HIDDEN IN PLAIN SIGHT

Capturing The Demand For
Housing Near Transit
Housing Near Transit
Housing Near TransitQ2G Demand F0.5r

ON THE COVER (left to right): Dallas Area Rapid Transit in Plano, TX; station in Solana Beach, CA; the Portland streetcar.

Photo Credits (left to right): Dallas Area Rapid Transit; Rob Quigley Architects; City of Portland.

The Center for Transit-Oriented Development

The Center for Transit-Oriented Development (CTOD) was launched in 2003 to help bring transit-oriented development (TOD) to scale as a nationally recognized real estate product. The CTOD is working with transit agencies, developers, investors and communities to use transit investments to spur a new wave of development that improves housing affordability and choice, revitalizes downtowns and urban and suburban neighborhoods, and provides value capture and recapture for individuals, communities and government. The Center for TOD is based in Oakland, California and is headed by Shelley Poticha and by Hank Dittmar, president and CEO of Reconnecting America. The Center for TOD is a major program of Reconnecting America, a non-profit organization that is working to integrate transportation networks and the communities they serve in order to generate lasting public and private returns, improve economic and environmental efficiency and give consumers greater choice.

The CTOD is a joint venture with the Center for Neighborhood Technology in Chicago, led by Scott Bernstein, which has the largest in-house public interest Geographic Information System (GIS) group in the Midwest, and with Strategic Economics in Berkeley, led by Dena Belzer, who has helped to establish best practices for TOD and adds expertise in real estate and urban economics and regional TOD capacities and challenges. The CTOD's governance team works closely with an advisory group, whose skills include mixed-use development, transit agency management, community development, local government, and investment banking.

Reconnecting America Board of Directors

C-07-04

U.S. Department of Transportation
Federal Transit Administration

Administrator 400 Seventh St. S.W.
Washington, D.C. 20590

SEP 8 2004

Dear Colleague:

It is with great excitement and anticipation that we issue this report on the potential for transit-oriented residential development.

TABLE OF CONTENTS

List Of Tables And Figures

EXECUTIVE SUMMARY

Photo by Dallas Area Rapid Transit

Demand for housing near transit spurred development that's revitalized the historic downtown of Plano, Texas.

Primary funding for this study was provided by the Federal Transit Administration (FTA). The Surdna Foundation and the Fannie Mae Foundation also contributed to this national market assessment of transit-oriented development (TOD).

The study looks at:

- national real estate and consumer trends that affect the potential market for housing within a half mile of fixed guideway transit stops (TOD);
- the demographics and travel behavior of residents who live near transit;
- the potential demand for housing within walking distance of transit stations in the year 2025; and
- the ability of transit-served regions to accommodate this emerging consumer market.

The study resulted in four major accomplishments:

- analysis of the Center for Transit-Oriented Development's (CTOD) national TOD database, a Geographic Information System (GIS) platform for analyzing conditions around the nation's 3,341 existing fixed transit stops and the 630 additional stations that are scheduled to be built by 2025;
- regional housing demand projections for the types of households that show a preference for living in transit-oriented communities;
- a methodology for assessing the unused capacity of areas within walking distance of transit, which can be used to help measure a region's potential for TOD; and
- a demonstration of the study's methodology in seven case study regions.

1

Nationally there are tremendous shifts occurring in demographics, consumer preferences, employer location strategies, and transportation infrastructure investments. Consumers are choosing smaller, more compact housing in neighborhoods where shops and services are within walking distance, and where high quality transit service is an option. Regions are building more transit. Transit-oriented development, when done right, creates a mix of uses within walking distance of stations in a design that encourages walking, promotes transit ridership, and provides housing choices. A rich mix of land uses is central to transit-oriented development, and this means that rider-serving amenities such as retail and day care, as well as commercial spaces, are available in residential areas, and that office development is integrated into station areas. If transit-oriented development can capture this potential market then the investment in public transit will become the armature for a significant portion of regional growth, helping to increase transit ridership as well as decrease traffic and air pollution, increase housing affordability and choice, revitalize urban and suburban neighborhoods, and generate lasting public and private returns.

Unfortunately, many of the successful examples of transit-oriented development are the result of "clever exceptionalism," and have required persistent advocacy and extraordinary public attention. As a result, there aren't enough good examples of TOD to showcase, there are too few developers and planners with expertise in TOD, and too few elected officials and advocates to champion exemplary projects, and it's unlikely that without further action market demand will be met. The barriers to delivering high quality projects that meet the objectives of the marketplace, that succeed as places in their own right as well as nodes in regional transit systems, and that improve regional transportation system performance are great.

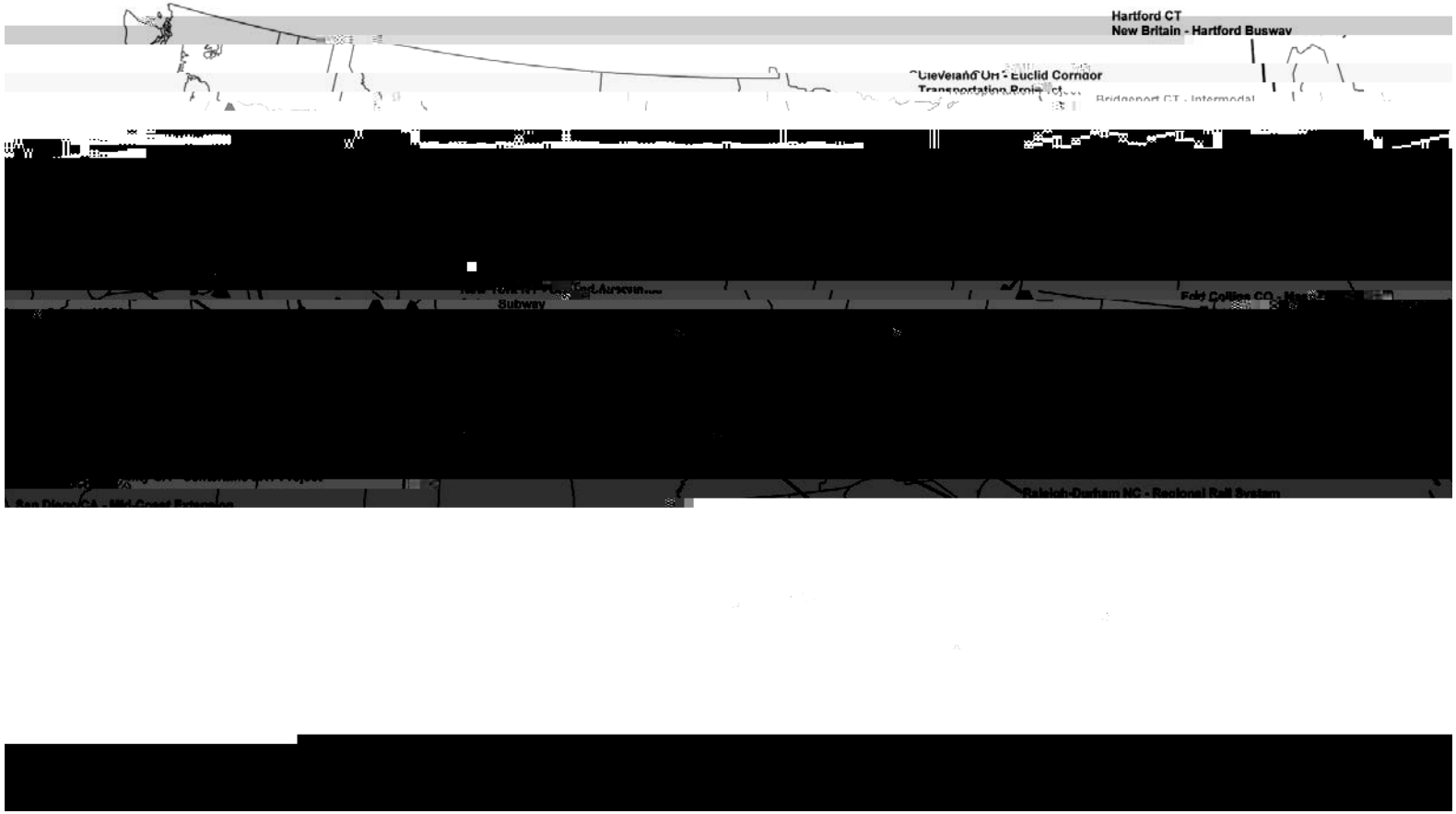
There are six major challenges to creating high-performing TOD:

- finding a common definition or agreement on the goals and outcomes;
- balancing the tension between the requirements of making a project a successful place and making it a successful transportation node;
- reducing complexity, time, uncertainty, and costs;
- creating a supportive regulatory and policy environment;
- acknowledging that more than transit is needed to drive real estate investments; and
- convincing investors that TOD is an asset class.

There is little if any meaningful information or systematic analyses available today to help transit agencies, local governments or developers consistently create optimal transit-oriented projects. It is only when successful projects are easily recognized and routinely produced that TOD will begin to provide a real and effective alternative to auto-oriented mobility and to create a lasting positive impact on regional economies in ways that address social inequities and improve environmental quality. The primary challenge is to move beyond the rhetoric, prototypes and serendipity to a more in-depth understanding of what constitutes optimal TOD and how to get such projects built as a matter of course rather than as the exception. This should start with a fact-based understanding of TOD and a performance-based definition of objectives including:

- increased location efficiency;
- expanded mobility, shopping and housing choices;
- financial return and value capture; and
- a balance between the requirements of a successful place and a successful node.

Study after study shows that transit is a viable alternative to the car only if what takes place at either end of the ride meets the needs and desires of a significant number of individuals. Ridership is much higher in regions with frequent service, high quality interconnections, and wonderful, affordable



1: *New Starts Projects in Preliminary Engineering and Final Design*

urban populations as they seek smaller homes in locations with a greater mix of amenities. The traditional nuclear family that made up 40 percent of households in 1970 now comprises less than 24 percent of households. As seen in Figure 2, the new age distribution is more a pillar than a pyramid, with a population by 2020 of nearly an equal number of school-aged children, young professionals, parents, young retirees and the elderly.

According to Catherine Ross' and Anne Dunning's analysis of the 1995 National Personal Transportation Survey (NPTS), single adults with no children, and households of two or more adults with no children were the most likely to live in urban locations. These households are less interested in a single-family home on a quarter acre in a distant suburb than in the 24/7 lifestyle, cultural richness and diversity of walkable urban neighborhoods.

Another notable finding in the 2000 Census was the continuing increase in diversity of the nation's population due to immigration from Asian and Latin American countries. Historically, most immigrants and minorities have settled in cities. While this trend is changing, with more immigrants settling in suburban or even rural locations, demographer William Frey projects that most immigrants will continue to live in relatively dense urban locations (including inner suburbs). Because immigrant households also tend to have lower incomes, these households tend to own fewer automobiles and drive less.

According to Ross' and Dunning's 1995 NPTS analysis, African-Americans, Asians and Hispanics are all more likely to use public transit or to walk than are Non-Hispanic White Americans. For immigrants this is also due to cultural preferences. Many came here from countries where the use of public transit is much more common. As these immigrants are assimilated into the general population we can expect their incomes to rise and driving to increase, but they are likely to continue to be willing to use transit as well, particularly if the availability, quality and convenience of transit continues to improve.

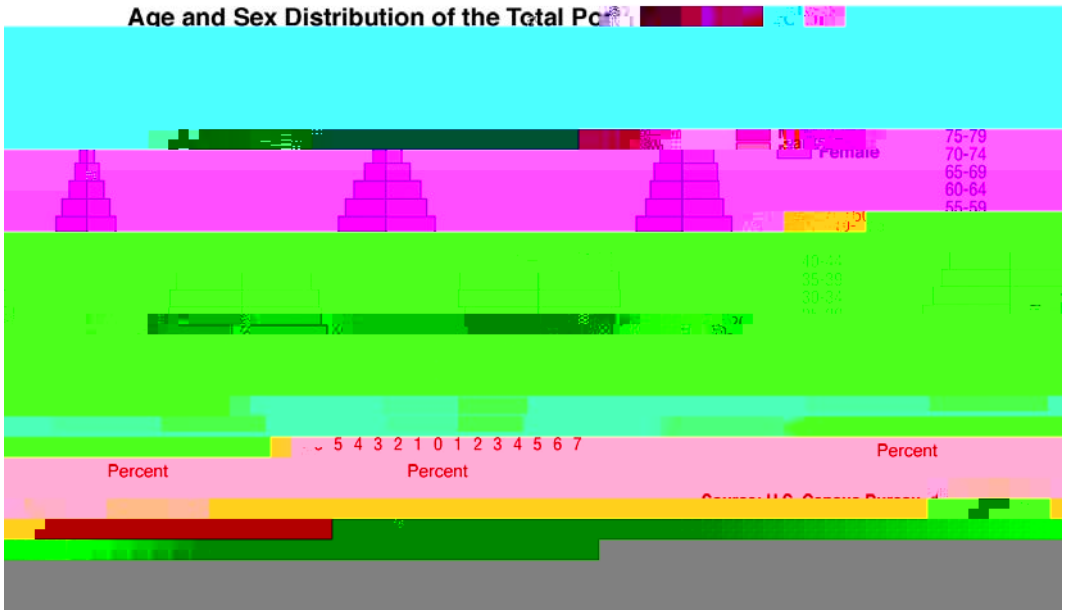


Figure 2: Age and Sex Distribution of the Total Population: 1900, 1950, and 2000

2 THE NATIONAL TOD DATABASE

T

A an, a	M	46	-
Ba, o	M	77	-
B o, o	E, n /	280	7
B a o	S a S a	15	-
C a o	N S a	-	18
C a o	E, n /	418	9
C / an	M	50	33
C o	N S a	-	14
Da a	M	54	23
D n / /	S a E an n	31	26
E C o n	N S a	-	15
Ga / o	S a S a	10	6
Ha	N S a	-	8
Ha o	N S a	-	12
H o o	S a E an n	18	-
Kan a C y	N S a	-	24
Lan a	N S a	-	3
La V a	N S a	-	5
L o A	La	124	40
L o /	N S a	-	22
M n	S a E an n	13	9
M a	M	40	20
M n a o -S . Pa	N S a	-	27
Na /	N S a	-	6
N O an	S a S a	17	47
N Y o	E, n /	962	30
N o o	N S a	-	11
P a n a	E, n /	337	28
P on	N S a	-	30
P	M	72	9
P o an , OR	La	110	22
Ra -D a	N S a	-	16
R a n , PA	N S a	-	5
Sa a n o	M	39	-
Sa, La C y	S a E an n	24	12
San D o	M	69	21
San F an oBa A a	E, n /	305	19
S a,			

Sa, , 9( ) / B0748.9(193 -)TT*-0.0001 T N6 M5(9 (Sa, , 9 /)-1M a)879 aS a, S 9aP TD-0.7Taa a / S 9aS 051 a 110

and expository maps of individual station areas, metropolitan regions and the nation as a whole. It is possible to generate information that permits comparisons between residents of transit zones and residents of the regions at large, as well as between and among these residents in other regions and the nation.

The 27 regions with existing transit systems all have fixed-guideway systems, but otherwise they are very different. The most salient difference, for the purpose of this analysis, is the size of their transit systems. Obviously, the more extensive the system, the more origins and destinations are accessible by transit, making transit a more viable alternative to driving. The 27 regions have been grouped according to the number of stations they serve, and they have been classified as small-static-system, small-expanding-system, medium-system, large-system and extensive-system regions. The distinction between static and expanding is made only for the regions with small systems because the regions with medium, large and extensive systems are all expanding their systems to some degree. Figure 3 shows the 27 regions by system size, along with the 15 New Start regions.

To illustrate the impact that the size of a transit system has on a region's ability to support transit-oriented development, four transit systems representing the four categories — small, medium, large and

A total of 14 million people or 6.2 million households live within a half-mile radius of existing fixed-guideway transit stations, according to the 2000 U.S. Census and the national TOD database. This equates to 12 percent of the total population of the 27 metro regions covered in this study. These transit zones represent only 1 percent of the total land area in these regions, clearly demonstrating that transit zones tend to be more densely populated than these regions as a whole. Eighty percent of the total transit zone population in the U.S. lives in the five regions that have extensive

metro region, for example, 10 percent of all residents live in transit zones, and in San Diego, California, 7 percent of residents live in transit zones – a percentage that is nearly twice the average capture rate for other metro regions with similarly sized fixed guideway transit systems. Figure 5 depicts the percentage of the population living in the transit zones by region.

Household Sizes Are Smaller In Transit Zones

In general, the average household size in transit zones is smaller than in the metro regions as a whole. However, the size difference is most pronounced in regions with small transit systems. Houston and Memphis, both small-expanding-system regions, have an average household size of less than two people in transit zones compared to two to seven for the regions as a whole. Interestingly, Los Angeles, a large-system region, has the highest average household size in transit zones with three people, which is also the average household size for the region as a whole.

Regions with small transit systems also have a higher percentage of single-person households in transit zones compared to the regions as a whole. On average, 51 percent of transit zone households in the small-system regions are single-person households, as compared to 27 percent for those metro regions as a whole. In the regions with extensive transit systems, in contrast, 34 percent of households in transit zones are single-person households compared with 27 percent for the region as a whole.

While the census data is not explicit about which types of households classified as "families" have children under the age of 20 living in them, it is interesting to note that more than 30 percent of the

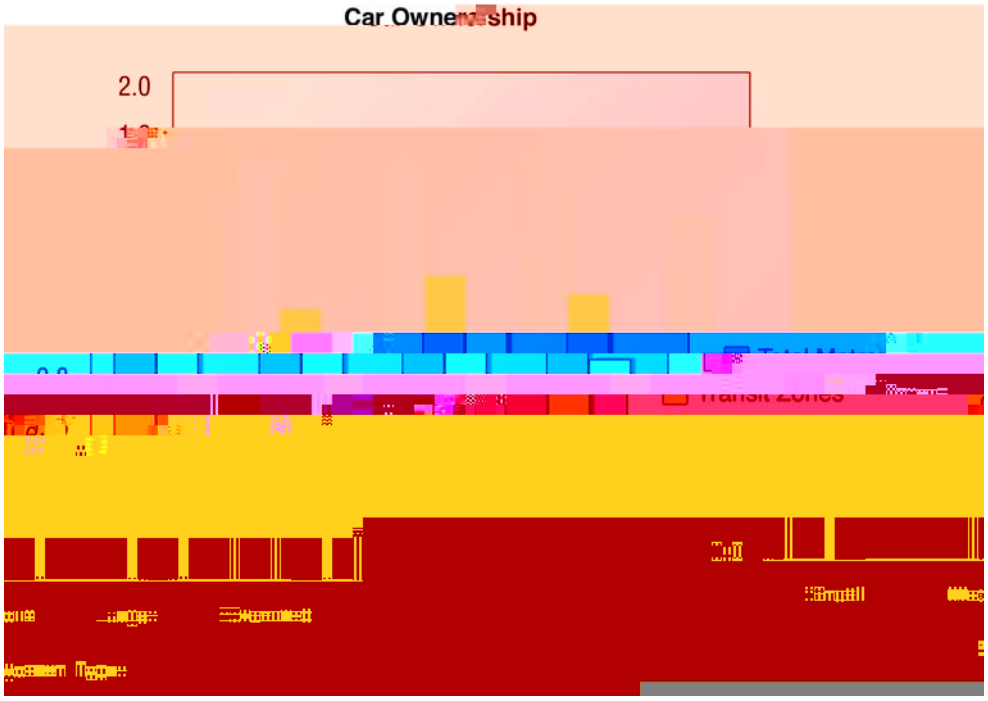
households in transit zones in medium-, large- and extensive-system regions are families of three or more people, as compared to between 42 and 45 percent in those metro regions as a whole. This seems to indicate that families with children are much more prevalent in transit zones in regions where the transit system offers a more viable alternative to the car.

Householder Age In Transit Zones Similar To Region

The age of residents of transit zones is relatively similar to the age in the metro regions as a whole. As with some of the other demographic variables, the difference is greatest in the regions with small systems, and most similar in regions with large or extensive systems. Not surprisingly, the biggest difference is for those under the age of 17; clearly there are fewer children living in transit zones. In contrast, there tend to be more people aged 18-24 in transit zones than in the regions as a whole. The difference,

Car Ownership Rates Are Significantly Lower In Transit Zones

Households in transit zones own an average of 0.9 cars, compared to an average of 1.6 cars in the metro regions as a whole. But there is little variation between car ownership rates in the transit zones versus the regions as a whole in those regions with small, medium or large systems. All of these regions average about 1.1 or 1.2 cars per household in transit zones, and 1.7 cars per household in the regions as a whole. Even some of the regions with extensive transit systems fall into this range. However, New York, which has the most extensive transit system in the country by far, has lower car ownership rates both for the region as a whole (1.5 cars per household) and for the transit zones (0.7 cars per household). Renters in the transit zones have even fewer cars per household than homeowners do. Renters in the New York region have an average of just 0.4 cars per household in transit zones. Evidently, the more a region is widely accessible by fixed-guideway transit, the easier it is for residents not to own cars. Evidence from Arlington County, Virginia suggests that lower rates of car ownership near transit may be by choice. According to research by Reconnecting America, car ownership rates near Metro stations in Arlington County are much lower than in the region as a whole, while average household income is higher than the regional average.



Significantly Fewer Residents Commute By Car In Transit Zones

effect of different demographic trends in different metropolitan areas. The potential demand estimate takes into account, explicitly or implicitly, a number of factors that could drive demand for transit-based housing: overall population growth, growth in the number of household types that will show a greater

Ten Metropolitan Areas Generate The Most Demand

The ten metropolitan regions that show the potential to generate the most significant demand for

potential demand by each metro area type.

The potential for growth in transit zone population is 250 to 300 percent in small-expanding, large, and New Start areas — far higher than the 117% figure for all metro areas combined. This is due to the same basic factors cited above: household growth and the emergence of transit as a viable mode of transportation and armature for regional growth. Las Vegas, Phoenix, Raleigh-Durham, and Dallas, for example, are all projected to see household growth of more than 50 percent by 2025, and all are building and expanding their transit systems. Many other metro areas with small-expanding, large, and New Start systems will also see household growth of 30 percent or more.

The potential for roughly 464,000 new units in metro areas with small-expanding transit systems may seem modest compared with the nearly 4 million potential new units in regions with extensive transit systems. However, the potential growth is significant in both percentage and absolute terms. Metro areas that currently have medium and large transit systems also have the potential to see very large growth in their housing stock in transit zones, in both percentage and absolute terms. Together, these two types of regions represent more than one-third of the total growth in potential demand and will represent up to 30 percent of the total potential demand in 2025. Their share of actual demand and construction may be even higher given their high growth rates and lower densities compared to regions with extensive transit systems.

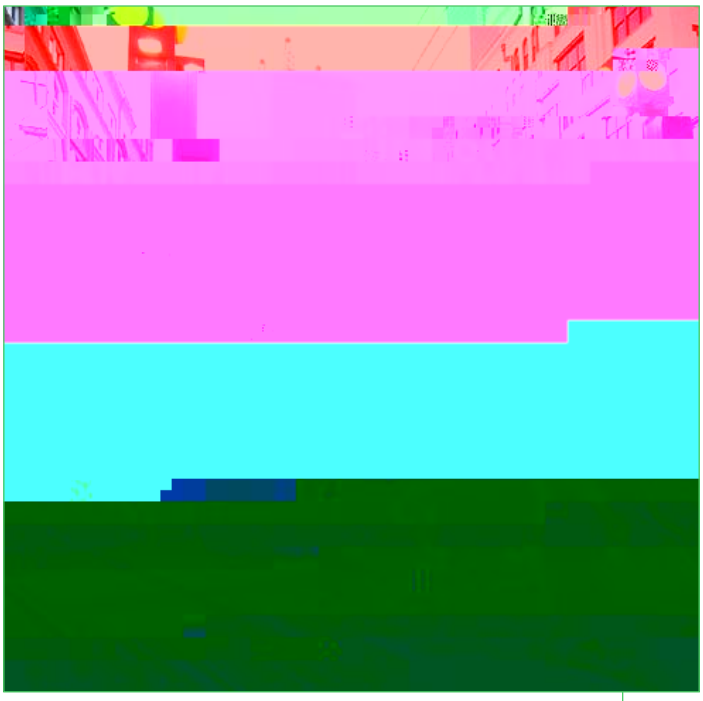


Photo by Dallas Area Rapid Transit

Potential demand for TOD is high in regions with small but expanding transit systems; in Dallas' West End neighborhood, for example.

Metro Areas With Emerging TOD Markets

Table 6 indicates the metro areas that are likely to emerge as significant new markets for housing in transit zones. Table 6 also shows that in these fast-growing metro areas, most of which lie in the Sun Belt, existing and future transit zones have the potential to accommodate anywhere from 15 percent to nearly 25 percent of the household growth projected between now and 2025. Though the change in these regions is small in absolute terms, given their size, the amount of new TOD housing has the potential to significantly shape development patterns and increase transit usage.

	2000-2025	2025		%
A an, a	50.4%	204,161	153,317	20.2%
H o . o	46.3%	151,644	139,413	20.6%
P n on	72.0%	149,363	120,247	14.0%
Ba, . o	59.6%	178,369	109,345	23.0%
Ta a Ba, A a	41.3%	109,786	100,026	24.0%
M n a . o -S. Pa	38.5%	113,928	88,327	20.2%
San D . o	46.3%	174,007	77,848	16.9%
La V . a	88.2%	81,783	75,870	14.6%
C a . o	54.3%	64,743	54,933	17.6%
Sa a n . o	44.7%	88,074	51,985	17.5%

N o : C n, H o . o n T an . Z o n . o . o n a- a a on . on , an P an . . a . o .

T 6: *Emerging TOD Regions*

2025

2025

2025

	# of Households	Age Group as % of Total	# of Households	% of Total Households Within TOD Plan	Age Group as % of Total
15-34	15,098,616	22.0%	3,392,642	22.5%	23.2%
35-64	34,549,718	50.4%	6,145,013	17.8%	42.1%
65+	18,835,991	27.5%	5,074,678	26.9%	34.7%
	68,484,325	100.0%	14,612,333	21.3%	100.0%

T 8:
Age Breakdown of All Projected Households and Potential TOD Residents

	2000	2000	2025	2025
A an a	1,504,871	50,844	2,263,875	204,161
Ba, o	798,844	69,024	1,275,278	178,369
B o o	2,378,587	417,393	3,135,789	839,500
B a o	468,719	19,628	474,698	32,467
C a o	575,293	9,810	887,721	64,743
C a o	3,361,804	816,351	3,968,737	1,447,012
C an	891,305	60,706	930,813	89,274
C o	610,757	25,522	839,126	61,301
Da a	1,906,764	57,017	2,965,771	264,532
D n	825,022	45,338	1,201,670	88,187
E , C o n	97,164	7,21	50,476	11,208
Ga o	94,441	7,025	138,170	11,514
Ha	248,931	13,136	315,205	23,882
Ha o	457,407	17,623	495,908	36,946
H o o	1,460,850	12,231	2,136,833	151,644
Kan a C,	694,468	20,588	910,441	66,015
Lan a,	172,560	4,141	220,605	16,659
La V a	588,371	5,913	,107,127	81,783
L o An	5,347,107	332,919	7,185,742	1,751,841
L o	412,050	11,751	503,345	36,182
M n	424,202	7,961	551,162	50,177
M a	1,905,394	63,917	2,786,714	262,552
Mnn a o -S . Pa	1,136,615	25,601	1,573,841	113,928
Na	479,569	2,782	718,243	52,502
N O an	505,579	53,535	573,067	59,640
N Y o	7,579,408	2,951,779	8,735,318	4,934,450
N o	577,659	7,723	744,287	54,174
P a n a	2,424,635	496,141	2,789,000	820,908
P on	1,194,250	29,116	2,054,679	149,363
P ,	966,500	44,357	975,669	91,714
P o an , OR	996,928	87,465	1,101,720	269,074
Ra -D a	461,097	10,104	736,646	53,253
R a n , PA	141,570	11,845	163,81	2,273
Sa a n o	665,601	36,089	962,918	88,074
Sa, La C,	432,040	24,732	646,030	53,654
San D o	994,677	96,159	1,454,824	174,007
San F an oBa, A a	2,470,199	429,145	3,601,521	985,441
S a,	1,368,730	86,408	1,681,732	124,576
S . L o	1,012,419	17,236	1,163,760	34,132
S a	282,601	6,161	293,312	1,019
Ta a Ba, A a	1,009,316	9,760	1,426,207	109,786
Wa n o , D.C.	2,073,074	252,227	2,642,535	650,417

T 9:
Demand For TOD Housing in All Metro Regions with Fixed-Guideway Transit

5 CASE STUDIES

Photo by Dennis Leach

Market Common's 400 residential units plus office over retail in Arlington, VA, fetched top dollar when it sold in 2003.

Seven case study regions were selected to demonstrate the TOD residential demand methodology and to investigate regional similarities and differences. The metropolitan areas chosen for the case studies vary by size and metropolitan structure, have different growth rates, and are served by very different transit systems. Not surprisingly, the analysis suggests significant differences in the way those systems serve their respective populations, which in turn, could impact demand for residential TOD.

The Case Study Regions Show Very Different Patterns Of Transit Use

Table 10 shows the number of stations and basic population statistics for the seven case study regions. Table 11 shows the average household size and population density of transit zones in the case study regions, and the number of stations per 100,000 residents. The density of service ranges widely. At one end of the spectrum is Chicago, which is well-served by fixed-guideway transit. With five stations per 100,000 residents, Chicago has the third highest "station density" in the country, after Philadelphia and New York. At the other end of the spectrum is the Los Angeles region, with only 0.8 stations per 100,000 people, one of the lowest ratios. The other metro areas fall at various points in between.

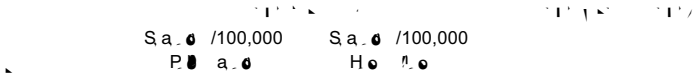
Not surprisingly, the percentage of the total population that lives within a half mile of transit stations also varies significantly, ranging from a high of 22 percent in Chicago — the second highest in the nation, after New York — to a low of 1 percent in Memphis. Washington D.C., with 3.1 stations per 100,000 people and 10 percent of the metro population living in transit zones, ranks quite high in terms of population living in transit zones, even when it is compared to the five regions that have extensive transit systems (Washington D.C.'s system is classified as large).

When one looks at the average number of residents per transit zone, Los Angeles ranks highest in the country, despite the fact that the transit system provides relatively poor coverage (as measured by stations per 100,000 residents). After Los Angeles, Chicago's transit zones are the most densely populated, followed by Washington D.C. and Cleveland. It would appear that even though the system in Los Angeles is small relative to the size of the overall region, its transit zones are densely inhabited, and therefore transit has the potential to serve a significant number of people.

T 10:
Number of Stations, Population and Households in Case Studies, 2000

M , o A a	M , o A a T	M , o A a	T a , Z o	% n TZ	M , o A a	T a , Z o	% n TZ
C a , o	N S a ,	1,499,293	21,813	0%	575,293	9,810	0%
C a , o	E , n /	9,311,088	2,088,487	22%	3,361,804	812,477	24%
C / a	M	2,247,700	129,388	6%	891,305	53,383	6%
D n /	S a E a , n ,	2,108,595	37,990	2%	825,022	17,450	2%
L o A ,	La ,	16,373,645	813,098	5%	5,347,107	263,470	5%
M	S a E a , n ,	1,135,614	16,810	1%	424,202	7,961	2%
Wa n , o , D.C.	La ,	5,491,942	545,772	10%	2,073,074	246,730	12%

N o : C n , H o o n T a , Z o n ONLY o o n a- a a , n , a o .



However, while these figures are good indicators of service density, they do not tell the whole story about the performance of the transit system and its ability to leverage demand for residential TOD. The more extensive the system, the more origin-and-destination combinations it services. In Chicago it is possible to travel by fixed rail transit from nearly any part of the region to any other part, while in Los Angeles the fixed rail system is more limited. Therefore, it should not be surprising that a smaller percentage of people use fixed rail transit in Los Angeles, even if they live close to a station, and in spite of the fact that population and household density in the transit zones is higher than in Chicago.

In fact, the 2000 Census journey-to-work data in Table 12 show precisely this: 16 percent of residents of transit zones in Los Angeles ride all modes of transit to work, compared to 25 percent in Chicago. But, in Los Angeles, 14 percent of total commuters are using buses, thus the rail system accounts for only a negligible share of the transit trips. In Chicago, on the other hand, bus only accounts for 11 percent of total commute trips. Corridors along bus routes also could — and in some instances, do — accommodate higher-density transit-oriented housing in the same way that transit zones do, but there are fewer examples to point to. As discussed earlier, this is something that can and should be encouraged. This is even more pronounced in the Washington D.C. region where 30 percent of commuters use transit overall, but bus only accounts for 8 percent of commute trips, indicating that the rail system is capturing a significant share of the transit trips. In the other four case study regions, bus captures virtually all of the transit commute trips.

Washington D.C. also stands out because a relatively high percentage of transit zone residents walk to work, even though the percentage of residents who walk to work in the region as a whole is not notable. This suggests that good transit-oriented development not only offers residents the option of using transit, but also non-motorized modes of transportation. This benefit may become even more apparent when one looks at non-commute trips. The high percentage of transit zone residents who walk to work indicates that transit zones in Washington D.C. support walking, and that residents are therefore likely to choose to walk for other trips, but the census provides no data to verify this hypothesis.

Although the percentage of transit zone residents who walk to work in Denver surpasses the percentage in Washington D.C., this may be largely a function of the fact that the rail system there mainly serves the downtown area, which skews the numbers since downtown is the most dense and walkable

This TOD market assessment indicates that 14.6 million households could want to live within a half mile of transit by 2025, an increase of 8.5 million households over the existing 6.1 million households who lived in transit zones in 2000. Although it is difficult to obtain data on the amount of land available for residential development in station areas, particularly at the national scale

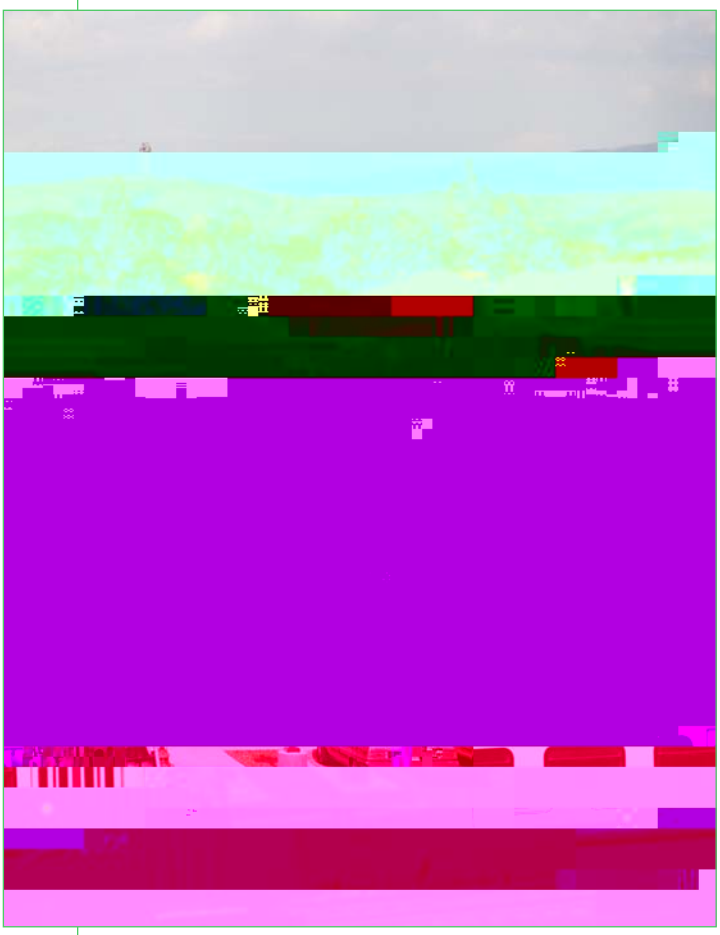


Photo by McLarand Vasquez Emsiek & Partners

Ohlone-Chynoweth station pioneered both multifamily and affordable housing in a single-family neighborhood in San Jose, CA.

This study focused on determining who lives near transit now, who is likely to want to live near transit in the future, where the most demand is likely to occur, and whether there is unused capacity in these transit zones. Further analysis and research is needed to better understand the interaction between metropolitan structure and the layout of the transit system, the importance of density relative to other features of the transit zones and the transit systems, the significance of household size, and the range of factors that affect the performance of transit systems in order to fine tune our understanding of how to accommodate residential demand.

While the capabilities of the national TOD database and the results of this study suggest many avenues for further inquiry, the study and especially the case studies support four major conclusions:

➤ First, any assessment of the potential of transit-oriented housing nationally should also consider regional context. Transit-oriented development is not a national panacea; it is a specific tool that requires different policies in different contexts. In some regions more density may be needed around transit, whereas in other regions more transit may be required to better serve existing high densities. In still other regions both density and transit may be sufficient, but there may not be the pedestrian connectivity that makes riding transit an easy and appealing alternative, or the transit system may not provide the regional connectivity that makes it a viable transportation option for residents.

➤ Second, not every region will experience the same magnitude of demand for higher-density housing near transit, but where the conditions are right, transit-oriented development could accommodate a significant share of regional growth, even in those regions that only have small transit systems.

➤ Third, building higher-density transit-oriented development projects that are walkable and that contain a good mix of synergistic uses will have benefits beyond increasing transit ridership. This is demonstrated by regions such as Washington D.C. and Denver, where a high percentage of transit zone residents also walk to work.

➤ Finally and most importantly, specific policies such as revising zoning and parking regulations will have to be put in place to ensure that the market can deliver a product that will help realize the potential demand.

Changing demographics and consumer preferences are opening a window of opportunity that could allow for a transformation of the American dream of a single-family detached home in the suburbs into something more sustainable and affordable – like a row house or courtyard housing or a condo in a high-rise building in a walkable neighborhood next to transit. As both home prices and rents increase and driving becomes more difficult and time-consuming, housing near transit at the very least offers the possibility of reduced transportation expenses, as shown by Dunphy, and time to read the paper on the train while commuting in the morning. Realizing the growing demand in the marketplace for lively, walkable, transit-oriented housing development will enable the national investment in transit to capture a greater return on investment.

REFERENCES

American Community Survey, 2002 PUMS Housing and Population files

Bajari, Patrick and Matthew Kahn, *Estimating Housing Demand With an Application to Explaining Racial Segregation in Cities*, National Bureau of Economic Research, Working Paper 9891, July 2003.

Belzer, Dena and Gerald Autler, *Transit-Oriented Development: Moving From Rhetoric to Reality*, Brookings Institution Center on Urban and Metropolitan Policy and Great American Station Foundation, June 2002.

Bernstein, Scott and Robert Soden, 2002. *Analysis of Household versus Housing Growth*. Chicago: Center for Neighborhood Technology.

Bier, Thomas and Charlie Post, *Vacating the City: An Analysis of new Homes vs. Household Growth*. Brookings Institute Center on Urban and Metropolitan Policy, December 2003.

Congress for the New Urbanism, *The Coming Demand*, 2001.

ACKNOWLEDGMENTS

We thank the following individuals for reviewing the methodology for preparing this study and commenting on our overall approach:

Robert Dunphy, Urban Land Institute
Joe Molinaro, National Realtors Association
Anne Vernez-Moudon, University of Washington
Ellen Seidman, Shorebank Advisory Services
Lee Sobel, U.S. EPA's Urban and Economic Development Division

The following individuals gave information, advice, or feedback that assisted with the completion of this project:

Enrico Moretti, Department of Economics, UCLA
Zhu Xiao Di, Joint Center for Housing Studies, Harvard University
Will Fleissig, Continuum Partners

The following individuals assisted in the preparation of this report:

Hank Dittmar, President and CEO, Reconnecting America
Shelley Poticha, Executive Director, Center for Transit-Oriented Development
Gloria Ohland, Senior Editor, Reconnecting America
Dena Belzer, President, Strategic Economics
Gerald Autler, Associate, Strategic Economics
Wells Lawson, Analyst, Strategic Economics
Cali Gorewitz, Research Assistant, Strategic Economics
Scott Bernstein, President, Center for Neighborhood Technology
Peter Haas, Technical Information Manager, Center for Neighborhood Technology
Albert Benedict, GIS Associate, Center for Neighborhood Technology

METHODOLOGY

GIS Database

Using data from the Federal Transit Administration (FTA)

large lot sizes that are probably surrounded by commuter park and ride lots and/or shopping centers surrounded by parking. Transit zone 2 is a similar distance from the CBD (22 miles) but has a higher residential density, older housing stock, and smaller block size. These zones are probably located in suburbs with functional downtowns where the transit station has played a central role. Transit zone 1 is, at an average 51 miles, the furthest from the CBD but the

The PUMS data include two files: one of housing units and the other of population. Individuals in the population

on the average existing percentages for the next metro area category in the typology; because all the systems except the small-static systems are being expanded, it was assumed that each region except the small-static-system metro areas would evolve to become more like the next larger region.

In most cases, the same capture rate for a given household type/age category was applied to all the metropolitan areas in a given category of metro areas (e.g. Salt Lake City and Denver, which are both metropolitan areas with small but expanding transit systems). However, if the current per-