

Transit Oriented Development (TOD) and Affordable Housing:

A Survey of Residents in Five East Bay Properties

The experiences of more than 200 households in five San Francisco Bay Area affordable housing developments shows benefits achieved through affordable housing near transit and possible strategies to reduce GHG emissions at non-TOD sites.

Funding for affordable housing development in California is in the midst of a sea change. The Affordable Housing and Sustainable Communities program (AHSC), built on Cap and Trade revenues, is currently one of the few sources for affordable housing in California to replace dollars no longer available as redevelopment set-asides. This new funding comes with strong requirements for sustainability features in site selection, including a focus on Transit Oriented Development (TOD).

Two decades of research now demonstrate environmental, economic and social benefits are possible when housing is located near transit, but also show automobile use may continue even in TOD locations. Less research to date has explored whether TOD location of affordable housing can meet broader goals of increasing the stock of affordable housing and providing other social and economic equity advantages, while reducing greenhouse gas (GHG) emissions from travel.

This study by the Association of Bay Area Governments (ABAG) and Resources for Community Development (RCD) examines the potential social, economic and environmental benefits accrued when affordability is paired with TOD by comparing affordable TOD housing and suburban non-TOD affordable housing. The study was conducted over the course of six months with responses from over 200 households at five affordable housing developments.

This report summarizes survey results, including residents' travel patterns, perceived changes in access to employment, satisfaction with nearby amenities, and improvements in quality of life since moving to the property. The report describes potential implications for policy makers and housing advocates and recommends strategies for producing greater sustainable (reductions in GHGs) and equitable (deeper levels of affordability) outcomes.



Survey methods: Survey sites reflect a mix of property and resident characteristics. Surveys were conducted in three languages.

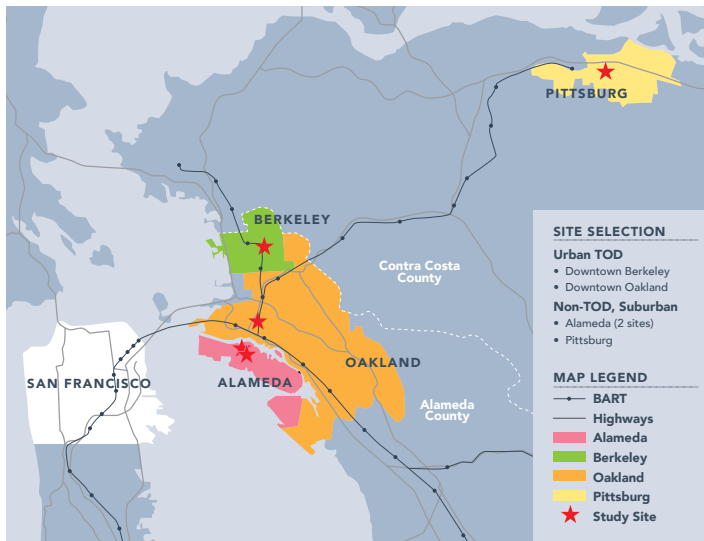


Figure 1: Study Overview Map

The five properties located in four cities in the study sample have a mix of attributes and characteristics, with regard to accessibility of the location, surrounding amenities in the area, and the demographics of resident households. Two of the properties are in TOD locations (Downtown Berkeley and Downtown Oakland). Three are not in TOD locations—two in the City of Alameda and one in the City of Pittsburg.

Note: For the purposes of this study, TOD was defined using the California Department of Housing and Community Development (HCD) definition in its Transit-Oriented Development Housing Program. Developments were categorized as TOD if they were within one quarter mile of a qualifying rail or ferry station or bus stop with ten minute headways during the peak period. The two downtown urban sites in our study, Berkeley and Oakland, both qualify as TOD sites by HCD’s standards.

Key Findings

- Residents of the properties in TOD sites use public transit more and car travel less than their counterparts in locations farther from transit options. Walking and biking are also options chosen when amenities are nearby.
- Among survey respondents, lower income households, in both TOD and non-TOD locations, drive less and take transit more frequently than higher income households. Higher income households travel further distances for work, school and recreational activities compared to their lower income neighbors.
- Households are sensitive to travel costs. The property with higher cost parking and fewer spaces had lower rates of car ownership and use, yet some households expected to reduce bus use following a transit system fare increase. Residents near free shuttle service rode the bus at a rate similar to those in the two TOD properties.
- Residents traveled the greatest distances to work, to places of worship and for medical care. Of all amenities, residents were least likely to change place of worship or medical services after moving into the RCD property.
- The great majority of residents reported that access to jobs was the same or easier after moving to an RCD property. Respondents were no more likely to report access to jobs improved in TOD sites compared to non-TOD sites.
- Most of the households surveyed had previously lived in the same city or a neighboring city. A much smaller share came from further away, at times moving closer to a job or schooling.

Policy Implications

- Affordable TOD housing is an effective strategy for reducing GHG emissions and reduction in VMT.
- The environmental, economic and social benefits of TOD are strengthened by focusing on deeper levels of affordability, providing options for extremely low-income and very low-income households.
- Programs to increase the cost of vehicle ownership in TOD locations or boost convenience of transit beyond TOD locations can improve access or encourage households toward travel modes that reduce vehicle miles traveled in private vehicles.
- Affordable TOD is not the only mechanism to achieve both environmental and quality of life outcomes. By locating housing near work, retail, schools and recreation, reductions in GHG emissions and VMT are possible in both urban and suburban locations.
 - ▶ Affordable housing projects near amenities like grocery stores, parks and schools can produce significant VMT reduction, even outside of TOD locations.
 - ▶ Innovative programs such as free shuttle connections to bus and BART service can boost ridership by residents of affordable housing properties more distant from transit services.
- Social and economic ties may lead households qualified for housing assistance to seek opportunities close to their existing residences. We need solutions for developing new affordable properties even where communities are not close to TOD. Programs such as AHSC could incorporate alternative strategies to address the state’s sustainability goals and meet the need for more affordable housing in locations around the state that do not meet the strict qualifications of TOD to qualify for funding.
- Employment issues are not resolved by transit accessibility alone, but a combination of travel alternatives, a denser population of employers, and property and community assistance services can improve employment options for affordable housing residents.

Throughout this report, key findings are presented by property location and type (e.g., TOD vs non-TOD, Berkeley vs Pittsburg) or by income categories (e.g., extremely low income vs higher income). Figures and tables are based on ABAG analysis of property data provided by RCD or the RCD resident survey.

Transportation Choices

Residents of affordable TOD housing drive less and travel shorter distances than residents of sites with less transit access. Where BART or bus transit is available, residents will take advantage of it. Yet it is also true that owning a car makes it more likely a resident will choose to drive to a destination, and inexpensive, available parking makes it more likely a resident will own a car. Nevertheless, both the TOD and non-TOD properties offered residents improved access to services relative to their prior locations, and residents often chose a mode of travel other than driving to reach nearby services.

Vehicle ownership increased the likelihood that households travel by car on a regular basis. However, residents living in TOD were less likely than their non-TOD counterparts to use a car during the week. Residents of affordable TODs own and use cars at a lower rate than residents in non-TOD sites.

Taking household income and car ownership into account, a TOD location significantly reduces automobile use. Even higher income households that owned cars were less likely to drive and more likely to use transit if they lived in a TOD location.

The proximity to BART remained a strong indicator of a resident's likelihood to use transit, regardless of whether the household owned a car.

Frequency of traveling by bus was greater at TOD locations, but the Alameda sites also showed bus use comparable to the TOD sites. Currently, the Alameda site is served by six AC Transit lines, including a Transbay line that provides direct access to Downtown San Francisco, as well as the free Estuary Crossing Shuttle connecting to Lake Merritt BART station and the Alameda Landing Express—a free shuttle connecting the Alameda Landing retail development to Downtown Oakland and 12th Street BART.

By contrast, although the Pittsburg site is also within a half mile of bus lines, the bus service is less frequent, charges full fare, and was perceived by residents as inconvenient. Thus, transit schedules and cost may also have an impact on VMT.

Figure 2: Car Ownership and Use by City

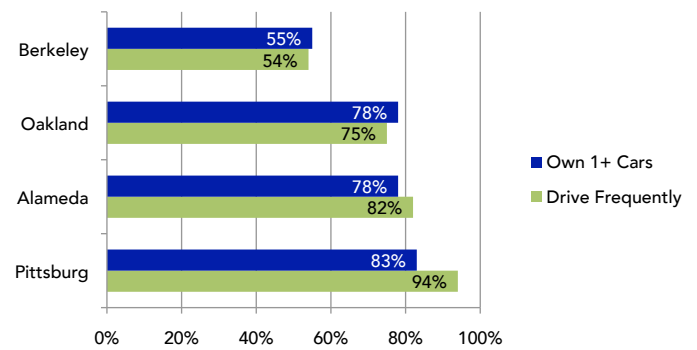


Figure 3: Car Ownership by Income Threshold

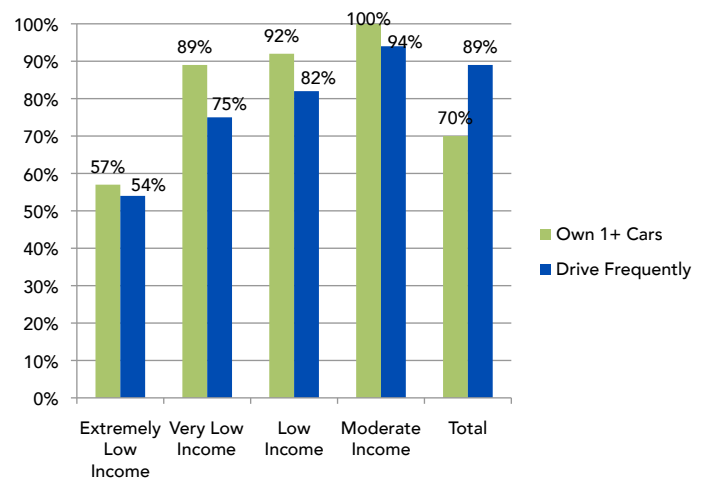


Figure 4: Households Using BART or Bus at Least a Few Times Per Week, by City

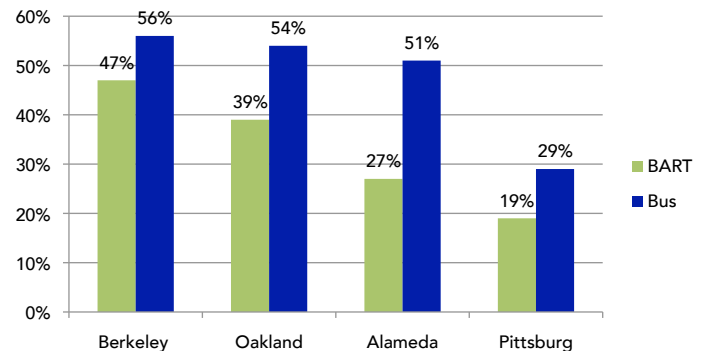
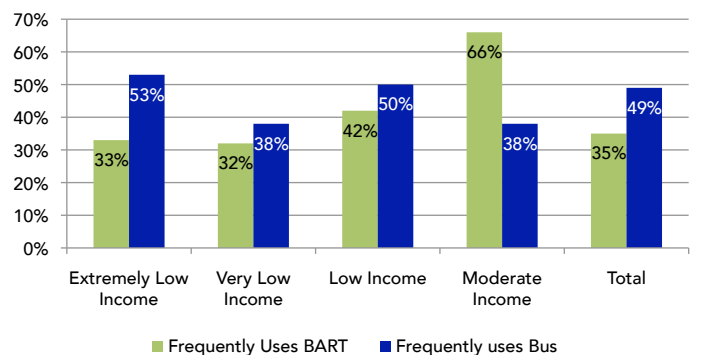


Figure 5: Use of BART or Bus at least a Few Times Per Week by Income Category

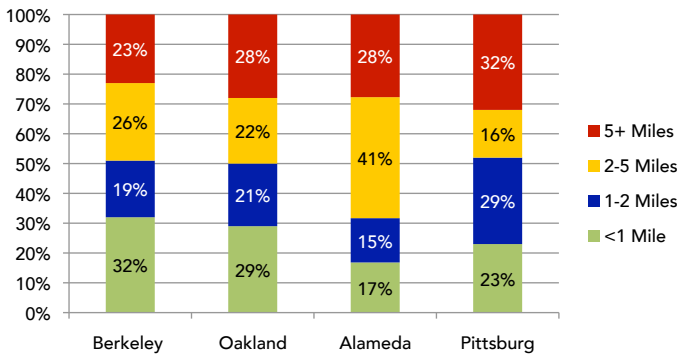


Download the full survey at <http://rcdhousing.org/transitsurvey>

Distance Traveled

Residents of TOD sites were more likely to be traveling to destinations less than a mile away. Alternatively, residents of suburban non-TOD sites were more likely to be traveling to destinations more than five miles away. However, both Pittsburg and Alameda residents still had a notable share of trips to destinations less than one or two miles away. As shown in **Table 1**, some types of destinations were equally or more convenient to the non-TOD sites as compared to the TOD sites.

Figure 6: Reported Destinations by Distance Ranges and City



Amenities and Location Advantage

Proximity to transit-rich areas, car ownership, and household income remain critical factors when considering household travel behavior and consequently GHG production through VMT. But other strategies and factors can also play a vital role in further reducing the amount of GHG emissions by residents, most notably the proximity of nearby parks, retail, schools, and recreational amenities. Residents of both TOD and non-TOD sites are more likely to walk if the destination is to a park, retail outlet, school, or recreational facility.

By locating affordable housing in amenity rich neighborhoods, residents were able to access the services and shops on a regular basis without relying on a car, further reducing GHG emissions through fewer VMT. Other types of destinations often require more distant travel. These included commuting to work, trips to visit friends, family, place of worship, child care, or a medical visit.

Table 1: Average Distance Traveled by Destination, Mode and City (miles)

	Berkeley	Oakland	Alameda	Pittsburg	Overall Average
Work	4.0	6.8	8.3	15.0	8.0
Groceries	2.3	3.3	2.6	1.8	2.5
Leisure	3.9	2.5	2.1	2.9	3.1
School	2.4	4.6	3.8	1.5	3.3
Medical	5.4	4.0	6.7	10.4	6.3
Worship	7.3	2.7	6.3	10.7	6.5
Car	5.6	4.6	6.3	8.2	6.2
BART	9.7	8.7	16.7	38.6	12.1
Bus	4.6	3.8	7.3	12.5	5.6
All Destinations, Modes	4.1	3.9	5.1	7.7	5.0

This study also focused on potential improvements to residents' quality of life. The survey asked a series of questions designed to gauge a household's perceived level of satisfaction with current housing and the benefits made possible by living near transit and/or amenity rich areas.

Residents who were seeking job opportunities and employment commented positively on the assistance provided on-site either through counseling services or amenities offered. Residents also appreciated the broader support the property facilities provide, from financial counseling to encourage timely payment of rent to after school and tutoring programs for children.

The Downtown Berkeley TOD property has less than one parking space for each unit and charges for the use of a parking space. This may contribute to the lowest rate for car ownership and usage among all properties surveyed.

The larger narratives attached to each city help to form residents' perception and informed their personal level of satisfaction with the property.

Although policy and planning decisions (such as parking policies and proximity to transit) are essential, they are not sufficient in guaranteeing sustainable outcomes, such as reduction in GHG emissions through VMT. Moreover, as the quality of life related questions indicated, it was often the larger context of the surrounding city and community that affected residents' overall perception and satisfaction.

Conclusions

The findings of this report make clear some of the ways in which proximity to transit and household income affect household travel patterns.

- **It is a regional problem needing local solutions:** Affordable housing properties draw residents primarily from nearby communities.
- **Affordable housing residents respond to transit opportunities:** Residents of affordable housing properties in TOD sites use public transit more and car travel less than their counterparts in locations farther from transit options. Walking and biking are also options when amenities are nearby.
- **Lower income households make the greatest use of transit opportunities:** Among survey respondents, lower income households, in both TOD and non-TOD locations, drive less and take transit more frequently than higher income households. Higher income households travel further distances for work, school and recreational activities compared to their lower income neighbors.

Sustainability and equity are not competing goals; by focusing on equity as an outcome we strengthen the effectiveness of sustainable strategies. A reevaluation of the weighting of amenities in allocating funds, focusing on the type of amenity and likelihood of using a nearby service, could extend resources to additional projects with the potential for providing beneficial outcomes in reducing GHGs and improved quality of life for residents.

- **Households are sensitive to travel costs:** The property with higher cost parking and fewer spaces had lower rates of car ownership and use, yet some households expected to reduce bus use following a transit system fare increase.
- **More households will walk or bike to nearby destinations:** By reducing the distances between housing and work, housing and retail, and housing and recreation, reductions in GHG emissions and VMT are possible in both urban and suburban locations.
- **Residents traveled the greatest distances to work, to places of worship and for medical care:** Of all amenities, residents were least likely to change place of worship or medical services after moving into the RCD property.
- **The great majority of residents reported that access to jobs was the same or easier after moving to an RCD property:** Respondents were no more likely to report access to jobs improved in TOD sites compared to non-TOD sites.

Figure 7: Access to Jobs from the RCD Properties

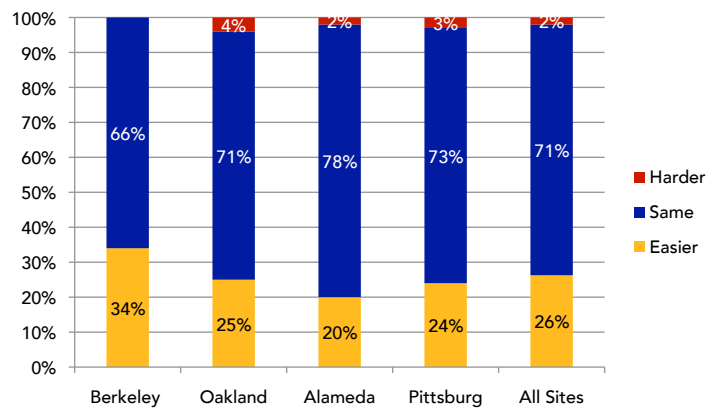
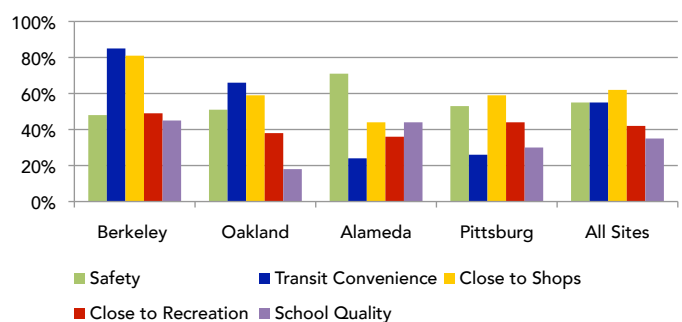


Figure 8: Percent of Households Responding Yes to Listed Advantage of Their Location



TOD is a viable and highly effective strategy to reduce GHG emissions through the reduction of VMT, but it is not the only mechanism to achieve both environmental and quality of life outcomes:

- Affordable housing projects near amenities like grocery stores, parks and schools can produce significant VMT reduction, even if transit links are weaker than at TOD locations.
- Innovative programs such as free shuttle connections to bus and BART service can boost ridership by residents of affordable housing properties more distant from transit services.

Restrictions or pricing on parking in transit rich areas combined with transit subsidies or free shuttle services to access transit can contribute to goals of GHG emissions reduction. By reducing the distance needed to travel for everyday activities and errands, residents in non-TOD sites can reduce their GHG emissions and VMT by utilizing nearby services.

Survey results suggest a strategy for affordable housing in TOD locations may be most effective when focused on different types of benefits at different income levels. Strategic development of both TOD and non-TOD in urban and suburban should continue to be supported in order to meet the local housing needs of every community, while furthering state wide and regional goals of sustainability and GHG reduction.

Thank You

Graduate students and faculty from UC Berkeley's College of Environmental Design also contributed to the project. Jonathan Malagon, a Master's student in Berkeley's City and Regional Planning Department, provided initial design and pretesting of the survey. Carlo De La Cruz devoted his summer internship and client project for the Masters of City Planning degree to this study, acting as survey manager for the implementation and analysis phases. UC Berkeley Professors Karen Chapple and Carolina Reid and RCD board member Marian Wolfe (also principal of Vernazza Wolfe Associates) reviewed the survey instrument and drafts at several stages. James Pappas, California Housing Partnership Corporation, and Robert Calkins, Contra Costa County, provided suggestions on project and survey design.

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