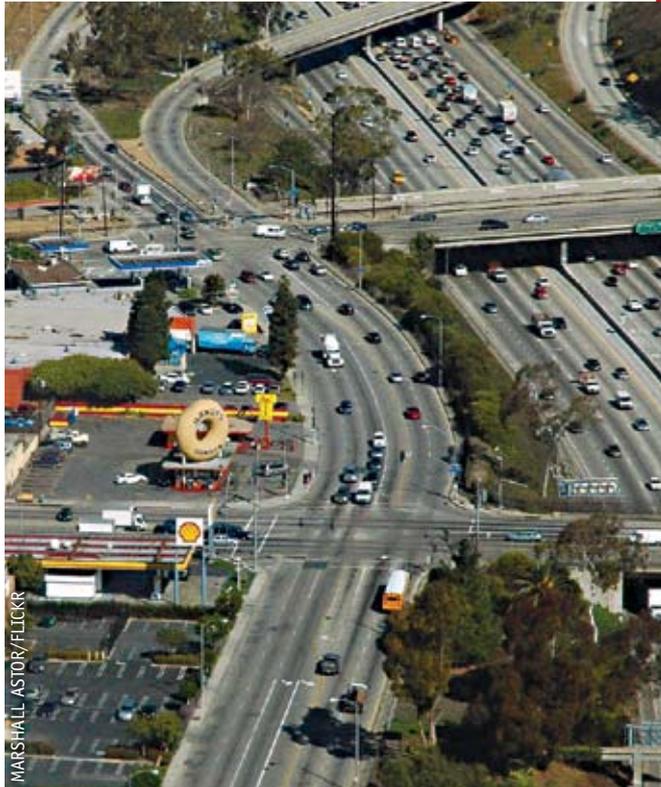
The Impact

Of The Commute Trip Is Much More Significant Than The Numbers Suggest

WHILE WORK-RELATED TRIPS total just under 20 percent of all trips by all modes, their impact is disproportionately larger. That's because freeway systems and arterial streets are typically built to accommodate the crush of traffic – or “peak demand” – as people head to and from work each day. Traffic is particularly heavy during the PM hours when commuters share the road with shoppers, students, parents of soccer players, and others. When planners and engineers design new or expanded highways and arterials they almost always focus on the evening commute time. In the widely-referenced *Commuting in America*, researcher Alan Pisarski says:

- *The commute trip is a major factor in determining peak travel demand;*
- *The commute trip determines the high cost of peak capacity far more than other trips;*
- *Commuters place a particularly high premium on transportation reliability (for the work trip).*

Transportation infrastructure built to accommodate peak travel demand has an enormous impact on the physical fabric of communities. The roads, freeways, intersections and interchanges divide communities and create visual barriers, noise, air pollution, vibrations and shadows, and reduce the amount of land available for higher-value uses. Building transportation infrastructure to accommodate peak travel demand consumes a very large share of public budgets and can work against community goals like livability, sustainability and walkability.



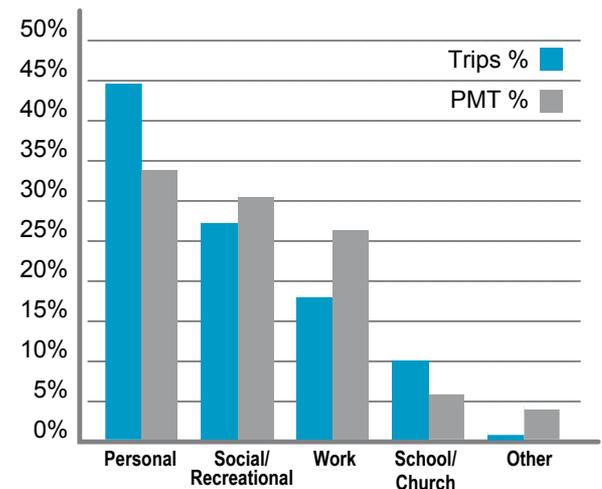
MARSHALL ASTOR/FLICKR

The commute trip is less than 20 percent of all trips but the impact on communities and infrastructure costs is much larger because freeways and arterials are built to accommodate peak demand at rush hour. These wide roads can work against community goals such as livability, sustainability and walkability.

FIGURE 3

Percentage Of Trips For Each Purpose Vs. Personal Miles Traveled For Each Purpose

Figure 3 contrasts the percentage of trips traveled for each purpose with the number of personal miles traveled for each purpose, illustrating that the trip to work is the longest trip.





The Commute Mode Determines The Look And Design Of Buildings

THE DOMINANT MODE of transportation serving places of employment has a powerful effect on both site and building design. Even a quick look at a building tells you whether employees travel by car or by transit: If they travel by car, there is typically a large surface parking lot or structure adjacent to the building, it is surrounded by wide roads and big intersections, and the entrance is typically oriented toward the parking lot instead of the sidewalk. Buildings served by high-quality transit typically have little or no parking, and are surrounded by a dense grid of walkable streets and sidewalks. The same is true of restaurants, shops and entertainment venues.



ERIC C/FICKR

From top left: Suburban office park, downtown Portland, downtown San Francisco, and Phoenix. Auto-oriented buildings are typically surrounded by parking; transit-oriented buildings are typically served by wide sidewalks and a dense grid of streets.



Boston's rail system is one of the five most extensive systems in the nation, with 280 stations – behind NYC (962), Chicago (418), Philadelphia (337) and San Francisco (305).

Transit's Share

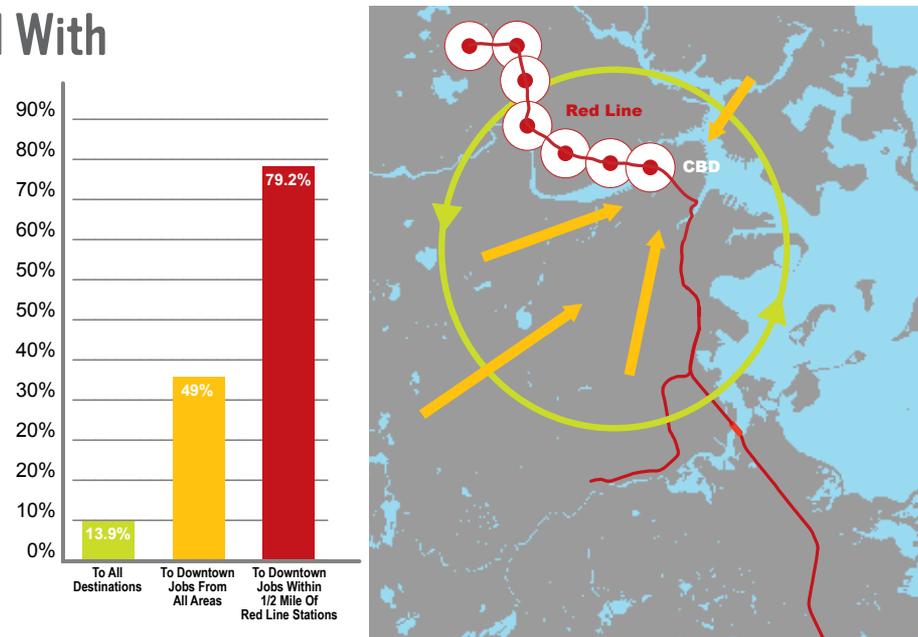
Of The Commute Trip Is Highly Correlated With Population And Employment Density

TRANSIT'S SHARE of the commute trip varies dramatically by urban form and is highly correlated with population and employment density. Transit is most successful in attracting the commute trip in places where travel demand is concentrated, as in central business districts; where high-quality high-frequency transit connects job centers to transit-accessible neighborhoods; and where parking is scarce.

The most powerful connection between urban form and transit is evidenced in corridors that lead into central business districts and are well-served by high-quality, high-frequency transit. Transit's regional mode share of the commute trip in the San Francisco Bay Area, for example, is 10 percent, but the share is much higher where transit service is frequent and convenient – 36 percent of all trips to jobs in downtown San Francisco are by transit, and 51 percent of all commute trips from Alameda County to downtown San Francisco are by bus, rail or ferry – with BART and Transbay buses carrying the lion's share of passengers. (See Figure 4.) An even more compelling example is provided by MBTA's Red Line in Boston. (See Figure 5.) Fourteen percent of all commute trips are by transit in the region as a whole, but 49 percent of commute trips into downtown Boston are by transit, and an

FIGURE 4

Transit's Share Of Commute Trips In Boston



Source: *Commuting in America III*

In Boston, transit's share of the commute trip is 14 percent in the region, 49 percent into downtown, and an astounding 79 percent to jobs within a half mile radius of downtown Red Line stops.

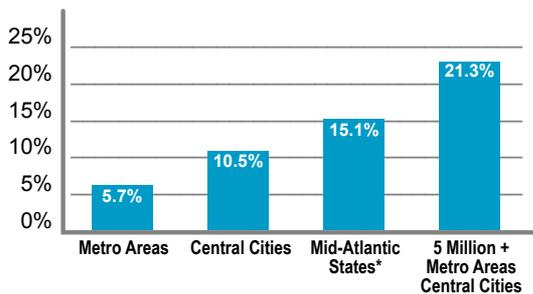
astounding 79 percent of trips to downtown jobs within a half mile radius of Red Line stops are by transit.

It is hard to imagine the crush of traffic that would result if there were no transit in New York City, Chicago's Loop, downtown Washington D.C. or even downtown Los Angeles, which is located in a polycentric region but which has a concentration of 400,000 jobs downtown. Heavy rail systems help deliver thousands of workers to densely-built central business districts or CBDs in the country's largest cities, with their intense mix of high-rise offices and housing, cultural institutions, stores, and entertainment venues. The throngs of people who come to the CBD each day support restaurants, stores, banks and services. CBDs are critical to regional and local economies, and command some of the highest rents and sales prices.

Smaller downtowns -- such as Seattle, Portland, Charlotte and Minneapolis -- are served by a combination of modes including light rail and streetcars as well as highways and bus. With proper design, the bustling character of the CBD can also be created in smaller suburban employment centers and include higher-density buildings, structured parking, and well-designed streets. Transit stations and stops provide opportunities to create nodes of activity, with newsstands and coffee shops, and plazas can offer high-quality public space.

Figure 6 depicts the importance of the transit commute in all metro areas compared to its share in central cities, in the Mid-Atlantic States, and in central cities with populations of 5 million or more.

FIGURE 6 *Transit's Share Of Commute Trips In The U.S.*

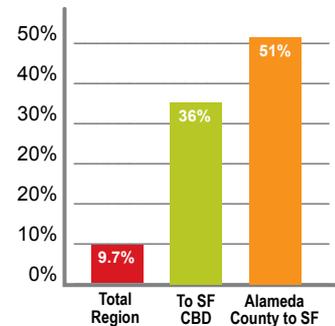


*New York, New Jersey, Pennsylvania
 Source: *Commuting in America III*

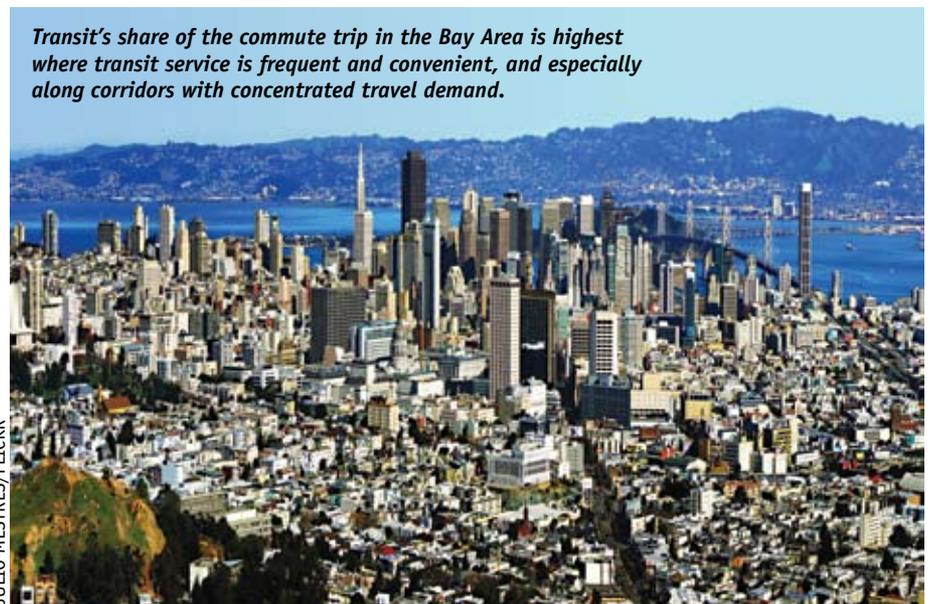
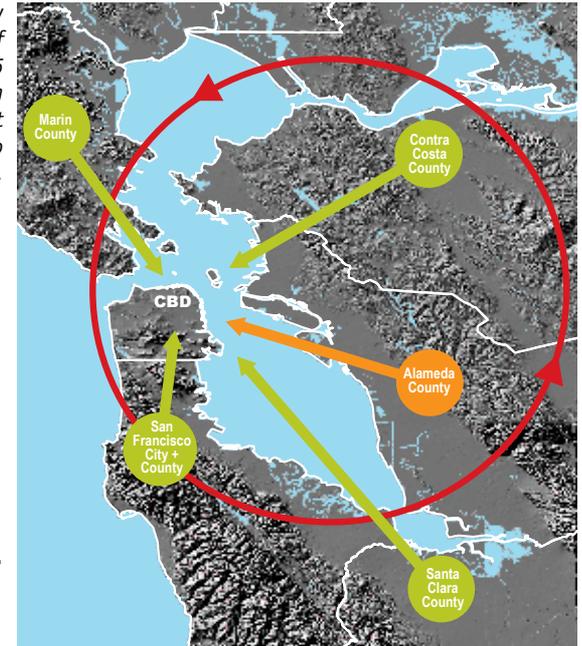
This bar chart shows transit's share of the commute in metropolitan areas, in central cities, in the MidAtlantic states, and in central cities of 5 million or more people. Transit's share is highly correlated with population and employment density.

FIGURE 5 *Transit's Share Of Commute Trips In San Francisco Bay Area*

In the San Francisco Bay Area, transit's share of the commute trip is 36 percent into downtown San Francisco, and 51 percent from Alameda County into downtown San Francisco.



Source: *Commuting in America III*



JULIO MESTRES/FLICR

Transit Is A Key Place-Making Tool

Transit aids in placemaking because it supports concentrated activity. If there are more transit commuters there is less demand for parking, which in turn reduces the cost of development, which means there's more money for better architecture, building materials and landscaping. There's also less demand for road capacity, which means that streets can be designed to better fit the scale of the surrounding environment. Narrower streets and a highly connected street grid enhance overall urban design and walkability, and reduce driving speeds, which create a safer environment. The throngs of pedestrians and transit users creates demand for more shops and restaurants and other amenities. The increased demand for this kind of "walkable urbanism" has been shown to support residential real estate prices and commercial rents, which provide tax revenues to communities and contribute to their financial stability.

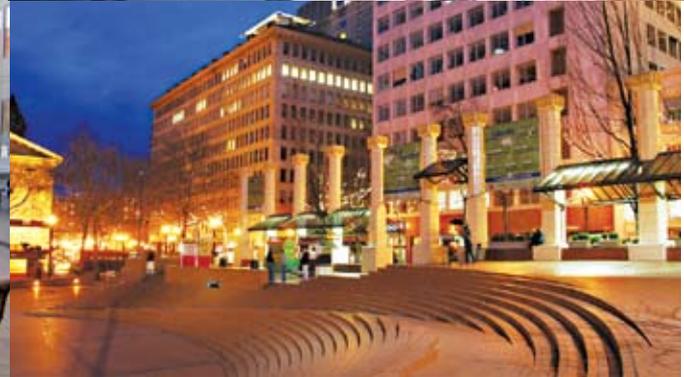


Clockwise from top: New York City; Portland light rail station and downtown Portland's Pioneer Square, which is served by very high-quality transit; Denver's downtown transit mall; Market Street in San Francisco. There is an increasing understanding that transit is not just about transportation; just as importantly, it's about place-making in the broadest sense of the term.

THOMAS HAWK/FLICR



THOMAS HAWK/FLICR



Studies Show

That People Who Work Near Transit Are Much More Likely To Use Transit



SHELLY ALBAUM/FLICKR



(Top) Houston's light rail ridership is much higher than projected, largely because it serves several very large employment centers. (Middle and Bottom) High-rise office and residential buildings mark the Wilshire Corridor from downtown Los Angeles to the ocean (Westwood shown here). The Wilshire Rapid Bus line is one of the most heavily traveled in the nation, and there are plans to extend LA's subway down Wilshire "to the sea."



DUSTIN PERKINS/FLICKR

WHILE IT IS GENERALLY understood that people who live near transit are five to six times more likely to commute by transit than those living elsewhere in the region, less is known about whether people who work near transit are more likely to use it. Downtown workplaces have higher transit ridership in part because CBDs typically have high-quality high-frequency transit service, because they are walkable and have a mix of uses, and because traffic congestion and the high cost of parking are disincentives to driving. So while 49 percent of people working in downtown San Francisco commuted in transit by 2005, less than 5 percent of workers in surrounding suburban neighborhoods commuted by transit. In Washington D.C., nearly 50 percent of those working downtown in offices within 1,000 feet of Metrorail stations commuted by transit, while transit's share at the more suburban Crystal City and Silver Spring stations was 16 percent and 19 percent (JHK and Associates, 1989).

A study by Robert Cervero of UC-Berkeley in 2006 showed that in California, about 20 percent of those who worked in office buildings near rail stations in more suburban locations commuted by transit – nearly three times the number of those working some distance away from rail stations. An earlier study by Cervero (in 2004) showed that on average 19.2 percent of those who lived in communities in the San Francisco Bay Area served by BART (Bay Area Rapid Transit) and worked near a BART station used transit, compared to 12.8 percent of those who worked, but did not live, near a BART station. This study also showed that office densities influenced ridership – every additional 100 employees per acre increased rail ridership by 2.2 percent.

Cervero's 2006 study also found that office workers are most likely to commute by rail if frequent feeder bus services are available at one or both ends of the trip, according to Cervero, if their employers help cover the cost of taking transit, and if parking is in short supply. If workers need to trip chain (make side trips to drop children at child care or to run errands) or if there are no restaurants or retail near their offices, they are less likely to choose transit for their commute. When services and shops are near the workplace, transit becomes a more convenient and appealing choice.

Dispersed Land Use Patterns And The Suburb-To-Suburb Commute Have A Negative Impact On Transit Ridership . . .

THERE ARE FOUR dominant types of “commute flow” – the term used to describe the travel pattern of people going to and from work – in any region.

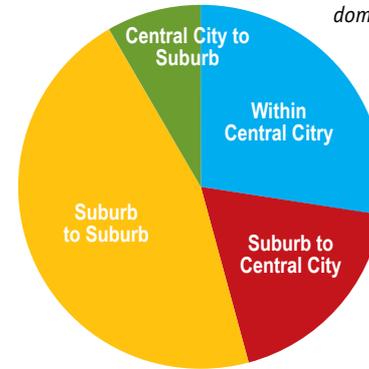
- *Suburb to suburb: when both home and job are outside the central city.*
- *Suburb to central city: when workers travel from their homes outside the central city to a downtown worksite.*
- *Within central city: When workers live and work in the central city.*
- *Central city to suburb, known as the “reverse commute”:* When workers live in the city and work in the suburbs.

These four different flows vary greatly in their ability to support the transit commute because cities and suburbs have very different development densities and land use patterns. As illustrated by the San Francisco and Boston examples, the suburb-to-central-city commute can attract high numbers of transit commuters in metro areas with a strong traditional center and a transit network that delivers large numbers of workers into downtown. This type is sometimes described as “many-to-few” -- with many neighborhoods feeding a small number of stations that have access to a large number of job sites – and it has characterized commuting in the U.S. for decades.

But since 1980 the dominant U.S. commute flow has been suburb-to-suburb. Decentralizing employment growth has cut into transit ridership

FIGURE 7 Major Metropolitan Commuter Flows

The suburb-to-central-city commute can attract high numbers of transit commuters in metro areas with a strong center and transit network, but since 1980 the dominant commute flow has been suburb-to-suburb.



Metropolitan Flows	Workers
Within Central City	24,506,065
Suburb to Central City	16,598,820
Suburb to Suburb	40,804,660
Central City to Suburb	7,532,770

Source: *Commuting in America III*

across the U.S. and increased reliance on the automobile. This trend in commuting mirrors the trend in office development. Research by Robert Lang has shown that during the 1990s more U.S. office growth occurred in multi-tenant office buildings in what he calls “edge-less cities” than in the more compact, mixed-use suburban centers that are called “edge cities.” Lang’s research shows that by 2000, edgeless cities accounted for more total office space than the downtowns of 11 of America’s largest metropolitan areas. This dispersal of trip origins and destinations is nearly impossible to serve with cost-effective transit.

MATT CALBERT/EXUBERANCE.COM



Dispersed land use patterns have cut into transit ridership and increased auto-dependence across the U.S. Sprawling origins and destinations are nearly impossible to serve with transit.

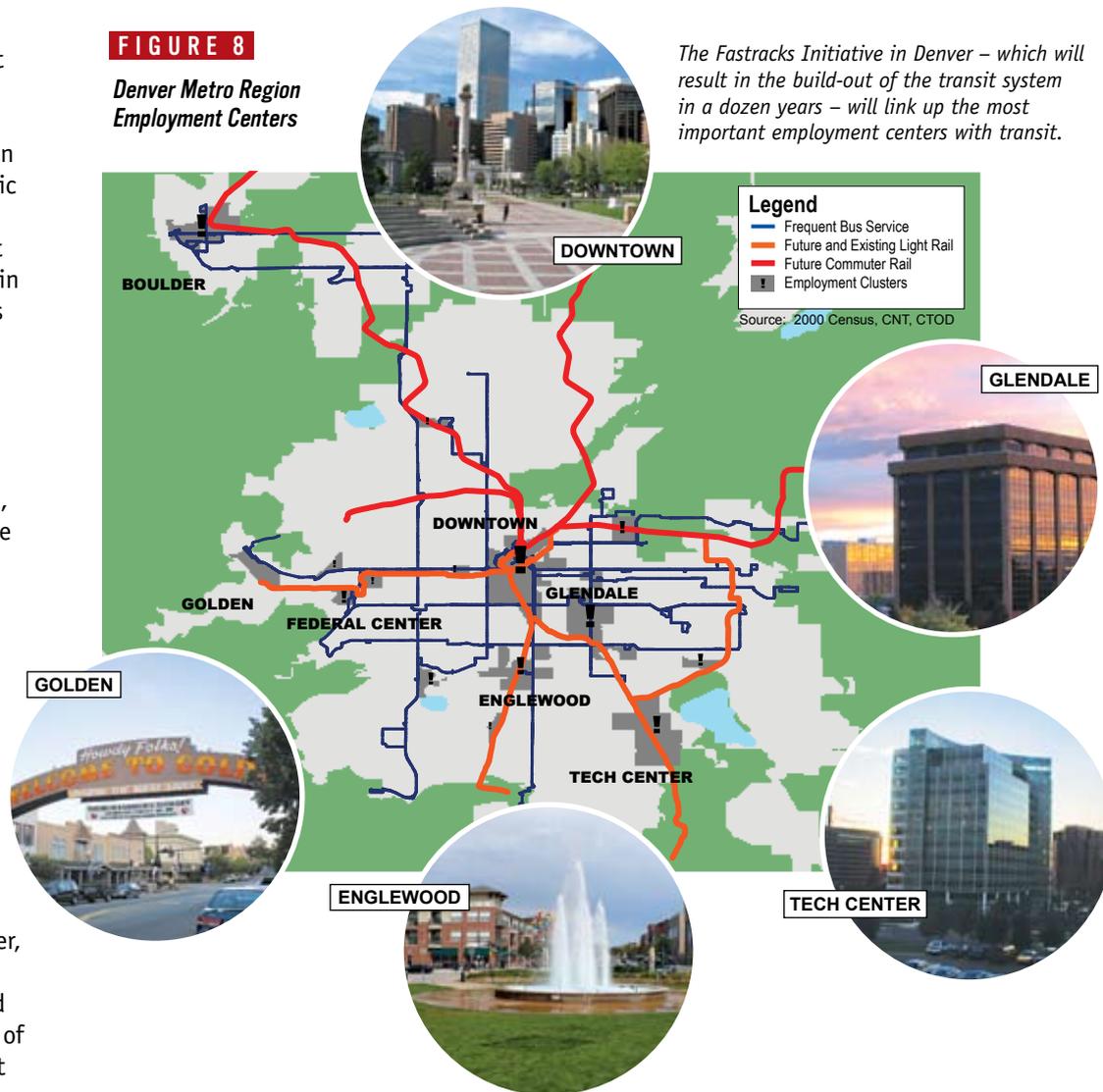
... But The Increasing Demand For “Walkable Urbanism” Provides The Opportunity To Increase Transit’s Share Of The Commute Trip

WHILE DECENTRALIZING LAND use patterns and the suburb-to-suburb commute have had a negative impact on transit ridership, other trends are very positive. Demographic changes and concerns about traffic are changing the real estate market, boosting investment in downtowns and other close-in neighborhoods. This topic is explored in Chris Leinberger’s 2008 book *The Option of Urbanism*. Leinberger discusses the demand for what he calls “walkable urbanism” and cites the differential in both residential real estate prices and commercial rents when urban and suburban locations are compared. He notes, for example, that in the Washington D.C. region “walkable urban office space in late 2006 leased for 26 percent more than drivable sub-urban space,” and that it also had a lower vacancy rate. Given the strong association between walkability and transit orientation, this data shows that locations near transit have become increasingly attractive to employers and highlights the potential to increase the transit commute.

There’s also a deepening understanding about the different roles played by different modes of transit in different built environments. It is now understood, for example, that ridership can be significant even in polycentric regions where job centers are dispersed. In Denver, the FasTracks initiative to build out the regional transit system will connect the most important employment centers, including downtown but also the Tech Center in Southeast Denver, the Federal Center in Lakewood, the Fitzsimmons Medical Complex in Aurora, the University of Colorado in Boulder, and the Denver International Airport. Once this system is built out, someone living near a transit station could work in any of these locations, change jobs to another of these locations, and still be able to commute by transit without having to move to another home.

FIGURE 8

Denver Metro Region Employment Centers



The FasTracks Initiative in Denver – which will result in the build-out of the transit system in a dozen years – will link up the most important employment centers with transit.

Some Jobs Are More Transit-Oriented Than Others

SOME SECTORS OF the economy are more transit-oriented than others. Manufacturing, warehousing or even big box retail, for example, can't be easily built at the densities and concentrations that will promote high transit ridership – especially when located in isolated single-use districts. Most offices, colleges and universities, however, are well-suited for sites near transit. Recent research on commute patterns in the San Francisco Bay Area found that many transit commuters tend to work in the professional, technical or financial services, or in insurance, government, or quasi-public agencies such as utilities. Other industries that generate considerable ridership are hotels and some types of clothing stores. When considered together, this mix of businesses and other employment closely resembles what currently exists in most downtowns.

But this research, which was based on the 2000 census, doesn't include many of the bio-tech and high-tech businesses that have begun moving into more transit-oriented urban locations. Seattle is seeing considerable growth in bio-tech and high-tech firms in South Lake Union since the city began building a streetcar there in 2006.

Formerly a low-rise manufacturing district, South Lake Union has become the hotbed of Seattle's new economy. The understanding that transit was a key place-making amenity that would increase the desirability of the neighborhood was high enough that property owners voted to tax themselves to cover 50 percent of the streetcar system's construction costs. Transit is beginning to be viewed as an amenity that will help define a neighborhood as "hip" and attract the creative class, especially younger so-called "knowledge" workers.

Large institutions such as universities and hospitals can also promote transit ridership. But when they look for locations where they can expand they too often look at the urban periphery where land and construction costs are less expensive. The ramifications of allowing these large institutions to move away from the urban core are big, however, with increased auto-dependence, traffic and pollution, and increased transportation costs for workers, who will have to pay for the cost of driving and maintaining their cars, and for employers, who will have to provide parking. Over time the fact that there is no transit can offset the advantages that come from cheap land.

The U.S. economy appears to be in a transition that will continue to be more transit-supportive over the long run. In the mid-1950s manufacturing jobs comprised 30 percent of total employment while business services

constituted only 7 percent. By 2005 manufacturing jobs totaled only 11 percent of total jobs while business services had doubled to 14 percent. This shift raises many issues but one major advantage is that as employment in a region grows, the jobs that are being added will likely be more amenable and appropriate for transit-oriented employment districts.

FIGURE 9 Top Industries By Employee Transit Ridership - San Francisco Bay Area

Employment Sectors	Total Employees Using Fixed Guideway Transit	Total Employees Recorded in Industry	Share Fixed Guideway Employees per industry	Share of All Fixed Guideway Employees
Professional, Scientific, and Technical Services	25,604	368,880	6.90%	20.10%
Securities, Commodities Contracts, and other Financial Activities and Related Activities	7,081	48,909	14.50%	5.60%
Monetary Authorities -- Central Bank	6,952	51,383	13.50%	5.40%
Insurance Carriers and Related Activities	5,096	53,682	9.50%	4.00%
Information Services and Data Processing Services	3,998	56,417	7.10%	3.10%
Publishing Industries	2,574	33,333	7.70%	2.40%
Accommodation	2,903	38,063	7.60%	2.30%
Executive, Legislative, and other Governmental Support	2,877	34,038	8.50%	2.30%
Utilities	1,864	19,653	9.50%	1.50%
Credit Intermediation and Related Services	1,763	30,565	5.80%	1.40%
Clothing and Clothing Accessories Stores	1,705	29,961	5.70%	1.30%

Source: 2000 Census, Strategic Economics

This chart shows the number and percentage of workers in each employment sector that use fixed-guideway transit. The U.S. economy appears to be transitioning away from manufacturing jobs and toward more transit-supportive jobs, such as those in the business sector.



WMATA's Dupont Circle subway station at rush hour; WMATA's subway system is the second busiest in the U.S., after New York City's

Five Essentials For Capturing Commute Trips By Transit

SUCCESS AT MAXIMIZING the benefits from the public investment in transit requires a five-part foundation. All five elements listed below must be sustained over time, which requires both effort and resources.

In order to capture commute trips by transit there must be:

1. *High capacity, high-frequency transit with good regional connectivity (either planned or existing);*
2. *Employment sites that are close to transit and that meet the fundamental location criteria of transit-oriented industries;*
3. *Cooperative multi-jurisdictional planning, ideally led by the metropolitan planning organization or another regional agency;*
4. *Collaboration between land use planners and transportation planners, ideally with input from key stakeholders;*
5. *Patience, and realistic expectations about the time it will take to achieve land use, economic, and transportation performance goals.*

If these five elements are not in place, efforts should be focused here first. If these elements are in place, the strategies explained in detail on the following pages will be helpful.

The strategies to help transit capture commute trips are:

1. *Make transit connectivity the priority when planning transit investments.*
2. *Match density with service.*
3. *Match transit with transit-oriented jobs.*
4. *Reinvent suburban job centers and edge cities.*
5. *Locate employment along mixed-use corridors –the “natural habitat” of transit.*
6. *Make it possible to walk from the office to the post office.*
7. *Increase transit's share of the commute trip by implementing all the fundamentals of TOD.*

STRATEGY 1:

Make Connectivity The Priority When Planning For Transit Investments

Using TOD to “grow” transit’s share of the commute trip means:

- Planning for public transportation must include consideration of where major employment centers are located or planned, so that transit can connect job centers with walkable neighborhoods.
- Transit connectivity should be provided with a mix of modes including rail and bus as well as local, feeder and demand-responsive services that increase the number of destinations that can be easily accessed during the day. A network of walkable, bikeable streets is an important complement to transit service. Transit modes can evolve over time -- from bus to rail, or bus to bus rapid transit in a dedicated right of way -- as land uses support more density, activity and demand.
- Transit has to provide a viable alternative to the automobile in order to attract riders. Convenience, reliability, safety and speed are necessary if transit to attract riders who have access to a car and could choose to drive if they wanted to.
- Because the typical household includes more than one worker and the typical worker changes jobs more often than homes, it’s important to connect a variety of jobs with transit.
- Cities and counties need to do their part by channeling employment growth to locations near transit (either existing or planned).

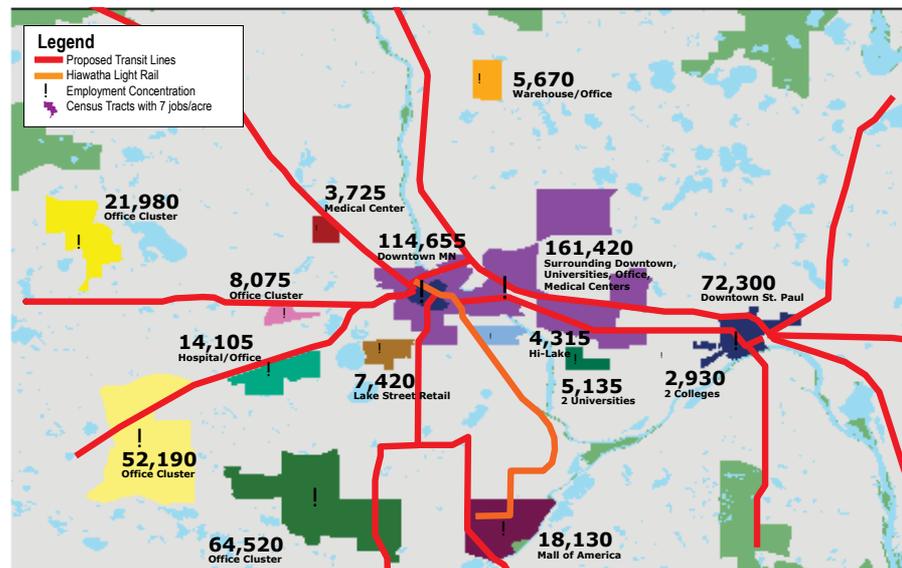


FIGURE 10

Twin Cities Employment Centers

The proposed transit network in the Twin Cities misses some key employment centers while merely skirting others. If employment centers had been a major consideration when alignments were selected, the system would have looked very different.

Ridership on the Hiawatha light rail line in Minneapolis reached ridership projections for 2020 shortly after it opened in 2004.

CHRISDEBA 2004/Flickr



STRATEGY 2:

Match Density With Service.

TRANSIT USE SHOULD be encouraged both with the right development and with the jobs types that support it. The key characteristics of transit-oriented job sites are:

- *Urban densities ranging from mid-rise buildings with 2.0-5.0 FAR to high-rise buildings with 4.0 or higher FAR, with the highest densities located in the closest proximity to transit stations and stops. (FAR or “floor area ratio” is the measure of the total built floor area of a building divided by the site area. Thus, a FAR of 2.0 indicates the total floor area is two times the size of the site on which it is located.)*
- *Significant concentrations of workers in order to create the demand that will support convenience retail and personal services near the station, and help justify the provision of high-quality transit service.*
- *A variety of easily accessed transit services to provide a high-level of connectivity in business districts: ranging from local bus or streetcars to enhance local circulation, to light rail or bus to connect to nearby neighborhoods, to express bus and commuter rail to connect to neighborhoods further away.*
- *Limited parking, or pricing that limits parking demand, ideally in combination with financial incentives from employers to encourage transit ridership.*
- *A mix of businesses that are “transit oriented,” including shops and restaurants that allow workers to meet their needs without a car.*



Employment, residential and retail densities inside Chicago’s Loop provide for high transit ridership. The Loop is the second largest business district in the US after Manhattan; Chicago’s transit system is also second largest, after New York City’s.

STRATEGY 3:

Match Transit With The Right Jobs



Property owners in South Lake Union put up half the new streetcar's construction costs.

Because while jobs “follow rooftops” to some extent, employers and businesses tend to want to cluster together in higher densities. This was the land use pattern of the streetcar suburb, and should be considered as a desirable option for the new suburbs being planned today.

Another problem is that outlying communities often provide subsidies including free land or property tax breaks to sites that are not transit-accessible. Communities should consider making transit access a requirement to qualify for job subsidies.

IT'S IMPORTANT TO understand how businesses make decisions about where to locate. Some are concerned about visibility and accessibility while others are not; some require that there be opportunities for synergy or critical mass with similar and complementary businesses; some require access to certain amenities; most must consider their compatibility with adjacent land uses.

Often communities assume they can solve the problem of traffic congestion by correcting their jobs/housing balance, with the result that large tracts of land are zoned for business parks or other employment uses. But this strategy can fail if the place that's designated for job growth doesn't meet the standard location criteria used by employers. The better way to address the jobs/housing imbalance is by making good transit connections to major employment

The South Lake Union neighborhood in Seattle has attracted a significant number of bio-tech and high-tech firms and become the hotbed of the city's new economy since it was decided to build a streetcar there in 2006.



ASHLEY BRADFORD/FICKR

STRATEGY 4:

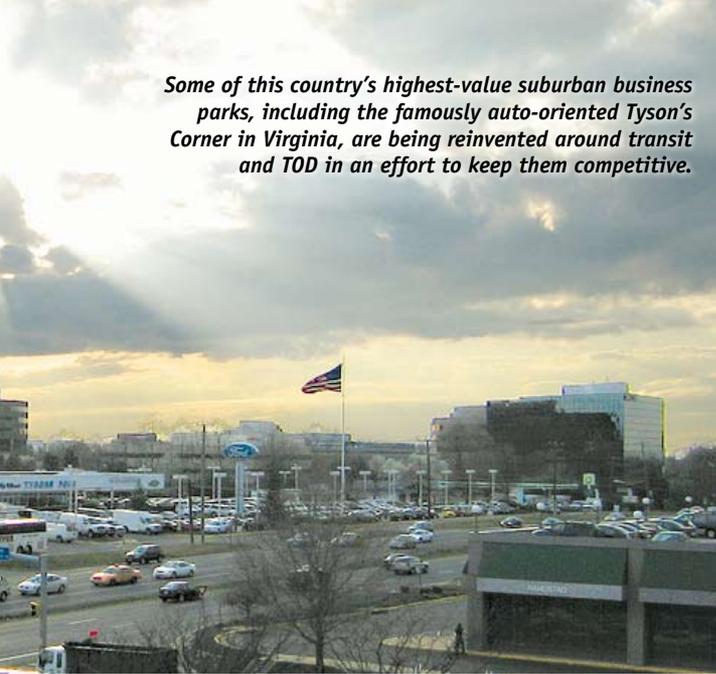
Reinvent Suburban Job Centers And Edge Cities

REINVENT SUBURBAN job centers and business parks by:

- *Diversifying uses;*
- *Replacing parking with more productive uses;*
- *Transforming the architectural and urban design character with a variety of building types, densities and styles;*
- *Increasing local circulation and transit connectivity to the site and from the site to its surroundings;*
- *Making them more walkable and bikeable by making sure that sidewalks and bike lanes are safe and accessible.*

These strategies are being considered in some of

Some of this country's highest-value suburban business parks, including the famously auto-oriented Tyson's Corner in Virginia, are being reinvented around transit and TOD in an effort to keep them competitive.



this country's highest-value suburban business parks, including Tyson's Corner, Virginia, a famously auto-oriented "Edge City," and Hacienda Business Park in the San Francisco Bay area. The goal is to help these places remain competitive and to encourage people to choose to walk and take transit by reinventing them with a new design character defined by transit and TOD, vibrant streets with a walkable and interconnected block pattern, and a high-quality public realm.

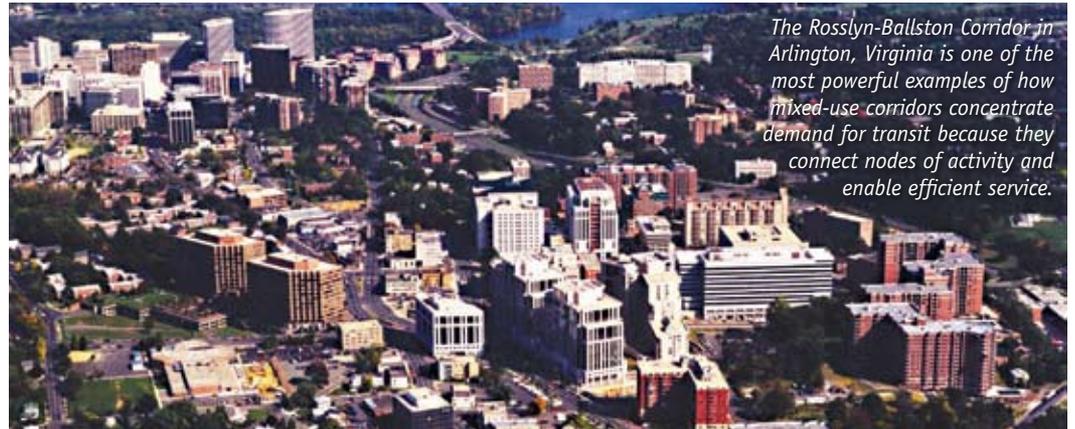
What is driving efforts to reinvent these places is a newfound appreciation for the benefits that come with physical and economic integration into the surrounding community and the region, and an understanding that the status quo is perilous because suburban centers cannot continue to accommodate growth in a conventional pattern due to constrained road capacity. But there is the possibility of increasing the value of real estate assets by responding to the changing real estate market and increased demand for mixed-use places, increasing leasable space, and enhancing the ability of businesses to attract and retain workers by offering desirable work locations.

STRATEGY 5:

Locate Employment Along Mixed-Use Corridors - The "Natural Habitat" Of Transit.

ROBERT CERVERO of UC-Berkeley calls the corridor the "natural habitat" of public transportation. Research has consistently demonstrated that concentrated demand occurs in corridors that connect nodes of activity and that the linear form enables efficient service that garners strong ridership. This is in sharp contrast to the dominant travel pattern of "many-to-many," where destinations are dispersed and without focal points, as in most suburban areas. Transit-oriented development can create a "string of pearls" along a transit corridor to generate bi-directional ridership. Cervero cites the example of a linear corridor in Stockholm where transit has twice the mode share of other European cities. This corridor has, he says, a balance of jobs, housing, retail and population services, with the result that 55 percent of peak-period commuters travel in one direction while 45 percent travel in the other.

The type of transit will often determine the spacing of stations, TOD nodes and the density of development. The premier example of the transit-oriented corridor in the U.S. is the Rosslyn-Ballston Corridor in Arlington, Virginia, just outside Washington D.C. This corridor was a declining low-density commercial corridor 40 years ago when the local government decided to focus development around five closely spaced heavy rail stations. As a result, the assessed value of land around stations increased 81 percent in 10 years, and this corridor, just 8 percent of county land, now generates 33 percent of county revenues, enabling Arlington to have the lowest property tax rate in Northern Virginia. Fifty percent of residents take transit to work; 73 percent walk to stations, development has generated only modest increases in traffic and surrounding single-family neighborhoods have been preserved.



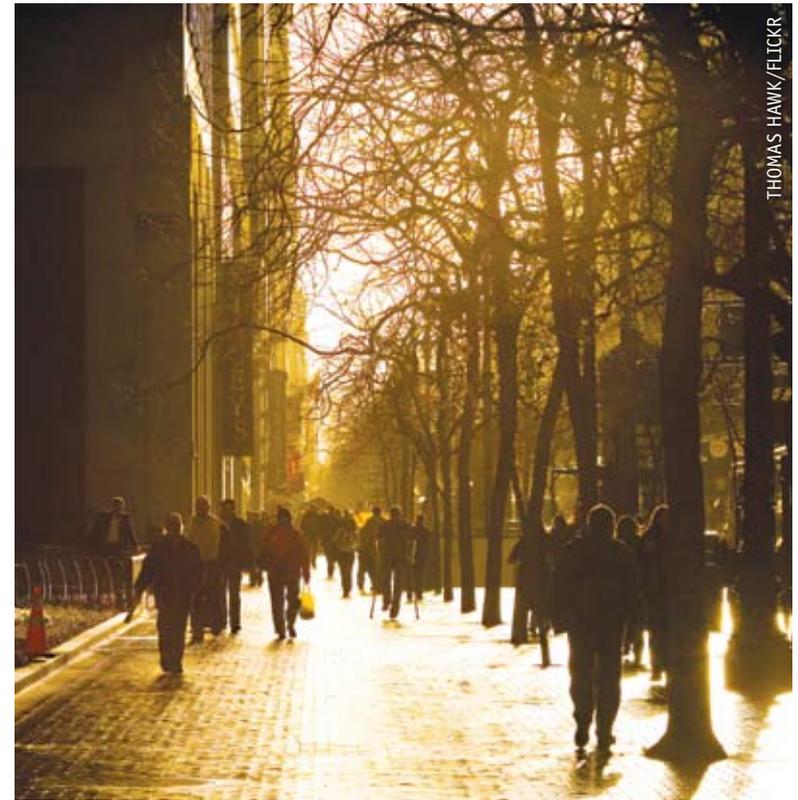
The Rosslyn-Ballston Corridor in Arlington, Virginia is one of the most powerful examples of how mixed-use corridors concentrate demand for transit because they connect nodes of activity and enable efficient service.

STRATEGY 6:

Make It Possible To Walk From The Office To The Post Office.

IF AN OFFICE IS LOCATED in a place that makes life easy and convenient then the choice to commute by transit is a practical one because it saves both money and time. Convenience uses within a quarter mile of office buildings support the transit commute and encourage midday walking: Surveys have found that up to 96 percent of workers will walk to stores, delis and drycleaners within a quarter mile of office buildings; 73.5 percent will walk to convenience uses that are a quarter mile to a half mile from office buildings. As Robert Cervero wrote in the Journal of Public Transportation, “Islands of stand-alone office buildings, regardless of how close they are to transit, are unlikely to draw many workers to trains and buses if there is a risk of being stranded in the midday, unable to attend to personal affairs.”

Local residents can also choose to commute by transit out of the neighborhoods where they live as long as there are good connections to other job centers. If these neighborhoods also include entertainment, higher education and health care institutions, there will be more ridership both into and out of the station, spreading demand more evenly over the course of the day. Extended service hours will benefit transit commuters who won't have to worry if they have to work late or there's an emergency at home or school. Guaranteed-ride-home programs can help, but better yet is all-day service with some night-owl routes.



THOMAS HAWK/FLECKR

(Top) Market Street's wide sidewalks, rich mix of uses and high-quality multi-modal transit service make life in San Francisco easy and convenient for transit users and pedestrians.

(Bottom) Both San Francisco (right) and Portland (left) have an abundance of walkable, mixed-use, transit-oriented neighborhoods near their CBDs.



STRATEGY 7:

Increase Transit's Share Of The Commute Trip By Implementing All The Fundamentals Of TOD.

IF THE FIVE FOUNDATIONS are in place to increase transit's share of the commute trip, these seven strategies can be used to create an agenda that will increase the number of commute trips made by transit and help capture transit's many potential benefits.

- *Differentiate TOD place types: TOD isn't one-size-fits-all. Not every station that serves a job center will include the same mix of uses or density. Planning at the regional or corridor scales should identify the roles of each station in the corridor and/or in the system, and whether they will serve primarily as residential or employment or mixed use centers. This diversity among place types will make TOD and transit responsive to the broadest array of preferences and needs.*
- *Create a synergistic mix of uses for each place type: Stations in neighborhoods that are predominantly residential will likely include just a small cluster of local-serving retail, while stations in regional centers will include concentrations of jobs, housing and institutional uses. The goal is to create a compatible mix that makes life more convenient, encourages walking, and promotes transit ridership – in support of the larger goal of mitigating traffic, increasing economic and environmental sustainability, and addressing concerns about climate change.*
- *Involve the community in station area planning: Community involvement improves both plans and outcomes, especially with projects that require significant public investment and take a long time to get built out.*
- *Create a high-quality public realm: The goals of transit-oriented design should be to create an authentic urban character around the station, to give it an identity that fosters pride of place, to add value, to encourage walking, and to create a public gathering spaces.*
- *Activate the streets: TOD invites walking if buildings have windows*



Successful transit requires the support of transit-oriented employment, residential and retail development.

and doors that open onto sidewalks, landscaping, lighting and outdoor furnishings, and nearby destinations. Traffic signals and the width of streets should put the pedestrian first.

- *Manage parking: Parking adds significant cost to development -- money that could be spent on better design or materials or other features instead – and encourages people to drive to work. Studies have shown that pricing, parking cash-out programs (where employees are offered the choice of a free parking space or a monthly cash payment), and other employer incentives that encourage employees to use transit do significantly promote transit use.*
- *Zone for minimum not maximum densities: The relationship between density and transit use is well-established. Planners should reserve sites nearest transit for the highest density development.*
- *Integrate transit operations into the station area carefully: The requirements of transit operators should be reflected in TOD design and operations, particularly in the design of the public right of way where there is street-running transit.*



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