# Public Transit Boosts Property Values, If Conditions are Right

Public transit can increase the development potential of real estate near high-capacity transit lines and stations, and thereby increase property values. This "transit premium" can range from as little as a few percent increase to over 150 percent. The amount depends largely on the local regulatory environment, regional connections, and national and regional economics. Achieving the potential for this increased value of property also generally requires building more complex, mixed-use projects at higher densities, which entails higher costs of development and higher risks. Developers will be more likely to take on those risks if other transit-oriented development projects in the city have already succeeded. Unbridled, subsidized development in suburban and rural areas around a transit city also prevents transit stations from enhancing property values.

Over the past four decades cities in the United States (with federal assistance) have invested heavily in high capacity urban public transit systems—commuter rail, metro rail, light rail, and bus rapid transit. Now it appears there will be a renewed federal, state, and local interest in intercity passenger rail and even in high speed rail. Cities from Washington, D.C. to Dallas to San Diego to Portland have seen their transit systems spur robust development and redevelopment in association with these transit systems.

It has become clear that public transit can increase the development potential of real estate near stations and transit lines, and as a result can increase property values. However, the extent of this cause-effect relationship is affected by many factors and conditions. Accurately anticipating the impacts of transit investments on property values requires understanding not only the local development markets but the nature of the relationship between public transit and land values.

## Development around High-Capacity Transit

The term used to describe infill development, redevelopment and new development associated with public transit stations and lines is "transit oriented development" or TOD. A growing research literature (coupled with a rapidly-advancing professional planning and design practice) has been associated with TOD (see "Developers Are Building More Walkable Neighborhoods Around Transit Systems"). Billions of dollars of transit investment and associated private sector development investment have clarified the transit-development relationship.

A first step in addressing this topic is to focus on high-capacity transit. Not every kind of local public transit service generates a development response or increased land values. Most transportation planners believe bus transit routes do not attract significant land development investments. This is true in part because bus routes are perceived as impermanent services that could change to other locations and in part because of our cultural history, which has led to an association between bus transit and low-income and disadvantaged populations. Although this perception is generally inaccurate and outdated, we still do not see significant land development or investment as a result of bus transit services.

"High-capacity transit" is a term used for public transit systems that offer significantly higher travel speeds and ridership capacity than traditional urban bus services. For most practical purposes, four transit modes are included in the definition of high-capacity urban transit: commuter rail, metro rail, light rail, and bus rapid transit.

*Commuter Rail.* Commuter rail is a type of passenger rail transit service that operates between suburban areas and metropolitan centers and is intended primarily (but not exclusively)

to carry travelers commuting to work. Most commuter rail equipment is designed to operate safely on the same tracks that freight trains use. In the United States most commuter rail systems use diesel-powered locomotives, but in Europe most are powered through overhead electric lines. The locomotives are driven by human train operators and pull (or push) two to six passenger cars. Commuter trains operate at speeds up to about 125 m.p.h. Commuter rail lines tend to be longer than other types of urban rail transit, with corridor lengths ranging from 10 to 125 miles. Stations are spaced farther apart than other rail transit modes, with stations commonly placed at one to three mile intervals in developed areas and longer spacing on sections away from city centers (up to 15 miles in some locations).

*Metro Rail.* The term "metro rail" describes a type of rapid rail transit that operates in a grade-separated envelope, either in subway tunnels or on elevated structures (or both). Metro systems are the oldest type of high-capacity transit. Much of London's initial system was originally built in the 1860s. The technology spread quickly in Europe and also came to several of the larger U.S. cities, with the first U.S. system installed in New York City in the 1860s (initially using steam locomotives). Later these systems were electrified to solve the problem of coal smoke from the locomotives. Today, metro systems operate in many U.S. cities, including New York City, Washington, D.C., Atlanta, Miami, Philadelphia, Chicago, and San Francisco. Most metro systems draw electric power from "third rails" that carry high voltage alternating current that is deadly to humans. They tend to be high-capacity systems with hourly passenger capacities over 25,000 and potential operating speeds over 55 m.p.h. Most but not all metro systems use steel wheels on steel rails. Some metro systems have human train operators while others employ automated train control systems. Metro stations are generally spaced at half-mile to two-mile intervals, although this can vary widely depending on the density of the operating environment.

*Light Rail Transit (LRT).* LRT refers to a class of urban rail transit that is faster (up to 65 m.p.h.) and of greater capacity than streetcar or tram systems, but slower and of less capacity than heavy rail or metro systems. The use of the word "light" is a misnomer since light rail vehicles (LRVs) are not necessarily lighter in weight than vehicles used by other modes. LRT systems draw electric power from overhead wires and operate in exclusive rights of way, although some lines may operate for short distances on streets in mixed traffic. LRT lines may use low-floor vehicles or may board from high platforms. LRVs are designed with motors in each vehicle enabling operation either as single vehicles or in multivehicle trains and are controlled by human train operators. They are generally designed with full functionality for travel in either direction. LRT stations are generally closer together than commuter rail stations, with station or stop spacing ranging from a few hundred feet up to two miles. LRT has been the most popular form of urban rail transit in North America since the 1980s, with new systems implemented in many U.S. cities. Light rail systems have been credited with significant urban redevelopment benefits.

*Bus Rapid Transit (BRT).* BRT is a type of urban transit service where buses operate in exclusive travel lanes or "transitways" that separate buses from regular traffic. BRT operates at higher speeds than regular bus service and combines some of the characteristics of rail transit with some of the flexibility of bus service. Most BRT systems also employ other advanced technologies, infrastructure, and operational investments to provide a higher level of service than is possible with traditional bus service. BRT systems use "stations" or platforms much like those used for urban rail systems. Typical station spacing ranges from a half mile to two miles.

*Other Transit Modes.* Other transit modes operating in the United States include trams (streetcars), elevated people movers, and monorails. These are important transit modes with roles to play in our cities, but they are generally not as common and do not have the high-speed, high-capacity characteristics of the four modes described above.

## The Impact of Transit on Property Values

The amount of the "transit premium"—value added to property by proximity to high-capacity transit—may vary significantly depending a number of factors. These factors have been analyzed in the research reports cited at the end of this paper. The table below was excerpted and reformatted from a report prepared by Reconnecting America for the Federal Transit Administration (see Resources).

| Land Use | Transit Premium Range | |
|---|---|---|
| | Low | High |
| Single Family Residential | + 2 percent within 200 feet of station (San Diego LRT, 1992) | + 32 percent within 100 feet of station (St. Louis LRT, 2004) |
| Condominium | + 2 percent within 2,640 feet of station (San Diego LRT, 2001) | + 18 percent within 2,640 feet of station (San Diego LRT, 2001) |
| Apartment | 0 percent to + 4 percent within 2,640 feet of station (San Diego LRT, 2001) | + 45 percent within 1,320 feet of station (VTA LRT, 2004) |
| Office | + 9 percent within 300 feet of station (Washington, D.C. Metrorail, 1981) | + 120 percent within 1,320 feet of station (VTA LRT, 2004) |
| Retail | + 1 percent within 500 feet of station (BART, 1978) | + 167 percent within 200 feet of station (San Diego LRT, 2004) |

The idea of a "transit premium" is an extension of location theory, which has a long tradition going back to work done by Johann Heinrich von Thünen early in the 19th century. Basically the idea of location theory as it applies to transit is that property values are increased by the directness of connections to other properties with synergistic land uses. The amount of this transit premium appears to be strongly influenced by the following factors:

- *Local Regulatory Framework.* The nature and extent of the relationships between public transit and nearby land uses depends greatly on the regulatory framework, including local government zoning ordinances, subdivision regulations, and other administrative requirements. In particular, the potential for transit-oriented development patterns and associated benefits for land values can be negated by inappropriate zoning such as single use districts. Many cities do not have workable mixed-use zone districts in their zoning classification systems or have severely restricted their use. Resolving this may require a rewrite of the zoning ordinance or development of a "TOD overlay district" to override limitations in the underlying zone district. Other regulatory barriers may include outdated street design standards that mandate high-speed auto-oriented streets inappropriate in urban, transit-served places.

  Many cities in the United States have been actively engaged over the past couple of decades in updating their ordinances and regulations to encourage the formation of vibrant, economically vital TOD districts, and there are many fine examples of urban institutional settings where TOD can succeed. Some cities, however, including those just now working on their first significant high-capacity transit lines, may not have adequately addressed this need yet. Until those issues are resolved, the potential for land value appreciation associated with transit lines in such cities may be limited. One particularly important factor influencing TOD economics is the local parking ordinance. Urban TOD districts should not be required to supply off-street parking at suburban ratios. Where this has not been addressed through a TOD zone district or overlay, the viability of TOD development patterns will be limited.

- *Regional Connections.* Research indicates that as the size of the area and population directly connected by transit to a given station location increases, the potential value added to nearby property increases. Regional high-capacity transit networks provide fast, direct connections between workforce populations and employment centers, and commuting is the largest category of urban transit ridership, especially on rail lines. Such networks also provide many other kinds of connections that generate business volume and increase property value proportional to the total area and population served. So single transit lines serving a small city or a small portion of a metro region will have less impact on property values than an extensive network of transit lines connecting an entire metro region.

- *National and Regional Economics.* Transit adds value in strong markets, but cannot "swim against the tide" in weak economic conditions. The health of the national and regional economies is obviously critical to the timing of TOD land acquisition and TOD development projects. The benefits of a TOD location will probably not outweigh the effects of a general recession such as the country faced in 2008 and 2009. Similarly, transit cannot overcome the basic structure of regional economies or the inherent characteristics of local development markets. If office space is overbuilt in a region, then office space in a TOD area may perform poorly. It might outcompete other new office space, but the amount of the "transit premium" may be small and the viability of the development may be questionable.

## Cost of Development and Risk

Achieving the potential for increased value of property in a transit-oriented district generally requires building more complex (mixed-use) projects at higher densities. Such projects naturally entail higher costs of development and higher risks. In many places, the per-square-foot cost of multistory buildings and structured parking is significantly higher than the cost of low-rise buildings with surface parking, even taking into account the cost of the land. Until property values and rents are high enough to tip the balance toward vertical development, such projects will not be feasible.

So one of the impacts of the transit premium is to make mixed-use, high-density projects potentially more profitable than they would be in the absence of transit. But while this can increase the total return on an investment in TOD property, it also makes the development of a TOD site inherently more risky due to the higher costs of development. Local governments wishing to encourage mixed-use, high-density development near their transit stations should take steps to help developers manage and limit the costs and risks associated with such projects.

One of the most important strategies for reducing the costs of TOD development is the adoption of appropriate parking supply requirements. The reduced parking demand associated with dense urban development—and with TOD in particular—offers significant potential cost savings by reducing the amount of high-cost structured parking required.

Out-of-date suburban parking ordinances that require four new off-street parking spaces for every 1,000 square feet of commercial space, or two parking spaces for every apartment, will present a major barrier to TOD development. Revising the parking requirements for TOD projects through a shared parking provision or a TOD zoning overlay district can reduce the cost and risk of TOD projects, which in turn can increase the size of the "transit premium."

Another factor that can affect development cost and risk is the tendency for speculation in TOD property to occur early in the life of a transit line, long before the transit line opens. A run-up in land prices associated with TOD speculation can actually discourage transit-oriented development because the inflated land costs require higher returns from development than may be possible in a regional economy. This appears to have happened in the Midtown area of Houston along the Red Line and is occurring now in the Denver region around stations on the 113-mile FasTracks rail system. An interesting side effect of this can be seen where transit-induced development occurs near, but somewhat removed from transit stations (due to less speculation and lower land costs) before development occurs adjacent to the same stations.

## Competition with Suburban and Rural Development

One sure way to discourage TOD development and to thwart enhanced property values around transit stations is to allow unbridled, subsidized development in suburban and rural areas around a transit city. For many years following the opening of the MARTA metro-rail system in Atlanta, lands near the MARTA stations failed to appreciate significantly in value and dense development failed to occur. In fact, throughout much of the 1980s and early 1990s, the MARTA experience was frequently cited as "proof" that urban development would not respond to public transit investments.

The underlying arithmetic is simple. Land at the fringe is usually much less expensive than land at urban locations near transit stations. And in many jurisdictions, transportation costs associated with "greenfield" projects are not fully assessed to the developer but rather are borne by state and local governments (in the absence of impact fees or growth management systems). In that kind of market, high-cost, vertical TOD projects on expensive land near transit stations will be competing against simpler projects offering lower rents and prices elsewhere in the same region. The best example of a situation that was close to the opposite of Atlanta in the 1980s was Portland in the 1990s, where robust, coordinated regional growth management measures limited the availability of low-cost rural lands for development, increasing the pace of TOD development around stations on the expanding LRT network.

While there is room for debate about what are the best public policies in light of property rights and other issues, there is little doubt that high-density TOD projects (producing an associated "transit premium") are unlikely to occur where low-cost suburban and rural development is dominating the market with low rents and low property prices.

## Local, Successful Predecessor Projects

Finally, it is important to acknowledge the role that previous successful projects play. Developers must manage risk carefully and are often reluctant to introduce a new "product" that has not been tested in a regional market. TOD projects are inherently risky (see above) and may require types of development that developers are not experienced at implementing. For example, many local developers specialize in residential projects or in a particular kind of commercial project. Such companies will be reluctant to pursue complex, vertical, mixed-use projects.

Similarly, even though most of today's financial institutions are part of large national conglomerates, their staffs are often local. Complex vertical projects with shared parking adjacent to transit stations may have little appeal to local bankers until there are some local successful examples. Because the "transit premium" cannot manifest itself until there is development interest in TOD properties, the amount of transit-added property value may be low in the early years of transit in a given city or region.

## Case Study: Dallas Area Rapid Transit

The Dallas area transit agency—DART—manages a multimodal transit system with bus, HOV, commuter rail and light rail elements. The LRT system began operating in 1996, currently includes over 45 miles of light rail lines, and is being expanded. Ridership response to the LRT system has been strong and development response at transit stations has been robust.

A research team from the Center for Economic Development and Research at the University of North Texas conducted a study for DART that provided an assessment of the fiscal impacts of transit-oriented development associated with development of the Dallas Area Rapid Transit light rail system. The objectives of the research were primarily to estimate the fiscal impacts of TOD—property tax and sales tax revenues—but a necessary first step in estimating the fiscal impacts was estimating the property appreciation associated with proximity to the LRT stations. The analysis considered development near existing and planned light rail stations. The findings supported the conclusion that the transit-oriented developments associated with DART Rail stations offered substantial fiscal impacts for local taxing entities. The paper, entitled "Assess-

ment of the Potential Fiscal Impacts of Existing and Proposed Transit-Oriented Development in the Dallas Area Rapid Transit Service Area" may be downloaded at: http://www.dart.org/about/WeinsteinClowerTODNov07.pdf.

## Case Study: Portland Streetcar

The metropolitan region around Portland, Oregon has been one of the leading places for transit-oriented development and innovation in the United States for the past three decades. The Portland MAX LRT line from downtown to Gresham was one of the early successful LRT projects in the United States and helped set the stage for many similar projects in places like Sacramento, St. Louis, and Denver.

Beginning in 1992 the city initiated development of a streetcar line connecting the main part of downtown with the Pearl District—an old warehouse and manufacturing area next to downtown. Ultimately the system was extended to the South Waterfront area and the Portland Aerial Tram. Further extension across the river into a multidistrict loop is underway now. The City has kept track of the development impact of the streetcar, with about $3.5 billion in new development occurring within two blocks of the streetcar alignment. A brief factual analysis of the impact that the Portland Streetcar has had on development and property values in the central city area of Portland Oregon, entitled "Portland Streetcar Development Oriented Transit" may be downloaded at: http://www.portlandstreetcar.org/pdf/development_200804_report.pdf.

## Suggested Websites and Research Reports

The following are websites and research reports that are available for more in-depth discussions of the relationships between transit and property values.

A summary analysis of the relationships between transit investments (primarily rail) and nearby property values was included in a report prepared for the Federal Transit Administration by Reconnecting America. This report, entitled "Capturing the Value of Transit" (as well as several similar documents on related subjects) may be downloaded from the Reconnecting America website at: http://www.reconnectingamerica.org/public/reports?page=2.

An overview of practical TOD implementation, focusing on relationships between real estate development and various forms of transit, was prepared by Reconnecting America for the Local Initiatives Support Corporation: http://www.lisc.org/files/8185_file_phoenix_tod.pdf.

Transit has its greatest impact on mode share at large, mixed-use destinations that are also major employment centers. A paper documenting this relationship written by Dr. Gary Barnes at the University of Minnesota, entitled "The Importance of Trip Destination in Determining Transit Share," may be downloaded at: http://www.hhh.umn.edu/centers/slp/transportation/transreports/pdf/landuse_policy_address_congestion.pdf.

One of the factors that will influence property values near transit in the future is the impact that motor fuel prices have on choice of housing location. A thought-provoking white paper on the relationships between the market for suburban housing and gas prices, written by Joe Cortright for CEOs for Cities, entitled "Driven to the Brink: How the Gas Price Spike Popped the Housing Bubble and Devalued the Suburbs" may be downloaded at: http://www.ceosforcities.org/pubs_projects.

## Further Reading

The following documents represent source material for the reports cited above. They are all readily available for download.

Cambridge Systematics, Economic Impact Analysis of Transit Investments: Guidebook for Practitioners, TRB Report 35, Transit Cooperative Research Program, Transportation Research Board (www.trb.org), 1998. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_35.pdf

Diaz, Roderick B., Impacts of Rail Transit on Property Values, American Public Transit Association Rapid Transit Conference Proceedings Paper, May 1999. http://www.rtd-fastracks.com/media/uploads/nm/impacts_of_rail_transif_on_property_values.pdf

Parsons Brinckerhoff, The Effect of Rail Transit on Property Values: A Summary of Studies, Project 21439S, Task 7, NEORail II, 2001. http://www.reconnectingamerica.org/public/show/bestpractice162

Smith, Jeffery and Thomas Gihring, Financing Transit Systems Through Value Capture, Victoria Transport Policy Institute, 2006. http://www.vtpi.org/smith.pdf