



Bus Rapid Transit and Development: Policies and Practices that Affect Development Around Transit

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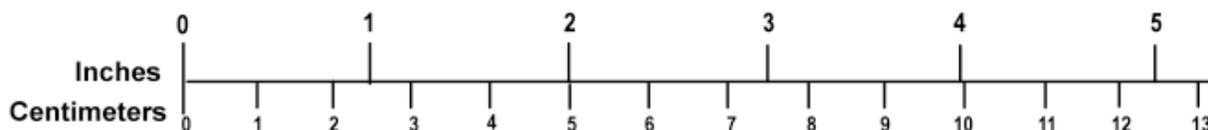
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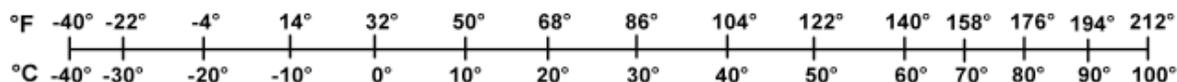
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Foreword

The development of Bus Rapid Transit (BRT) systems is relatively recent in the United States, but several systems are in operation and more are advancing. There is a need for a more comprehensive understanding of the relationship between land use and BRT system development, particularly in comparison to other fixed-guideway modes such as heavy and light rail. While recognizing that existing land uses have an important and complex influence on the development costs and benefits of fixed-guideway projects, this research focuses primarily on the impact such projects have had on existing and future land uses and economic development, as well as the policies and practices that have been used by local governments that have the potential to affect development. Finally, additional note has been taken as to whether the benefits and incentives offered along transit corridors between Bus Rapid Transit (BRT) and Light Rail Transit (LRT) are equitable in cities where both modes operate.

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Executive Summary

Bus Rapid Transit (BRT) is growing in popularity and gaining more attention as more cities look to develop new means of rapid transit. There is a need, however, for a more comprehensive understanding of the relationship between land use and BRT system development, particularly in comparison to other fixed-guideway modes such as light rail (LRT). This research will discuss current or potential development impacts along BRT corridors in North America, and the policies and practices that have been implemented within each respective city that has the ability to affect development patterns around transit. To allow for further consideration in regard to equitable implementation and allocation of policies and incentives for development between BRT and LRT, the cities that were selected for discussion are those in which both modes operate.

Summary of Findings and Recommendations

Development along BRT corridors has often been encouraged through different land use policies or practices that have been established and adopted by local governing agencies or by other contributing organizations. It is therefore understood that a particular city's

approach to the transit culture has the ability to shape and determine whether or not development occurs and if it will be successful. These policies and the local climate may be more of an important factor than the issue of permanence of a transit system.

Significant development has occurred along the Boston Silver Line and, although some may question whether or not the development has occurred because of the BRT or because the areas were slated for redevelopment, this may not be the most important issue; what has been shown is that the city has included BRT in their policies and plans and labeled it as a rapid transit mode that is significant and capable of supporting both development and the resulting increased demand for transit ridership in those particular locations.

The cities of Boston, Ottawa, and New York have each implemented parking mitigation measures in an effort to increase transit ridership and decrease congestion. Although these policies may not have been directly implemented in an effort to encourage transit oriented development, they have the potential to result in an increased demand in transit and greater density development around transit stations.

When evaluating policies that encourage economic development and whether or not they are equally applied to both BRT and LRT, the research has found the following:

- In Baltimore, the establishment of Maryland Base Realignment and Closing (BRAC) zones supports rail development. Bus Rapid Transit has not been included in any incentive programs or policies. BRT begins operation.
- Along the Orange Line in Los Angeles, transit oriented development has not been significant, yet a great deal of development has occurred at the North Hollywood station, where both rail and BRT stations are located. There are many incentives available to developers but public demand and developer appeal will determine which areas are developed in the future.
- In New York City, there are no specific incentives for BRT or LRT; future plans and development seem to favor mass transit in general. Environmental

impacts may become a deciding factor of which system utilizes the possible benefits.

- There are no specific incentive programs or incentives for corridor based development in Pittsburgh, but the passage of the Transit Revitalization Investment District (TRID) Act laid the foundation for TODs to be implemented. The legislation has no specific qualifier that would exclude BRT or LRT.

Future amendments, resolutions, and policies could improve incentive based BRT development and truly differentiate it from LRT. As it stands today, there are no noticeable differences between the incentives offered by the studied cities for BRTs and LRTs. The development around mass transit corridors seems to be dependent upon public support and developer interest with various factors determining the interest in the corridor development.

Introduction

Bus Rapid Transit (BRT) is growing in popularity and gaining more attention as more cities look to develop new means of rapid transit. The reason for the shift from rail transit is BRT's passenger attractiveness, the better cost effectiveness of BRT versus Light Rail Transit (LRT) implementation, comparable performance, and quick implementation speed. BRT also is able to handle large numbers of riders and meet the needs of even large metropolitan areas.

There is a need, however, for a more comprehensive understanding of the relationship between land use and BRT system development, particularly in comparison to other fixed-guideway modes such as light rail. While recognizing that existing land uses have an important and complex influence on the development costs and benefits of fixed-guideway projects, this research will discuss current or potential development impacts along BRT corridors at selected North American sites, and the policies and practices that have been implemented within each respective city that has the ability to affect development patterns around transit. The cities that were selected for discussion are those in which both BRT and LRT operate in order to allow for further consideration in regard to equitable implementation and allocation of policies and incentives for development between the two modes.

To understand the economic and demographic context as well as any relevant policies that encourage development along the transit corridor, background research for each city was conducted as well. In an effort to collect data and understand the context of each system and any related development activity, interviews were held and further research conducted.

Plans, policies and institutions each have the capability to affect development. Any of these may provide incentive or disincentive for new developments or concentration of ongoing development along transit corridors:

- Local land use plans, policies, zoning, and capital improvement programs.
- Financial and non-financial incentives (e.g., density bonuses, tax incentives, streamlined development application process, loan support etc.).
- Structure of tax revenues for local jurisdictions.
- Experience of the transit agency and other local institutions.

It was determined that six cities were to be included in the study. These cities were chosen because in addition to already operating light rail they are either operating or implementing/planning at least one Bus Rapid Transit (BRT) line.

The included cities are:

1. Los Angeles, California
2. Ottawa, Ontario
3. Boston, Massachusetts
4. New York, New York
5. Baltimore, Maryland
6. Pittsburgh, Pennsylvania

In addition to reporting policies for the selected six cities, additional research was conducted on cities in which only light rail is currently in operation in an effort to report on any land use and transit oriented development policies and practices that have been implemented which may have had an impact, or may encourage future impacts, on development along the LRT corridors. These three cities, Portland, Oregon; San Diego, California; and San Jose, California, are each briefly discussed.

Literature Review

Transit-Focused Development and Land Use

Transit-oriented development (TOD) is a method of development that aims to counteract the trend of sprawling, automobile-based suburban development. During the past half century, North Americans have experienced changes in the economic, social, and environmental aspects of their lifestyles. Areas have witnessed the loss of open space and agricultural lands, a decline in the importance of the public realm, a diminished sense of place, and increasing dependence on the automobile.

TOD involves increasing the density of housing, offices, stores, and services around mass transit stations in an urban region, and making pedestrian access easy, in order to encourage the use of transit and reduction of automobile driving. TOD is intended to influence both travel to work (commuting and business travel), as well as all of the other reasons for local travel (otherwise known as non-work trips, which include shopping and leisure travel).

Urban Structure, Density, and Design

The link between land use and transit patronage is often discussed among transportation professionals and land use planners. Urban structure (the spatial layout of a metropolitan area), density (in terms of residential and employment), and design (which are the characteristics of the urban structure on a small scale), each affect the role of transit in a community (TCRP Report 16). It is necessary to further discuss all three of these terms in order to understand their role in creating an environment that is transit friendly, or transit-oriented.

Urban Structure

The economic vitality in an urban area, specifically the presence of job locations, influences and shapes the urban structure. Economic vitality is also shown to greatly affect the use of transit. Greater numbers of jobs in a metropolitan area result in increased transit use. Conversely, an area with fewer job locations will tend to have less of an effect. Central Business Districts (CBD), which are urban areas in which employment is concentrated, have traditionally been the greatest driving force in the encouragement of multiple modes of transportation.

In a study to examine travel behaviors at three activity centers outside the CBD, TCRP researchers in Houston (Rice Center, 1987) found that workers in the CBD are five times more likely to use transit than workers in the activity centers (locations that generate large numbers of trips), even though the travel time to work was comparable (TCRP 16, Vol. II). A study conducted by Cervero and Landis (1992) evaluated how the relocation of jobs from downtown San Francisco to the suburbs affects commuting patterns and mode choice. The results of the study found that the occurrence of drive-alone commuting increased, while transit work-trip modal splits dropped from 58 percent to 3 percent.

Another urban structural arrangement is the development of sub regional centers. Additional studies have found that workers in more compact suburban activity centers used transit more than workers in less dense environments. Located outside of a CBD, sub regional centers can have a positive impact on transit if they are built at or near transit stations. Similar to CBD's, sub regional employment centers also lend to an increase in transit use in bidirectional flows of the system. In Ottawa, where a widely used busway system is available, the development of commercial and office space at busway stations is encouraged. By spreading trip destinations throughout the area, the effectiveness of the transit system is reinforced. In 1996, approximately 70 percent of all work trips had a downtown destination, while the remaining 30 percent of trips were to suburban employment centers that were located along the busway (TCRP Report 16, Vol. II).

A similar situation exists in Vancouver, B.C. Six Regional Town Centers are in the Vancouver region, with four serving as downtowns for communities with populations of 100,000 to 200,000. The development of employment sites at these centers has increased the use of transit, given that it occurs at locations which are served by high-capacity transit (TCRP Report 16, Vol. II).

Density

The likelihood of multiple modes of transit increases with greater density. The relationship between the compactness of development and the use of multiple modes is evident when analyzing trip behaviors. Persons that do not have a long travel time are more likely to use bicycles or walk to their destination. In addition, persons are more likely to use public transportation if they do not have a far distance to travel from the nearest stop to their final destination.

Studies have shown that areas that intermingle uses (residential with commercial, etc.) have a greater success for transit usage. Additional studies have shown that dense

residential development near transit stations mark an increase in transit usage. The TCRP Project H-1 study found that residential densities affected commuter mode choices, the number of transit trips per person, the proportion of personal trips by transit, and the number of rail station boardings. Specifically, the study concluded that “a doubling of station-area residential densities increases light rail boardings by almost 60 percent and commuter rail boardings by 25 percent” (TCRP Report 16, Volume I).

In another study conducted by Cervero, “Rail Transit and Joint Development: Land Market Impacts in Washington, D.C. and Atlanta” (1993), it was determined that suburban shopping areas that incorporated mixed uses were more likely to facilitate the usage of transit than those that did not. Cervero’s study found that suburban activity centers with residential densities affected the travel behavior of people: instances of trips made by foot, on bicycle, or by transit were greater than activity centers where residential housing did not exist.

Design

The design of an urban area is also an important characteristic to consider in assessing the area’s capability to encourage the use of transit and other modes. Streets that are pedestrian friendly, through the provision of crosswalks, curb cuts, and sidewalks, are beneficial to communities that provide multiple modes. The safety and convenience of these amenities allow for greater pedestrian traffic, as opposed to locations without them. As previously mentioned, if the design encourages the intermingling of uses, such as residential uses above commercial uses on the street front, pedestrian activity is increased even more.

1000 Friends of Oregon, a nonprofit charitable group organized to protect Oregon’s quality of life through land use planning, found that street crossings on arterials, street connectivity, sidewalk connectivity, and the lack of topographic features unpleasant to pedestrians increased transit usage. The nonprofit group also found that pedestrian-friendly design mixed with residential use can reduce trip generation up to seven percent (Friends of Oregon, 1995).

The inclusion of additional amenities into an environment may also increase the use of transit as well. Benches for persons to sit on and lighting are two examples of amenities that may facilitate the use of transit by encouraging individuals to come to the street front. In addition, many design architects and planners also argue that the location of storefronts affects the activity near the street as well: stores that are closer to the street are more likely

to encourage pedestrian access and transit usage, as opposed to streets with large parking lots in the front that would encourage the use of an automobile.

Urban structure, density, and design each play a role in providing areas that are more likely to be successful in transit use. Combined, these three factors form the base of needs necessary for an area to support transit patronage. Each of these characteristics has an affect on the ability of transit-oriented development to succeed; however, the combination of all three determines the success of the system.

Individual Factors that Determine the Success of Transit-Focused Development

In 1996, TCRP H-1: Public Policy and Transit Oriented Development conducted an evaluation of the relationship between land use and transit planning near transit stations. The study included six case studies, which evaluated cities in the United States, Canada, and Brazil with populations between 0.7 and 4.4 million residents. In an effort to answer questions about why, how, and when development around transit stations occurred, the report identified factors that were supportive for development at the station area.

The report concluded with a “Summary of Principles” which is to be used for integrating transit and land within the areas of stations. These principles are to characterize regions with successful transit-focused development. It was determined that many of these principles, whether used in combination with one another, or simply on its own, can significantly impact development patterns around transit stations. The principles and a summary discussing their meaning, as they appear in TCRP H-1, are listed below.

- “Regional Vision – Regions that have successfully integrated transit and land use planning have developed a vision of the preferred future settlement patterns for their region. Local governments share this vision and develop land use regulations that implement this vision. Transit investments are used to support the land use vision.
- Strong, Respected Institutions – The regions have governmental agencies – transit providers, regional planning bodies, or redevelopment agencies – with the authority (sometimes granted by the state or province, sometimes based on performance) to make transit oriented development work. There are strong working relationships between local and regional government agencies.
- Leadership – A leader who articulates the regional vision and oversees its implementation is often critical to its success.
- Transit-Supportive Cultures – People in these regions believe that transit is an important component of the urban fabric and an efficient, reliable alternative to the automobile.

- High Quality Transit Service – All the transit agencies provide efficient, clean, and on-time service, have well managed systems, and use transit technology that fits the particular needs of their region. Many are innovators in transit infrastructure and service delivery.
- Regional Growth – In the most successful regions, transit investments were made just prior to or during a period of rapid population growth. Development was occurring that could be channeled to transit corridors and station areas.
- Station Areas with Development Potential – Stations are located in areas with vacant or underutilized land, where both the market and station area policies support development.
- A Variety of Tools to Focus Growth – The region uses a variety of tools to provide the incremental steps to achieving their vision. They include:
 - Regional Tools
 - Limiting the urban area
 - Locating major activity centers
 - Transit-friendly subdivision guidelines
 - Limited freeway construction
 - Station Area Tools
 - Innovative zoning
 - Site design guidelines
 - Parking management
 - Siting public facilities
 - Using redevelopment agencies
 - Building subsidized housing
 - Integrating feeder bus service
- Incremental Steps Towards a Long Term Process – Transit-oriented development takes decades. Small steps with quick results, however, build support for the long-term goal” (TCRP Report 16, Vol. II).

In further support of parking management listed above as a station area tool to focus growth, TCRP Report 95 discusses the strengths of related policies. The location, supply, and pricing of parking influence development opportunities, property values, and urban form. The availability of parking also influences travel behavior in regard to mode choice, trip frequency, and destination choice. The change in parking supply outside the normal processes of the marketplace to achieve strategic objectives is often referred to as parking management.

Traditionally, municipal parking codes have stipulated a minimum number of spaces per unit of development in order to ensure sufficient parking is available to accommodate the location’s specific needs. Recently there has been a shift where parking requirements are

often based upon a maximum number of spaces. This has been done in an effort to more adequately use land space and to increase transit use while decreasing the use of single occupancy vehicles. Different parking management strategies are employed by different locations based upon specific needs.

In addition to minimum and maximum parking requirements, five other parking management strategies are discussed and include the following:

Employer/Institutional Parking Management

Owners or occupants of work sites may manage their own parking supply through different methods, including on and off site parking, price incentives or disincentives, and the adjustment of parking space totals.

On-street Residential Neighborhood Management

Local municipalities may choose to limit the number of allowable on-street parking to non-residents, through the use of permits and other enforceable means.

On-Street Commercial Area Parking

In order to accommodate higher vehicle occupancy during peak travel times, communities may adjust their parking restrictions on-street based upon time or day.

Peripheral Parking

To limit the number of vehicles operating in a central business district (CBD), jurisdictions may require parking at the periphery of the area and provide shuttles or other alternative modes to transport people into the area.

Park-and-Ride

Similar to peripheral parking, the park-and-ride strategy encourages individuals to park in remote areas and ride other modes into the center.

Bus Rapid Transit and Development

Relatively few reports have been produced that examine the potential that bus rapid transit has on development patterns around stations. The reports that have been produced, however, assert that BRT has the ability to attract developers when significant investment has been made near transit nodes.

Similar to TCRP H-1, the “Bus Rapid Transit Practitioners Guide” provides guidelines for cities that wish to support and encourage TOD around BRT stations. These guidelines include support for policies that support transit, which include creating a sense of

permanence with infrastructure investment, the promotion of public-private partnerships, and enforcing policies that limit parking and therefore encourage transit use. Additionally, the provision of convenient access from stations to surrounding land and other transit modes are cited as important practices as well. The report concludes that BRT does have the ability to attract development and increase density around stations.

Further research evaluating the strengths and weaknesses of the bus in regard to attracting transit oriented development found that characteristics of bus rapid transit systems such as a sense of permanence, frequency and speed were potential attractors for development interest (Currie 2006). Other factors that were found to be beneficial were parking availability and restraints, local agency TOD capabilities and urban density. Finally, bus stigmatization, an area in which bus rapid transit is improved over conventional bus service, was also determined a consideration.

Findings

Six cities were chosen for inclusion in the reporting of current development that has occurred around transit stations, the potential for development to occur, and any related policies and practices that have been implemented or are provided by local governing agencies and organizations. The six cities, Los Angeles, Ottawa, Boston, New York, Baltimore, and Pittsburgh were each chosen as they currently operate rail transit and are either operating or implementing/planning/considering at least one Bus Rapid Transit (BRT) line.

Background on each city and transit agency are provided. Following this information, details for the operating or planned BRT is presented. Cities that have more than one BRT have a description covering each one. Findings or reported developmental impacts along the BRT corridors are described, followed by summaries of different policies and practices that have been implemented in each respective community which encourage development specific to transit.

Los Angeles, CA

Los Angeles is the second largest urban region in the United States. The urbanized area has a population of approximately 15 million people. Over 200,000 people work in the 2.0 square-mile Los Angeles central business district (CBD). From 1990 to 2000 the State of California experienced a population growth of 13.6 percent. Accompanying significant population and employment growth is the concern over increasing traffic congestion and lengthening commute times, which increased by nearly four percent from 1990 to 2000 as well. During this time, the State of California invested approximately 14 billion dollars of state funds on mass transportation programs and projects. These projects have helped reverse a long trend of decline in transit ridership.

Los Angeles has an extensive transportation network, including a freeway system, commuter rail, heavy rail and light rail transit, and local, express and BRT bus service. Fixed route transit service in Los Angeles County is provided by 43 different public agencies, ranging from the Los Angeles County Metropolitan Transportation Authority (MTA), with approximately 2,000 vehicles, to the City of Baldwin Park, with only four peak vehicles. Collectively the agencies carry over 470 million passengers annually. Rail service in Los Angeles carries 67 million passengers per year, and is operated by MTA and the Southern California Regional Rail Authority (SCRRA or Metrolink). Los Angeles Metro (Metro) is the product of the 1993 merger of the Southern California Rapid Transit District (RTD) and the Los Angeles County Transportation Commission (LACTC). The agency

operates the 73 mile Metro Rail System, the 14 mile Metro Orange Line BRT which operates from the San Fernando Valley to North Hollywood, the 26 mile Metro Silver Line (opening in the Fall 2009) servicing San Gabriel to the Artesia Transit Center, and over 18,500 stops on 189 bus lines servicing via Metro Local Bus Service.

Bus Rapid Transit

Metro Rapid

The Metro Rapid program introduced several attributes specifically to reduce passenger travel times, including bus signal priority; level boarding with low floor buses; headway, rather than timetable based schedules; fewer stops; far-side intersection location of stations; and joint active management of service operation from the operation supervisors and the MTA Bus Operations Control Center (BOCC). Additional BRT elements include: simple route layout, frequent service, and color-coded buses and stations. Line 720 Wilshire/Whittier Blvd. provides service along 26 miles. Operating speeds increased with the BRT implementation along this corridor by 29 percent; ridership increased 33 percent. The Ventura Blvd. line (14 miles) increased operating speeds by 23 percent and ridership by 26 percent. The increase in ridership along these lines are attributed to three sources: one third of the increase was from riders new to transit; one third was current MTA riders who changed routes; and one third was current riders riding more frequently.



Figure 1. Newer vehicles operating on the Metro Rapid

Orange Line

The Metro Orange Line is an exclusive dedicated busway operated by the Los Angeles Metropolitan Transportation Authority. It is the latest major transit project to be completed in the San Fernando Valley since the opening of the Metro Rail's North Hollywood station in 2000. It travels in an east-west direction for fourteen miles between Warner Center and the North Hollywood Red Line Metro subway station in San Fernando Valley. The Orange Line has a dedicated right-of-way and modern, community-centered stations that are spaced approximately one mile apart. The transitway has been branded as part of the region's network of light and heavy rail lines and appears on the Metro Rail System Map. Vehicles arrive about every 10 minutes or less during peak hours and 20 minutes or less at other times. Ticket vending machines (TVM) are located at the stations to allow for faster alighting. The TVMs have the capability to function as smart card vending machines once the new fare technology is implemented. Station amenities included text display and public address announcements signaling the arrival time of the next vehicle. Seating facilities and shelter from the elements is provided as well, along with bicycle parking, public phones and trash receptacles. Station seating and paving has been artist-designed.



Figure 2. Orange Line Articulated Vehicle

Global Positioning Systems (GPS) on board the vehicles relay information to the Bus Operations Control (BOC) for real-time information location status. This information is relayed every two minutes. Vehicles are low floor and articulated. They are equipped with three wide doors and a wheelchair ramp at the front door which can deploy in 25 seconds. The interior has wide aisles designed for the easy flow of passengers, and bike securements are located near the center of the bus.

Development Along Bus Rapid Transit Corridors

Metro Rapid

The Metro Rapid in Los Angeles operates in mixed-traffic conditions along freeways and major arterials. Two BRT lines, the 26-mile Wilshire-Whittier Boulevards and 16-mile Ventura Blvd., were included in a study that evaluated the land-value impacts of high-performance transit investments (Cervero et. al. 2002). Commercial and residential uses were both examined within one-half mile of transit stops. It was found that residential properties near BRT stops generally sold for less, while commercial properties sold for more. One possibility as to why the residential units sold for less could be that the stops lie within a redevelopment district. The report suggests that the findings explain that housing

units that are located in built-up urban districts suffer from the association of being in “blighted” districts.



Figure 3. Rendering of Wilshire Western Metro Rapid Station

Orange Line

Operating on its own dedicated right of way, the Orange Line arguably has a greater potential for development interest than the Metro Rapid. In addition to the amount of money invested in infrastructure for the route, there is also a greater amount of undeveloped land along the corridor than in the more dense areas in which the Metro Rapid operates. There are many incentives available to developers but public demand and marketability determine which areas receive the development and incentives.

A Revised Final Environmental Impact Report (RFEIR) for the Metro Orange Line concluded that the Orange Line was superior to each of the three Rapid Bus Alternatives studied in the revised report. The RFEIR studied:

- Three East-West Rapid Bus Routes Alternative (Sherman Way, Vanowen Street and Victory Blvd.)
- Five East-West Rapid Bus Routes Alternative (Sherman Way, Victory Blvd., Oxnard St., Burbank Blvd., and Chandler Blvd.)
- Rapid Bus Network Alternative (consists of nine Rapid Bus routes: three east-west routes and six north-south routes).

The revised FEIR examined the impacts, costs and benefits of each Rapid Bus alternative and concluded the Metro Orange Line:

- Would attract substantially more riders than any other Rapid Bus alternative
- Would result in the greatest system-wide travel time savings
- Would maintain the most consistent travel time, which will not be affected by increased traffic congestion over time.

The FEIR also concluded that the exclusive transitway operation of the Orange Line has potential land use benefits that would encourage TOD at or around stations, and is consistent with adopted local planning documents.



Figure 4. New multi-family housing located along the Orange Line corridor

Some development along the Orange Line corridor has occurred recently (see Figure 4.), although it has not been determined if the development has occurred because of the implementation of the enhanced transit service. MTA has noted additional interest in property located along the route, although formal development plans have not yet been established.

Policies and Practices

In some LA Metro station areas TOD has occurred in spite of the limited planning framework for such activities. Although the capability to do joint development exists in the area, neither MTA nor a local jurisdiction has taken a strong lead in station area planning in the Los Angeles region. Successful station-area development has largely occurred due to the efforts of private developers, while MTA and local jurisdictions help create supportive land use policies and conducive joint development agreements. The TODs that have occurred thus far are located near Metrorail stations. There are several factors that have influenced station area development in the Los Angeles region:

- Regional Economic Trends – due to the severe economic depression that hit Southern California in the early 1990s, TOD projects in Los Angeles did not reach initial expectations. Once the economy regained strength, projects that were planned before and during the recession became financially feasible.
- Local Market Conditions – the market condition at station areas had an effect on the potential for development; those that were already built out may not have the capacity for additional retail, while those in blighted locations may have had problems attracting developers.
- Local Land Use Policies – Both the City of Los Angeles and jurisdictions in Los Angeles County have some policies that are oriented to transit stations.
- Joint development – The majority of TODs that have occurred are the result of private developers creating their own development plans. Few jurisdictions in Los Angeles have approached station area development by creation of a master plan.
- Public Funding – Almost every TOD project along the Metrorail system has included public funding.

Los Angeles corridor enhancements through station development and TOD-based construction incentive has been focused on, but not limited to, LRT. Successful station-area development has grown from the initiatives of private developers and local jurisdictions, while Metro has helped create supportive land use policies and helpful joint development agreements.



Figure 5. Image of Los Angeles

Transportation planning for Los Angeles County at the regional level is the responsibility of the Southern California Association of Governments (SCAG), which is the designated Metropolitan Planning Organization (MPO) for a six-county region, including Orange, Riverside, Ventura, San Bernardino, Imperial, and Los Angeles counties. Under federal law, SCAG must prepare a Regional Transportation Plan (RTP) which demonstrates how the region will meet federal mandates, including air quality requirements. The MTA is the state-designated planning programming agency for Los Angeles County and submits recommended projects and programs to SCAG for the inclusion in the RTP. The MTA identifies the transportation needs and challenges that Los Angeles County will face over the next 25 years.

Local Incentives

Incentives along transit corridors in Los Angeles are decided by two jurisdictions, the City of Los Angeles and the County of Los Angeles. The City of Los Angeles and the County of Los Angeles have both created special land use policies for areas around transit stations. These policies use incentives to encourage appropriate development; the City relies on

incentive measures, while the County mixes incentives with development standards. Incentives offered by the City of Los Angeles apply to development that occurs within one quarter mile of transit stations. It has been argued, however, that incentive-based planning is not very effective, as local market conditions have the greatest influence on where developers decide to invest, and incentives may not be enough in an unattractive market.

City of Los Angeles Land Use and Transportation Policy

In 1993, the City of Los Angeles Land Use and Transportation Policy was adopted and created a series of incentives to apply to projects within one quarter mile of transit stations. To qualify for the incentives of the policy, plans must adhere to characteristics of the station area: Major Urban Center, Urban Complex, Major Bus Center, Neighborhood Center, Regional/Suburban Center, and Industrial Complex. Incentives are specific to type of improvements made:

- Community Amenities: A density bonus of two square feet for every one square foot of open space, plazas, childcare, eldercare, or community meeting rooms.
- Historic Preservation: Special provisions through joint public-private efforts.
- Pedestrian Enhancements: special street lighting, special street trees, special paving/amenities, bicycle storage facilities through joint public private efforts as well.
- Funding/Reduced Costs: If the station is an environmentally disadvantaged area, developers may be eligible for redevelopment, block grant, or housing funds; or tax abatements, increment financing, and tax credits from the City in the context of a joint development partnership. Developers may also be exempt from City fees, and delays for service connections may be avoided.
- Density Incentives: Reduced parking, land assembly, provision of housing and combined hearing processes may permit the developer to build at higher densities than normal.

The City of Los Angeles also asks for local contribution toward the cost of construction on any case of fixed guideway bus rapid transit, light rail and later phases of heavy rail subway projects. The target of the contributions is three percent of the total project cost. The contributions can often vary greatly on a project by project basis.

Pacific Court Project

The 1992 Pacific Court Project, which was a Redevelopment Agency program to reintroduce housing into downtown Long Beach, is an example of unintentional effort by

Metro and the city to encourage transit oriented development. Developers were attracted to this area due to the marketing appeal and redevelopment financing incentives where the city determined the cost of land acquisition and provided tax-exempt financing for the project. The resulting development was very supportive of use of the Blue Line LRT.

Zoning Considerations

One transit oriented incentive example offered by Metro is a set of supplementary zoning regulations for specific transit stations along the Blue Line. TOD ordinances create incentives for development around stations, such as reduced parking requirements and reduced fees. These types of incentives are only appealing to developers if public demand exists. In some areas property value and environmental factors can make the incentives useless with no amount of incentives making the land appealing for development.

Location Efficient Mortgages

The Location Efficient Mortgages (LEMs) program, co-sponsored by the City of Los Angeles, the Southern California Association of Governments, and a private lender, Countrywide Home Loans Inc., makes it easier to qualify for home mortgages under the assumption that those living near transit stations are likely to own fewer cars and drive less vehicle miles, therefore freeing up income for home purchases. Another tool used in Los Angeles County is benefit assessment financing. Retail shops that benefit from their location along the Red Line are levied an assessment that has generated approximately \$130 million (nine percent of the Red Line's construction cost). In addition to construction costs, money has also covered ancillary improvements, such as landscaping and passageways.

Community Redevelopment Agency of Los Angeles (CRA)

The Community Redevelopment Agency of Los Angeles (CRA) invited the Urban Land Institute (ULI) to examine development opportunities in the core area of the CRA's North Hollywood Redevelopment Project, particularly at the North Hollywood Metro Red Line subway station. Near this station is the terminus for the Metro Orange Line. The North Hollywood community area was originally a farming community and eventually became a convenient residential area. Due to freeway construction of the 1960s and 1970s, the area experienced decline. Redevelopment efforts have been made since 1979. Significant changes have occurred since the opening of the Red Line Metro subway station in 2000. This, in combination with the addition of the Metro Orange Line, has resulted in an increase in revitalization efforts. Commercial and residential investments have been made and developers have continued to express interest as well. NoHo Commons, a multi-phased mixed-use complex several blocks east of the North Hollywood Metro Rail Station features

220,000 square feet of office space, 228,000 square feet of shops and restaurants, 810 units of housing, a community health center, and a child-care center.



Figure 6. Construction at the North Hollywood Orange Line Terminus and Red Line connection

The Lankershim Core is the high-density area of the downtown that encompasses both sides of Lankershim Blvd. from Burbank Blvd. to Weddington Street and is anchored by a proposed multimodal, mixed-use transit center. Residents and commuters can use the Orange Line, the subway, or local bus service at this location. Currently, stations and stops for each of these transit modes are not consolidated. The ULI's Advisory Services Program recommends that consideration be made to consolidate the bus facilities within a new intermodal transit center on the MTA parcel adjacent to the former train station. The benefits for doing this would include: an ease of use for transfers, and the ability to use land that would become available with the move for higher-value uses. Additionally, the consolidation would eliminate the duplication of kiss-and-ride, ticketing, and fare and trip-planning information facilities. The ULI also recommends that consideration be given to requiring a minimum floor/area ration (FAR) in the immediate transit station area in order to maximize the development potential of the transit adjacency over time. Ways to achieve

this could include a minimum height requirement of buildings (three stories or more), and a maximum height of 15 stories in an effort to remain consistent with a suburban downtown core district.



Figure 7. Newer development outside the North Hollywood Metro Red Line Station

Benefit Assessment Program

Metro has had great success in development along some of its other corridors and attempts to benefit from the increased land value. For the heavy rail subway project in the 1980's, a Benefit Assessment Program for the initial segment in Downtown Los Angeles imposed a property tax assessment on properties located along the corridor in order to recapture a portion of the increased property values that were generated by the project.

Ottawa

Before January 2001, the City of Ottawa was a municipality within the Regional Municipality of Ottawa-Carleton (RMOC). In an effort to reorganize governmental facilities, all municipalities in RMOC merged into the new City of Ottawa. Ottawa is the fourth largest city in Canada with a population of approximately 774,000. About 90 percent of the population lives within the urban area. About 32 percent of jobs in the region are located in the CBD. Approximately half of people traveling into the CBD in the morning arrive via public transportation.

Bus Rapid Transit

In 1974, an “Official Plan” required the development of a rapid transit system for the region in an effort to give priority to public transportation over the widening or construction of roadways. The Transitway, which began operation in 1983, provides service to the south, east, and west of Ottawa. When it opened, five stations were linked together: Hurdman and Lees to the east, and Baseline, Queensway and Lincoln Fields to the west. The system contains two main routes (95 and 97) and is accessible by all bus routes operated by the region’s transit operating authority, OC Transpo.

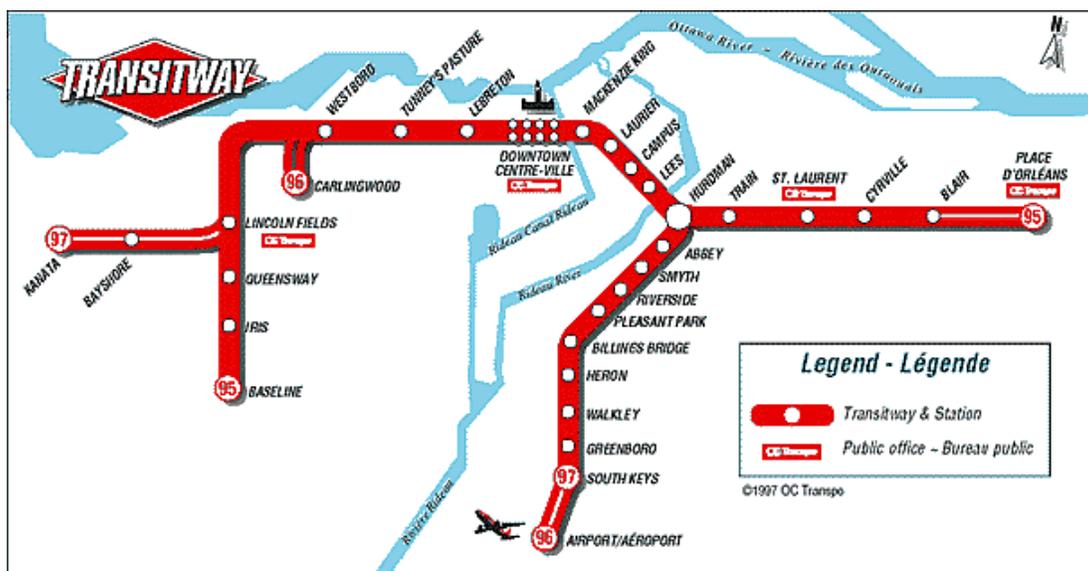


Exhibit 8. Service map of the Transitway

Design and Travel Times

The 60 km (37.3 miles) Transitway utilizes exclusive rights-of-way and shared roadway in particular areas such as downtown. A total of 27.2 km (16.9 miles) is designated as exclusive roadways, bus-only lanes on arterial streets and the outlying area, and sections of

reserved shoulder lanes. The system has 28 stations and approximately 3,000 park-and-ride spaces located along the corridors. The system has 220,000 daily riders, with 10,000 per hour in the peak direction, and peak trips that generally take 45-60 minutes in an automobile only take about 30 minutes on the Transitway. Service on the Transitway is frequent (three minutes in peak, five minutes during the day). Buses operate with average speeds of 80 km (50 miles) per hour and carry approximately 15 to 20 percent more riders than buses on local routes.



Figure 9. A vehicle approaching a station

Development Along the Transitway

Areas that encourage the development along transit stations and facilities are ensuring a greater transit population. The regional plan requires all regional shopping centers with more than 375,000 square feet of space to be located within a five minute walk to transit stations. The plan also requires that employment centers with more than 5,000 employees be within a five minute walk to the Transitway, and centers employing 2,000 or more jobs must be near all-day transit service.

In 2001, Ottawa had a total of 480,000 jobs with 93,000 located in the central business area, 39,000 located among mixed-use centers, and 7,000 in town centers. 188,000 (39 percent) of the jobs were located within 600 meters of rapid transit stations. Figures 10 and 11 show the increase of nonresidential and residential development near rapid transit

stations between 1998 and 2002. Between 1998 and 2002, the percent of non residential development within the vicinity of rapid transit stations increased from 5.0 percent to 38.0 percent. Residential development increased from 5.9 percent to 13.9 percent.

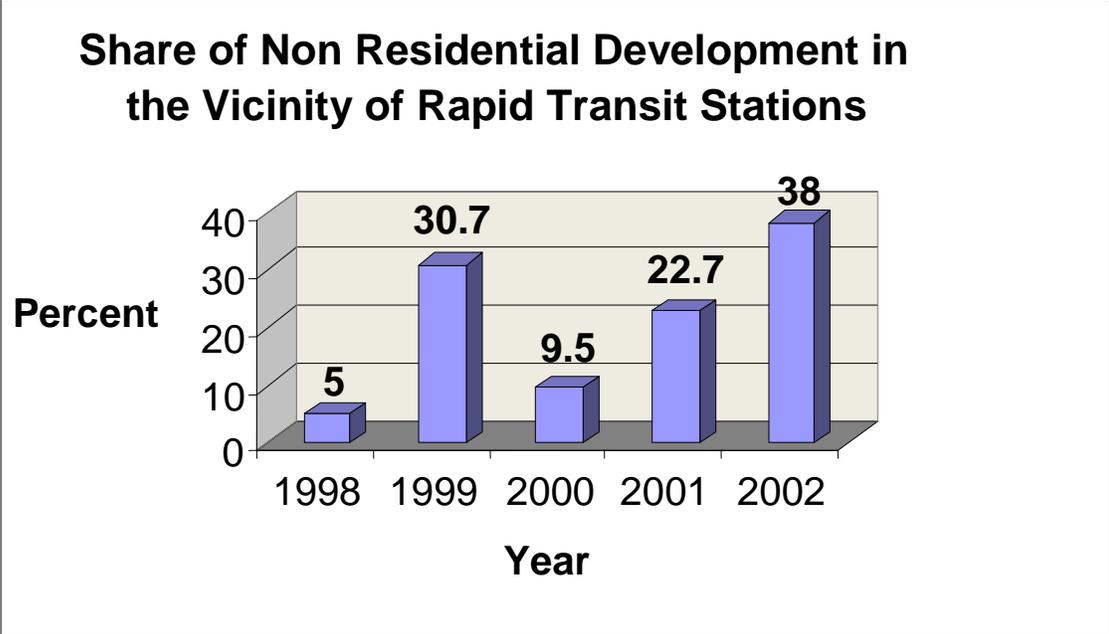


Figure 10. Share of Non Residential Development

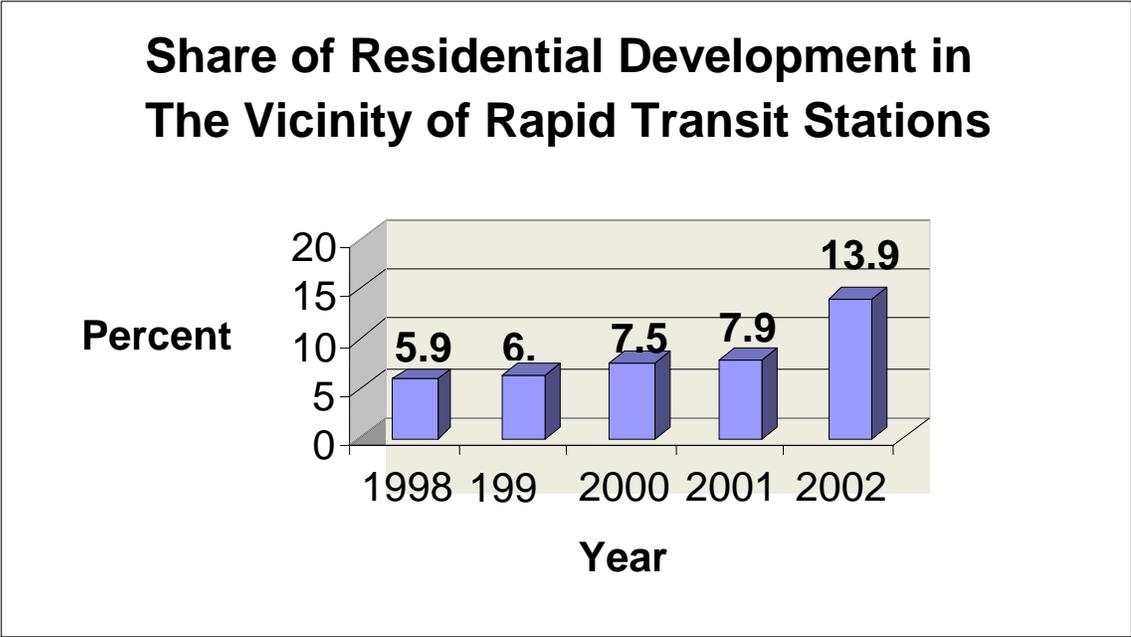


Figure 11. Share of Residential Development

Since 1987, over one billion Canadian dollars has been spent on new construction around Transitway stations. The following construction projects were completed:

- In 1987, the St. Laurent Shopping Centre completed an expansion that included 80 additional retail outlets.
- Six new office buildings, a cinema complex, and a community shopping center have been constructed near Blair station since it opened in 1989.
- In 1991, the Riverside Hospital built an expansion over the Riverside station, and a pedestrian walkway was constructed to connect the station with a new medical office building.
- The regional planning department found that between 1996 and 1998, over \$600 million was spent on the construction of 3,211 residential units and 436,858 square meters of institutional and commercial buildings near Transitway stations (TCRP Report 90, 2003).

From 1988 to 1993, over 2,300 housing units were built within an 800 meter radius of fourteen surveyed Transitway stations. The majority of this construction occurred near Hurdman and Tunney's Pasture Stations. Tunney's Pasture Station is surrounded by a federal complex which employs 10,000 workers. A large mixed-use project was built which featured a residential tower and 18,200 square meters of retail (located on the ground floor) and upper-level offices. The project received approval to lower the parking limit, given its accessibility to the transit station.



Figure 12. Bayshore Transitway station

Blair Station has the greatest number of transit-oriented office and commercial floorspace of all stations. Within five years of the station's opening (1989), approximately \$90 million in commercial-office development was built nearby. Access to the station from the development is provided. A pedestrian skybridge, which was funded by the Municipality of Gloucester, links offices to the Transitway. Four office towers are located within a five-minute walk of the station.

The St. Laurent Station has three levels. The lowest level provides access to the Transitway, while the mezzanine is connected to the shopping center. The third level is served by local bus routes. The St. Laurent shopping center expanded to include 80 new retail outlets. The station includes enclosed environments, allowing pedestrians to remain indoors while at the station.

A medical facility is linked with Riverside Station. Original plans for the Transitway did not include a station with the hospital. The hospital, however, was expanding and incorporated plans for a Transitway station to be built. Direct transit access was provided to persons arriving at the hospital in 1991 when a 4,200 square foot administrative wing was built over the Transitway station.

Rideau Center is perhaps the system's most successful transit-oriented shopping center. Approximately 60 percent of shoppers at Rideau arrive via transit. The station is located near local bus service, which enables riders to transfer to every bus downtown.



Figure 13. Orleans Transitway station

Policies and Practices

Successful transit-focused development requires a regional vision for future development patterns. The City of Ottawa has achieved this, by enacting land use policies that will encourage development along stations, and enforcing a greenbelt, outside of which development should not occur.

Regional Official Plan

In 2003, a new Regional Official Plan was adopted. In an effort to curb the effects of suburbanization, the Regional Council included additional plans for development patterns within the region. The Official Plan established a set of guidelines to ensure that development occurs near Transitway stations and urban centers. By encouraging this and employing a variety of tools to achieve the vision, Ottawa has successfully implemented a transit system that is efficient, rapid, and reliable.

This Regional Official Plan, which guides land use plans, is supported by the regional transit plan, by including the following features:

- Multiple centers are to be served by transit
- A flexible transit service that integrates transit systems
- The clustering of office and retail activities near the Transitway.

The City also establishes transit as a first and foremost option for transportation enhancements; the construction of roadways is considered an alternative. In addition to this, transit professionals partake in the review of plans for subdivisions, in an effort to ensure that access to transit is provided.

As a result of the Regional Council's regional land-use vision, Ottawa is one of the greatest transit focused urbanized areas in North America. Ottawa has experienced commercial, residential, and retail development along the Transitway stations, illustrating the importance of transit in the community. The city is also fortunate, having a strong base of community support: approximately 70 percent of peak trips to downtown are made by transit.

Greenbelt

The City of Ottawa continues to employ a variety of tools to achieve the regional vision. One tool that is used is the designation of the greenbelt, which was formed around the urbanized area during 1959-1962. The purpose of the greenbelt was to preserve open space and contain urban sprawl. The greenbelt remains a vital tool in shaping the

development of the region. Other regional tools that have guided the vision for Ottawa include the locating of major activity centers near transit, and setting up subdivision guidelines that put all homes within walking distance of transit.

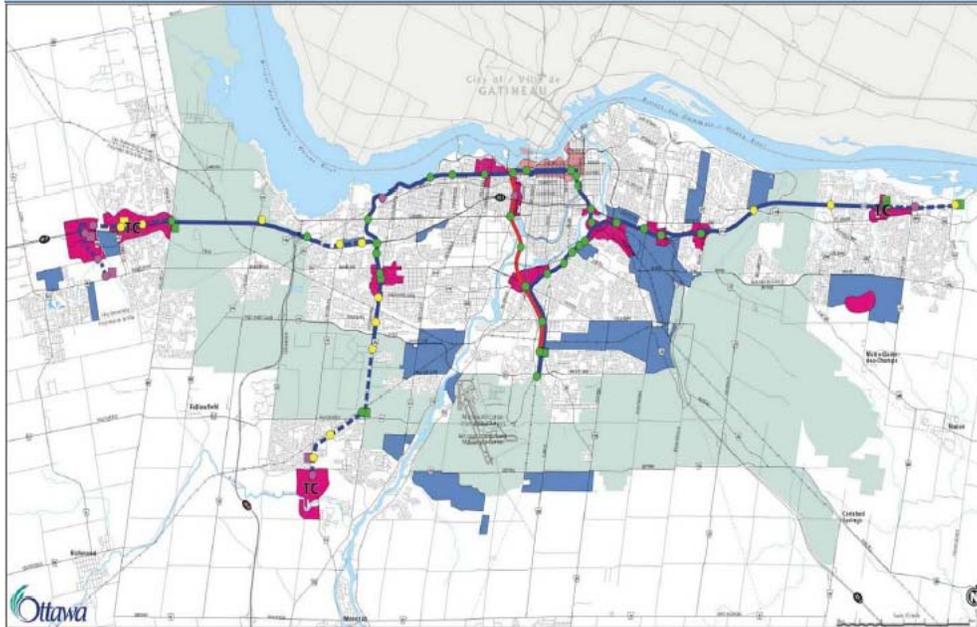


Figure 14. The greenbelt (shaded area surrounding the center of Ottawa) and Transitway routes
Source: City of Ottawa

Parking

Station area tools have also been used to ensure that the regional vision is maintained. Parking limits have been placed on areas in downtown, while incentives have been offered to developments that include bus stops or stations within their design. The largest downtown employer, the federal government, charges employees for parking and has a limited number of parking spaces available. Developments that include bus stops or stations are allowed a reduction in parking spaces. In addition, park-and-ride lots were limited to the outlying stations along the Transitway, to encourage both the use of feeder buses and development around the inner stations.

Feeder Bus Service

The integration of bus feeder service with high quality transit is another tool that the City has employed. OC Transpo provides a variety of complementary service. Express bus service, which runs on eight to twenty minute headways, connects neighborhoods with the majority of employment centers during peak travel times. Reverse commute services are offered for transportation to employment outside of the central area. The express buses

provide rapid transit to customers as well. Since the express buses operate on the Transitway as well as on local streets, riders can board the bus in their neighborhood and travel quickly during their trip on the Transitway.

Boston

Boston, one of the country's oldest cities, has one of the most extensive transportation networks in the U.S. There are approximately three million residents in the urbanized area, of which an estimated 700,000 live within the city limits. The city is dependent on public transportation as a means to mobilize its work force. With employment of over 265,000 in the Central Business District (CBD), which is 2.2 square-miles, alternative modes of transportation from the automobile are used frequently. Approximately 60 percent of people are accessing public transportation during peak travel times. The Massachusetts Bay Transportation Authority (MBTA) provides public transportation to the area. Services to the CBD include rapid transit lines (Orange, Red, and Blue), the Green line, and commuter rail. Service on the Silver Line began in 2002.



Figure 15. Pavement markings designating the bus lane

Washington Street, once known as a “gateway” into Boston, was once served by the Elevated Line. Due to the 1973 “transit-first” policy, which increased investment in public transit, the Elevated Line was removed from Washington Street between downtown and Dudley Square in 1987. For ten years the corridor was no longer served by rapid transit. Discussions were held to determine alternatives, and the decision to implement Boston’s first BRT system, the Silver Line, was made.

Silver Line

The Silver Line BRT, a project that is being implemented in three phases, will be a 4.1 mile route that will connect Dudley Square with Logan International Airport. In 2025, total ridership is estimated at 65,240 passengers per day. Construction of the Silver Line consists of three phases, the third phase is still under construction and not yet available for vehicle operations.

Phase I, a 2.2 mile stretch connecting Dudley Square to downtown on Washington Street began operation in 2002. The system has 10 stations, stopping at major points along Roxbury, the South End, Chinatown, and Downtown. The Washington Street corridor was served by an elevated heavy rail as part of the Orange Line until 1987. At that time, the Orange Line was shifted to right-of-way that had been purchased for a highway.

During peak hours, the frequency of the Silver Line is five minutes, completing the length of the trip in 20 minutes. Currently, there are approximately 14,000 riders per day on the Silver Line; a 95 percent increase in ridership within the past year.

Articulated 60-foot buses are used on the Silver Line. The low-floor vehicles have three doors to allow for multiple boarding, and provide passenger information on-board and can accommodate up to 100 persons. Dual-mode vehicles will be used when the system is complete, for travel in the tunnel (Phase III). The buses currently operating on the Washington corridor are CNG. The sheltered stations provide kiosks with real time arrival information, police call boxes, area maps, variable message boards, and bike racks. The shelters are well-lit and landscaping enhancements have been added.

Phase II, a 1.1 mile stretch opened in 2004 and is the Seaport District's first rapid transit line. Approximately one mile of the trip is in a tunnel, which begins in South Station and will connect two underground stations: the World Trade Center and John Joseph Moakely United States Courthouse. Three surface connections will provide access to Logan Airport, Boston Marine Industrial Park (BMIP), and residential South Boston via the Boston Convention and Exposition Center (BCEC). Since the addition of the Silver Line, transit ridership to the area has increased by almost 100 percent.



Figure 16. Articulate vehicle used on the Silver line

Phase III

Phase III will be a tunnel connecting Phase I and Phase II of the Silver Line. Once complete, the Silver Line will be Boston's fifth rapid transit line. The tunnel will be constructed between New England Medical Center and South Station. Additional transit enhancements include the reconstruction of the Green Line tunnel under Tremont Street from Oak Street and Boylston Station, a new Silver Line station under Boylston Station, and a new tunnel between Boylston Station and South Station. In addition, a new station is planned for the Chinatown Station on the Orange Line.



Figures 17 and 18. Information kiosk and real time information display

Development Along the Silver Line

Today, TOD in Boston will strengthen existing transit-rich commercial areas by improving the mix of uses and promoting both new commercial and housing development. Whether the mode of transportation is by foot, public transit or even automobile, proximity to community and business services is in demand. Requiring ground floor facilities of public accommodation (“FPA”) is an important component of the City’s strategy to activate the waterfront. Demand for FPAs is low. Most waterfront districts lack the residential density to sustain retail. As the waterfront continues to redevelop and neighborhoods are established, the demand for retail space will grow.

Washington Street Corridor

The Boston Redevelopment Agency (BRA) states that \$650 million of development occurred in a 1.5 mile stretch of the Washington Street corridor at the same time that the Silver Line was being implemented. Aside from the implementation of the Silver Line, streetscape improvements such as roadway resurfacing occurred in the same stretch of the corridor as well. It is difficult to ascertain what form of public investment encouraged the redevelopment to occur.

Throughout the system, the MBTA has witnessed an increase in demand for housing opportunities that are adjacent to transit stations. The Laconia Lofts was viewed as the first development project on the Washington Street corridor. This and many other projects were developed in response to the growing demand for residential units along the corridor, amounting to nearly 2,000 new and renovated housing units. Much of the development in the corridor has been residential with ground floor commercial. The extensive mixed-use development that has occurred along the corridor has helped create over three dozen new and renovated buildings and over 65 new businesses and 500 new jobs.

Roxbury’s Dudley Square is a major transit hub. Fourteen bus routes converge at the station. Today, Dudley Square is oriented toward serving residents and commercial businesses and providing transfer opportunities between buses. To the north, Silver Line routes are planned to South Station, the South Boston Waterfront and Logan Airport. The proposed Phase 3 Urban Ring rail tunnel would link Dudley Square to the jobs, health services and institutions at the Longwood Medical Area. Dudley Square has the potential to once again be a major economic hub, a crossroads between the neighborhoods to its south and downtown Boston. Ongoing efforts to redevelop the Dudley Square/Roxbury community continue.

South Boston Waterfront

The city continues to thrive in the neighborhoods all around downtown, and in the recapture of vacant and under-used parcels and industrial land, beginning with the South Boston Waterfront, where the Silver Line now runs from South Station to Courthouse station, World Trade Center station, Silver Line Way, and on to Logan Airport. The second phase of the Silver Line was constructed at the same time as a new Federal courthouse and convention center that have spurred significant construction in the South Boston Waterfront.



Exhibit 19. Aerial view of South Boston Waterfront

The South Boston Waterfront has traditionally been an area of maritime uses and surface parking lots. The 1,000 acre area offers the city a chance to create the first transit oriented development neighborhood in decades. The Seaport District was full of activity until the mid-1970s, when navy and marine industries closed or moved to other locations. Redevelopment of the waterfront in the form of dense mixed-uses is expected to occur to the extent of creating a “new downtown”. Massport, a state-created entity responsible for the management of airports, bridges, and port facilities, owns much of the property in this area. They have actively encouraged the development of TOD on the sites. Fan Pier, the McCourt property, and some 30 acres controlled by Massport are set to join office and condominium development by Fidelity and Joseph Fallon and the new convention center on Summer Street.

Two underground (Courthouse and World Trade Center) and two above-ground stations are planned for the Seaport, with the majority of development within walking distance. The District is slated for both high-density residential and commercial development. Commercial development is occurring at a faster rate than the residential development.

The following table provides a listing of development along particular areas where the Silver Line provides service. Uses listed include office, residential, retail, and public parks.

Tract	Sq. Feet	Uses
Pier 4	1.0 million	Office, high density residential, services
Massport Core Block and Comm. Flats	3.4 million	High density residential, Retail center, hotel, Office
Fan Pier	2.7 million	High density residential, office, retail, hotel, public park
Commonwealth Pier and Massport/Fidelity Flats	2.4 million	Hotel, World Trade Center, office, public park

Exhibit 20. Permitted Mixed-Use TOD

Policies and Practices

The State of Massachusetts and the Massachusetts Bay Transit Authority (MBTA) define TOD as higher density, mixed-use, and pedestrian oriented development located within one-half mile of a transit station, designed to increase transit use, walking, and alternative modes of transportation. It is implied that TOD would include a number of characteristics, including, but not limited to: pedestrian orientation, moderate to high density buildings, reduced parking, a mix of uses, and connectivity. MBTA’s TOD program is targeted toward its surplus property. Along the Silver Line, however, the MBTA does not own any surplus property, and has not been involved in any TOD projects in the corridor.

The City of Boston does not actively encourage TOD; it does not have a specific definition for TOD or a program to promote it other than efforts made on surplus City property. The City does recognize, however, that the extensive use of transit in Boston and the development pattern of the city have made it possible, if not inevitable, for TOD to be successful.

Boston Redevelopment Agency

Given the development pattern and history of transit use, the City of Boston is fortunate in that TOD is the traditional form of development within the City. Because of this, the MBTA and the City neither place requirements on TOD projects, nor offer incentives for TOD. The Boston Redevelopment Agency (BRA), however, acts as the City’s planning and development division and offers a number of development incentives to projects in the City. Some assistance offered by the BRA includes: site acquisition, low-interest loans, joint development opportunities, multi-agency coordination, neighborhood visioning, grants,

and streetscape improvements. The BRA encourages developers to make projects pedestrian-friendly, mixed-use, and use minimal parking, yet it does not require these or other design standards to be met in order to receive the assistance that it offers.

Updated Zoning Code

During the past twenty years, the BRA has also made an effort to update the city zoning code. The updates to the code have been intended to manage growth by allowing higher densities near transit nodes. In addition, all large projects (50,000 square feet of gross floor area) are evaluated by the BRA to assess the impacts on transportation, infrastructure, urban design, environment, and historic resources. The BRA also worked to rezone Washington Street as a “Neighborhood Development Area.”

Parking Limits

In the early 1970s, city leaders negotiated two agreements with the Environmental Protection Agency (EPA) to mitigate air pollution in the Boston area. The greatest component of the agreements was the parking limit that was imposed. Boston was allowed to freeze its parking requirements at the 1973 level plus 10 percent, which includes all general parking in Boston proper. In addition to improving air quality, the parking freeze has resulted in an increase of development activity that is human-scale and pedestrian oriented. Developers are able to lower the cost of urban projects because parking construction is optional, and the City is able to focus on mass transit.

Parking limits have also been imposed on the Seaport District. Currently, the Seaport has parking ratios similar to those that are found in transit intensive towns. The Fan Pier offers only 2,280 off-street parking spaces (0.85 spaces per 1,000 sq. feet of development).

South Boston Waterfront Public Realm Plan

The South Boston Waterfront Public Realm Plan was adopted by the BRA in 1999, with the intent to turn the waterfront into a walkable neighborhood. The Plan states that the implementation of the Sliver Line was necessary in order for a successful transformation of the waterfront area. Incorporated in the Plan are many principles of vibrant and self sustaining communities, such as encouraging a mix of uses (residential, retail, industrial, commercial, and civic).

New York, NY

New York City is serviced by the Metropolitan Transportation Authority (MTA) and New York City Department of Transportation (NYCDOT). Established in 1965 as the Metropolitan commuter Transportation Authority (MCTA), it initially was responsible for regulating and subsidizing commuter railroads. MCTA changed its name to Metropolitan Transportation Authority (MTA) in 1968 when it took over the responsibility of the preexisting New York City transit agencies. MTA is the largest public transportation provider in the Western Hemisphere. Its agencies serve 14.6 million people spread over 5000 square miles from New York City through southeastern New York State. MTA operates numerous BRT and LRT systems along several corridors in its district.

New York City's population increased 3.8 percent from 7,994,424 in 2000 to 8,310,212 in 2008, bringing with it more pressure on MTA and NYCDOT. Although population has increased, city wide traffic has virtually unchanged from 2003 to 2007 while transit ridership has increased 9 percent. The increase in ridership has been a steady trend with a total increase from 1996 of 30 percent and up 42 percent from 1990.

Bus Rapid Transit

In New York City, many of the areas where BRT is operating or is under consideration are already developed. New York City does not have any BRT specific economic incentive programs but does support localized development incentive programs with no specific qualifiers.

With the assistance of the New Your City Department of Transportation, MTA was able to identify five corridors for BRT implementation, one in each of the five boroughs: the Fordham Road/Pelham Parkway corridor in the Bronx, First and Second Avenues in Manhattan, Merrick Boulevard in Queens, Nostrand Avenue in Brooklyn, and Hylan Boulevard in Staten Island.

The BRT Select Bus Service (SBS) was unveiled to the public on March 3, 2008 and opened the first corridor on June 26, 2008. This pilot system was implemented along the Fordham Road-Pelham Parkway and included a combination of features, including off-board fare payment, high-visibility bus lanes, and transit signal priority, as well as increased service and distinctive branding. The system connects to seven subway routes and two Metro-North commuter Rails lines, and serves many important areas including Fordham University, The Bronx Zoo, and The New York Botanical Garden.



Figure 21. A transit rider purchasing a MetroCard at a ticket vending machine

The system also included road improvements such as expanded bus lanes. They also implement highly visible red bus lanes and over head signage. They will also implemented various IT systems including a GPS signal priority system, optimized signal timing, an express payment service, and queue jumping.

The results with the Select Bus test were favorable, with a 20 percent increase overall bus speeds and a ridership increase of 5,000 riders a day. Surveys conducted on the new system found that 98 percent of the passengers were very satisfied with the new service.

Due to the success of this system, the City plans to introduce BRT systems in other phases on the 34th Street Enhanced Bus Priority, Manhattan (2011), First Ave/Second Ave SBS, Manhattan (2010), Nostrand Ave-Rogers Ave SBS, Brooklyn (2011), and Hyland Boulevard SBS and Transitway, Staten Island (2010).

The 34th St. Enhanced Bus Priority extends 2 miles across Manhattan from 12th Ave flowing on the M34 Bus route. This system, which began its first phase in 2008, has an average weekday ridership of 9,164 passengers.



Figure 22. Select Bus operating on a dedicated right of way.

The Nostrand Ave-Rogers Ave SBS will operate north-south across all of Brooklyn and serve as an extension of the 2 and 5 subway lines as well as connecting four other subway lines along its route.

The First/Second Ave SBS route will operate north-south along the full length of Manhattan, a route which has the highest ridership in the city. This route will serve such stops as The United Nations, Wall Street, Chinatown, and numerous major hospitals as well as being flanked by the densest residential development in North America.

Hylan Boulevard SBS will operate between the Staten Island Mall and R subway line in Bay Ridge, Brooklyn. This system will operate along the busiest local bus route in Staten Island with nine express bus routes operating along the corridor.

Not all proposed BRT systems are met without opposition. Systems such as the Merrick Boulevard BRT which was proposed to run along Merrick Blvd, the busiest corridor in Queens, was met with distain from businesses and local elected officials concerned about losing parking spaces associated with implementing bus lanes. They were fearful these changes would lead to negative economic impacts on the corridor.

NYCDOT also is planning to improve routes and appearance of existing bus networks. This will target major bus routes, specifically near bus transit hubs. The plan would improve bus stop and corridor appearance and create safer, more comfortable bus stops. It will also

include major route improvements such as queue jumpers, signal priority, and implementation of other IT systems.

Policies and Practices

To address the increased pressure on the City's mass transit systems, NYCDOT established the Sustainable Streets 2008 and Beyond strategic plan. The plan not only addresses the already established goals of infrastructure revitalization, street safety, and traffic and ferry operations, but also adds new perspectives on streets as public spaces, a more robust surface transit system, reducing the DOT's environmental impact, and working more with the public. NYCDOT plans to implement many mobility actions to support their plan including implementing bus rapid transit, improving streets for existing bus networks, managing parking to control congestion, making bicycling safer and more convenient, improving travel along congested corridors, improving ferry service, expanding their HOV network, improving freight movement, and using IT systems to fight congestion.

Bicycling Program

The NYDOT is also planning a new bicycling program to promote bicycle travel in the city. Their goal is to triple the number of riders by the year 2020. They plan to achieve this by installing 200 new bicycle lanes, testing new lane designs, installing 15 miles of protected on-street bicycle lane, and pursuing legislation to expand indoor bike parking and pass zoning changes to require bicycle parking in new construction.

The plan also embraces using IT systems to solve the City's congestion problem. They are planning on testing transit signal priority for bus corridors throughout the city and installing a combination of in-roadway sensors and in-vehicle transponders to demonstrate such applications as in-vehicle signing, warnings and traveler information.

Blue Ribbon Commission

With a recent shift in environmental awareness, the Blue Ribbon Commission on Sustainability of the MTA is developing a blueprint for an ambitious green transit system. The proposed system focuses on controlling growth by utilizing TODs. The commission's Smart Growth/TOD Subcommittee is charging public and private planners to concentrate two thirds of new development within a quarter to half mile of MTA train, bus and subway stops. To accomplish this goal the committee is pushing for laws much like the recently passed California SB 375, which provides incentives for transit systems that reduce greenhouse gases and lower car emissions.

Business Improvement Districts

Localized incentive programs exist for development but are not associated with BRT. The City has established local business improvement districts along many of the corridors that have or are in the process of implementing bus lanes. Even in the attempt to aid implementation of BRT corridor development, limited parking provided an obstacle on Merrick Boulevard corridor. Local elected officials and businesses along the corridor are very concerned about losing parking spaces associated with the implementation of bus lanes.

Parking Reform

New York City Department of Transportation (NYDOT) has been implementing measures to support parking reform, with the goal of reducing personal vehicle use, strengthening other modes of transit, and easing congestion. Prior to introducing methods for parking reform, Manhattan experienced a 120 percent curb occupancy along particular corridors. Since the mid 1990s, NYDOT has had an escalating meter rate to address congestion of the streets (14th to 60th Street, and a small area in Chinatown) in Manhattan caused by commercial delivery trucks. The meter rate manages how long vehicles are parked at the curb; the rate of the meter varies with time (costs increase in relation to the amount of time a vehicle occupies a space).

Another method in which NYDOT has approached congestion caused by commercial delivery vehicles, specifically along Fordham Road BRT corridor (SBS) in the Bronx, is by requiring business owners to change their delivery times to off peak hours or for trucks to park on opposite sides of the road (based on peak travel by direction) or around the side of buildings. This measure was necessary to allow the efficient operation of SBS. Parking spaces have also been removed in favor of bus lanes. Since these determinations have been made, the amount of time commercial vehicles are curbside has decreased and travel times of the SBS has improved.



Figure 23. Parking meters implemented as part of the Park Smart Program

To address parking issues caused by personal vehicles, NYDOT began the Park Smart program which targets particular neighborhoods where it is difficult to park and buses have difficulty operating. The system works on a peak hour system where it costs more to park when it is most likely to be congested. The main objective of the program is to increase the availability of parking spaces, which will ultimately increase safety, reduce double-parking, pollution and congestion from circling vehicles. Two pilot projects are already in place: one is located in Greenwich Village, and the second in Park Slope, Brooklyn.

Zoning Resolutions

Efforts to amend the city's zoning resolutions to encourage car sharing, reduce the carbon footprint and to assign appropriate zones based on travel behaviors/patterns of residents within a particular area are underway. Ultimately, these efforts may limit the amount of on and off street parking that can be created in new developments within a certain distance (approximately 0.5 miles) of major transit hubs are underway. These efforts are due to the rapid growth of some areas, i.e., new business openings or housing complexes being constructed. NYDOT is currently researching travel patterns within Manhattan; once the data is gathered and analyzed, the city will begin to implement, if applicable, the zoning resolutions that are better suited for each area and will provide congestion relief, which

will ultimately increase transit ridership. The main purpose of the data collection is 1). to understand why people own cars in a city where more than half of the residents do not; 2). what are the cars used for; and 3). if there are public policy changes that can encourage a decrease in auto use and an increase in transit. It is anticipated that analysis of travel patterns will take approximately one to two years.

Pittsburgh, PA

The Port Authority of Allegheny County (PAT) maintains and operates Pittsburgh's mass transit systems. PAT was established in 1956 to allow ports to be opened in the Pittsburgh area and three years later bought contracts to become the primary transit agency of the region. Today, PAT is the second largest transit agency in Pennsylvania and the 11th-largest in the United States. The agency is based in Pittsburgh and operates 962 buses on 180 bus routes along with a 25-mile (40km) light rail system called the "T" which provides service to Pittsburgh and outlying areas including neighboring Beaver, Butler, Washington and Westmoreland counties.

Despite Pittsburgh's population declining from the 2006 census population of 334,563 to a projected 312,819, the city is ranked as the 28th most congested city in America, increasing the need for efficient mass transit. In response PAT has opened several Bus Rapid Transit corridors to alleviate congestion as well as expanding on the South Busway, which is the oldest BRT corridor in the United States.

Bus Rapid Transit

The South Busway, which opened in 1977 at a cost of \$27 million, is the oldest operating busway facility in the United States. The service operates on a 2.3 mile corridor consisting of 14 bus routes including a portion which operates on the Liberty Bridge and Tunnel by way of a joint-use bus/light rail transit tunnel. The system also connects to the City's other major transit option, the heavy rail system known as the "T". The average weekday ridership on this busway is approximately 9,000.

The East Busway opened its first corridor in February 1983, at a cost of \$115 million and operates on a 6.8 mile corridor. The system expanded 2.3 miles in June of 2003 for \$68 million. Today, 34 routes operate along the combined 9.1 mile corridor. The average weekday ridership is approximately 25,000; annual ridership is close to seven million.

In September 2000 the West Busway opened with a construction cost of \$258 million. The busway is a popular transit option due to its strategic positioning between neighborhoods and downtown Pittsburgh. The system's success is due to the park and ride lots, located in suburban areas and bus rapid benefits, like shortened travel times and short headway times. The total length of the route is five miles on which eight separate routes operate. Weekly ridership is more than 9,000 which has nearly reached the 2005 projected level of 10,000.

Development Along East Busway



Figure 24. Shadyside Commons (courtesy of Port Authority of Allegheny County)

In 1996, staff at the Port Authority compiled information regarding developmental impacts along the Martin Luther King Jr. East Busway. This comprehensive analysis contained developmental information from when operations began in 1983 up to the current time of the report. The analysis looked at all new development and redevelopment that had occurred along the transit line within a 1,500 foot radius. The proximity to stops was not considered. The sites were determined through field visits and property values were evaluated by researching property records at the Allegheny County Property Appraisers office.

Figure 25. Inventory of Development along the Martin Luther King, Jr. East Busway (1996)

Community	Type of Development	Type of use	New Construction or Redevelopment	Value of Investment
Wilkinsburg				
	Apartments*	Residential	New	\$1,340,000
	Bank*	Bank	New	\$76,000
	Convenience Store*	Retail	New	\$210,000
	Drug Store*	Retail	New	
	Fast food restaurants (4)*	Retail	New	\$832,000
	Hospital*	Medical	New	\$5,526,000
Homewood				
	Community College*	Institutional	New	\$275,000
	Farmers Market*	Retail	Redevelopment	\$900,000
	Single family residence*	Residential	New	\$1,871,000
	Single family residences*	Residential	New	\$1,484,000
Point Breeze				
	Research and Engineering offices	Office	New	\$32,800,000
	University offices	Office	Redevelopment	\$1,350,000
East Liberty				
	Fast Food restaurant	Retail	New	\$213,000
	Shopping center	Shopping center	New	\$4,300,000
	Association offices*	Office	Redevelopment	\$524,000
	Bank*	Bank	New	\$53,000
	Condominiums*	Residential	New	\$548,000
	Health Club*	Recreation	New	N/A
	Medical offices*	Medical	Redevelopment	\$397,000
	Medical offices*	Medical	New	\$58,000
	Organization Headquarters*	Office	Redevelopment	\$14,000,000
	Painters Store*	Retail	New	\$310,000
	Restaurant*	Retail	Redevelopment	\$960,000
	Shopping center (8 tenants)*	Retail	New	\$2,816,000
	Theatre and shops*	Theatre/retail	Redevelopment	\$1,360,000
	Townhouses*	Residential	New	\$25,000,000
Shadyside				
	Apartments	Residential	Redevelopment	\$20,000,000
	Apartments	Residential	New	\$2,600,000
	Hospital, Medical offices, parking garage	Medical/parking	New	\$43,798,000
	Offices	Office	Redevelopment	\$4,500,000
	Offices	Office	Redevelopment	\$200,000

* Development clustered at the stations

**Source: Port Authority of Allegheny County, *Development Along a Busway, a Case Study of Development along the East Busway in Pittsburgh, Pennsylvania, 1996*

Reported results

Fifty four developments along and near the busway were built since 1983. Six of those developments are shopping centers or office and warehouse complexes with a total of 61 tenants at the time the analysis was conducted. The total value of development along the busway is \$302,000,000. Of this amount, 65 percent was new construction. The greatest amount of development occurred Downtown (35 percent), and the second greatest was in Shadyside. Fifty eight percent of total investment was clustered around stations. Since 1996, an additional \$200M in development has occurred along the East Busway.

Policies and Practices

PAT has not established any local, county or regional policy for incentives for corridor development. Current development has been occurring in the rapid transit corridors on an informal basis stemming from developer interest and public involvement. In recent times, there have been efforts by the City of Pittsburgh and Allegheny County to formalize the planning process emphasizing development at and near rapid transit stations.

In 2004, the Pennsylvania Legislature approved a measure which allows for local governments to create a Transit Revitalization Investment District (TRID) to provide a mechanism for encouraging development at and near transit stations and to capture the value of the development to fund local infrastructure and transit improvements. TRIDs lay the groundwork for developing TODs around Bus or Rail facilities. The first TRID planning study in Allegheny County was completed for two stations on the Port Authority's LRT system. The City of Pittsburgh has also applied to the state for grants to conduct planning studies for TRIDs along both the LRT system and the Martin Luther King, Jr. East Busway.

Although until recently no specific incentive program had been set up for incentive based corridor development, the passage of the TRID Act laid the foundation for TODs to be implemented. Although no incentive based development program has been in place in the past, the ability to use the value of the area to the PAT's advantage could cause more incentive based planning in the future. The legislation has no specific qualifier that would exclude BRT or LRT, so no difference between incentives exists.

Baltimore, MD

The population of the city of Baltimore is 636,919 as of 2008, making it the 20th largest city in the country. The city also is also one of the most congested, recently increasing in rank from the 19th to 17th most congested city in America. To meet the demands of the city's growing need for mass transit, many ideas are being researched and alternatives are being sought to replace personal travel and alleviate traffic congestion.



Maryland Transit Administration (MTA) services the major Baltimore-Washington area and is part of the Maryland Department of Transportation. The MTA began operation on April 30th, 1970 and is responsible for more than 50 local bus lines along with other services that include the light Rail, Metro Subway, MTA Maryland Commuter Bus, and MARC Train.

Bus Rapid Transit and Light Rail Transit

BRT has been considered along various corridors throughout Maryland, two of which have been recently determined to be LRT, the Purple and Red Lines. The Purple Line Transitway is one which will operate between Bethesda and New Carrollton, Maryland. The corridor is located just north of the District of Columbia and will run approximately 14 miles between both branches of the Metrorail Red Line, also connecting with the Green Line and Orange Line Metrorails.

The Red Line in Baltimore is proposed for a 10.5 mile corridor in Baltimore City. The city evaluated mixed flow and exclusive BRT alternatives. The Red Line will connect to Baltimore's existing transit system and will serve major employers such as the Social Security Administration, the Center for Medicaid and Medicare Services, The University of Maryland Medical System and the downtown Central Business District.

The Green Line is a proposed extension of the existing Baltimore Metro service that will operate on a four mile city corridor in the vicinity of Morgan State University and John Hopkins Hospital. Transit options being considered include Light Rail Transit, Bus Rapid Transit and Heavy Rail Transit (Metro). The study is looking at ways to improve

connections to existing and planned transit services, support community revitalization and growth, and enhance environmental quality. One of the goals for the Green Line is to support community revitalization and economic growth.

Policies and Practices

Corridor development in Baltimore is promoted through incentives specific to transit and is implemented through Transit Oriented District (TOD) initiatives which are either zoning incentives or financial incentives such as Tax Increment Financing (TIF) legislation or zoning designations that channel public investments into specific areas. These incentives do not have specific qualifiers, in some instances however, rail transit is the qualifier.

Maryland Base Realignment and Closing Zones (BRAC)

Maryland Base Realignment and Closing (BRAC) zones were established by a 2005 BRAC Commission decision to relocate several thousand jobs from outside the State to five Maryland military installations. The BRAC Action Plan, passed in 2008 by the General Assembly, allows for the zones to be a tool for local governments to provide State financing support for public infrastructure in areas targeted for BRAC growth. These are designations awarded by the State, after reviewing competitive local applications and results in certain state funding mechanisms only available in these areas. The purpose of these designations is to attract growth from the Base Realignment and Closure Commission process into appropriate areas. These zones allow local governments to negotiate for transportation improvements with developers of Enhanced Use Lease projects. The State legislation ties the designation to the presence of rail transit. In this case BRT would not qualify.

Maryland Department of Transportation

MTA and MDOT's goal is in keeping with its commitment to TOD and Smart Growth. MDOT aggressively promotes TOD projects around the State's transit stations to accommodate growth in a more efficient and sustainable way by marketing property surrounding MARC, Metro, Light Rail, and other transit stations for development.

State Legislation and Policies

Legislation is currently under review for TIFs in TOD areas and does not distinguish between rail transit and other transit. Planned City TOD overlay zones with density incentives do not have a rail limitation in the draft language either. The passage of current TOD codes will be deliberated in early 2010 with private developers, local politicians and citizens doubtful that BRT registers in the same way as an investment and long term commitment as rail transit does. The BRT systems in Pittsburgh and Boston have been visited and have not convinced the aforementioned groups.

The MTA Maryland does not issue any economic development incentives. Local governments become active and begin incentives and support only after the Mayor and City delegates declared that their preference of mode is rail and it became clear that there is strong support for rail transit among politicians and stakeholders.

Although MTA does not specifically support incentives for BRT or LRT, recent legislation and the establishment of BRAC zones supports rail development. With private developers, local politicians and citizens leaning toward the image of LRT over BRT future projects and incentives may be LRT based.

Transit Oriented Development along Light Rail

This section provides further information regarding transit oriented development and how its success has been encouraged by cities that do not have bus rapid transit, but operate light rail. The experiences of three such cities, Portland, San Diego, and San Jose, are summarized below.

Portland, OR

Portland's regional government, Metro, has been a key player in Portland's TOD success. The TOD Implementation Program implemented by Metro, uses Federal transportation funds to help promote TOD construction.



One way Metro promotes TOD development is by buying property and designating the land use. Once a strategy is developed for property that Metro has acquired, it is divided up, and then sold to private developers under conditions to follow the TOD plan. Metro uses a “highest and best transit use” appraisal method to establish a sale price. The program is the first of its kind in the United States to use flexible federal transportation funds for TOD implementation.

Portland Metro also makes use of CMAQ funding for TOD development. CMAQ is a grant that helps states meet the federal Clean Air Act requirements. This grant is useful because it funds all project phases and requires only an 11.47 percent local match. The money is used to acquire land for the construction of transit amenities as part of TODs. To date, a total of nine projects have received funding from this program.

One example of Metro's TOD development strategy occurred in 1999 when the program purchased a site at its appraised value, subdivided the parcel, and established TOD easements, covenants, and restrictions to ensure that local residents could use on-site pedestrian paths to access the nearby light rail station. The property was then sold to three different development entities constituting the original development team, after the price for the land was reduced to reflect changing market conditions.

Metro's TOD development funding sources included low-income housing tax credits, State of Oregon tax-exempt bonds, a Portland Development Commission (PDC) loan, a Fannie

Mae loan, general partner equity, and an FTA TOD grant. Metro also gave the projects a 10-year property-tax exemption.

Metro uses a land purchasing strategy for its corridor development and improvement. While this is a unique technique, the strategy is very effective because it is funded through grants and government loans and supported by developers who purchase the parceled land from Metro. While the practice has been conducted along the rail corridors of Portland's rapid transit, there is no specific qualifier for the TODs unless the grant applied for funding dictates otherwise, so there should be no specific difference in BRT and LRT incentives in Portland.

San Diego, CA

The city of San Diego's transit affairs are handled by the San Diego Association of Governments (SANDAG). SANDAG is made up of 18 cities and county government and serves as a forum for regional decision making. SANDAG is governed by a Board of Directors which approves the annual Legislative Program that determines the agencies legislation and local activities for the calendar year. The Board also approves a list of transportation projects for funding consideration.

The SANDAG Pilot Smart Growth Incentives Program, approved in 2005, was developed to fund transportation related infrastructure improvements and planning activities in the region. In 2009, the program became known as the Smart Growth Incentive Program (SGIP) and will award two percent of the annual TransNet (a voter approved one-half cent addition to local sales tax for transportation improvements) funding for the next 40 years to local governments through a competitive grant program to help spur transit related development. TransNet funds two grant types: capital projects and planning projects.



Figure 26. Light Rail in San Diego (www.RailPictures.net)

The goal of the TransNet SGIP is to fund public infrastructure projects and planning activities that will support compact, mixed use development focused around public transit, and increase housing and transportation choices. The projects funded under this program will serve as models for how infrastructure and planning can make smart growth an asset to communities in a variety of settings.

The only requirement to qualify for the Smart Growth Incentives Program is to support smart growth infrastructure including mass transit, so in this case both BRT and LRT qualify. Environmental awareness and infrastructure improvement are both driving factors in Smart Growth development and could be beneficial for future BRT and LRT development.

San Jose, CA

The San Jose area is unique and consists of 13 major transit authorities with many utilizing TOD for corridor development. Santa Clara Valley Transportation Authority (VTA) is a special purpose district responsible for public transit services, congestion management, specific highway improvement projects, and countywide transportation planning for Santa Clara County, California. VTA separated from Santa Clara County in 1995 and merged with the local congestion management agency, taking on responsibility for reducing traffic and analyzing the impact of local land-use decisions on the regional transportation system.

VTA operates three LRTs, 82 bus lines, and is a member agency of Peninsula Corridor Joint Powers Board that manages Caltrain commuter rail. On July 5th, 2005, VTA implemented its first bus rapid project, Metro Rapid, along its busiest corridor. VTA does not consider its rapid bus 522 to have reached BRT status to date. There is a major planning effort underway to upgrade the service.

One of VTA's Strategic Plan goals is to integrate transportation and land use planning. These goals led to the development of VTA's Transit-Oriented Development Program which strives to intensify and diversify land uses and enhance pedestrian circulation at appropriate locations.

To promote development along the target corridors and garner public support, VTA formed partnerships with local jurisdictions to ensure that TOD occurs. VTA and several cities amended their zoning codes and regulations to include provisions for transit supportive land uses. The initial plan focused on existing and planned rail stations.

The VTA began looking for joint-development partners as it was completing its 21-mile, 30-station light rail system. VTA coordinated with the city of San Jose to stimulate investment around several stations. VTA owned large parking lots next to many of its stations, and the agency began preparing station area plans that provided market data and design concepts for development. VTA created an in-house joint development program principally to tap the development potential of these underutilized park-and-ride lots for greater land use potential. VTA opted mainly to co-participate with local and developer interests in promoting transit-supportive development in the vicinity of stations.

In addition to station area planning efforts by VTA, several cities have undertaken their own initiatives to encourage rail use. They have developed innovative programs and plans to stimulate TODs and improve pedestrian access around rail stations.

Even though corridor design and development is promoted by the VTA, rail station improvement has been the main focus of the TODs thus far. There is no specific qualifier

for the TODs, but public interest and developer support have driven the rail based development. However, San Jose College developed “Bus Rapid Transit: A Handbook for Partners” which is a unique document outlining the first state-backed BRT specific policy. The State of California also passed SB 375 which supports TODs and any type of transit development that supports the reduction of greenhouse gasses and urban sprawl, and has no specific transportation qualifier.

Conclusions

As illustrated in cities such as Ottawa and Boston, significant economic development can occur around bus rapid transit stations. The development that has occurred includes a mix of land uses including commercial, retail, residential, office, industrial, and civic, which is likely to ensure the sustainability of the particular area in which it occurs.

It is important to note that the development that has taken place has often been encouraged through different land use policies or practices that have been established and adopted by local governing agencies or by other contributing organizations. It is therefore understood that a particular city's approach to the transit culture has the ability to shape and determine whether or not development occurs and if it will be successful. These policies and the local climate may be more of an important factor than the issue of permanence of a transit system.

Ottawa has been extremely successful by implementing policies that limit the location of new developments of a particular size to close proximity to transit stations. This, in addition to the Greenbelt which has been in place since the 1950s, has created a favorable climate for TOD to flourish.

The Boston Silver Line has been successful in attracting development dollars. The question of whether or not the development has occurred because of the BRT or because the areas were slated for redevelopment is not necessarily relevant; what has been shown is that the city has included BRT in their policies and plans and labeled it as a rapid transit mode that is significant and capable of supporting both development and the resulting increased demand for transit in those particular locations.

Another noteworthy finding is that Boston, Ottawa, and New York have each implemented parking mitigation measures in an effort to increase transit ridership and decrease congestion. Although these policies may not have been directly implemented in an effort to encourage transit oriented development, they have the potential to result in an increased demand in transit and greater density development around transit stations.

When evaluating policies that encourage economic development and whether or not they are equally applied to both BRT and LRT, the research has found the following:

- In Baltimore, the establishment of Maryland Base Realignment and Closing (BRAC) zones supports rail development. Bus Rapid Transit has not been included in any incentive programs or policies, which may become a consideration if a BRT begins operation.

- Along the Orange Line BRT in Los Angeles, transit oriented development has not been significant, yet a great deal of development has occurred at the North Hollywood station, where both LRT and BRT stations are located. There are many incentives available to developers but public demand and developer appeal will determine which areas are developed in the future.
- In New York City, there are no specific incentives for BRT or LRT; future plans and development seem to favor mass transit in general. Environmental impacts may become a deciding factor of which mode would prove the most beneficial.
- There are no specific incentive programs for corridor based development in Pittsburgh, but the passage of the Transit Revitalization Investment District (TRID) Act laid the foundation for TODs to be implemented. The legislation has no specific qualifier that would exclude BRT or LRT.

In the three cities in which light rail operates, but bus rapid transit does not, the following findings were considered of interest:

- In Portland, Metro uses a land purchasing strategy for their corridor development and improvement. While the practice has been conducted along the rail corridors of Portland's rapid transit, there is no specific qualifier for the TODs unless the grant applied for dictates otherwise.
- In San Diego, the only requirement for Smart Growth funding is infrastructure improvement that includes mass transit. In this case both BRT and LRT qualify. Environmental awareness and infrastructure improvement are both driving factors in Smart Growth development and could be beneficial for future BRT and LRT development.
- Rail station improvement in San Jose has been the main focus of the TODs thus far. There is no specific qualifier on transit modes for the TODs, but public interest and developer support have driven the rail based development. This is likely due to the fact that the current rapid bus service does not incorporate many elements of BRT and may therefore not be considered a significant rapid transit mode.

The State of California seems to be the front runner on new legislation and policies that support BRT. The “California Department of Transportation (Caltrans) Policy Statement on Bus Rapid Transit Implementation Support” is one of the first BRT policies of its kind. The policy directly states Caltrans support for the development and implementation of BRT systems and utilities. It also recognizes BRTs as a cost effective strategy to maximize ridership, travel time, and foster energy savings on all California State Highway Systems and conventional highways. It also praises BRT for its versatility and ease of implementation by making use of existing utilities and states Caltrans commitment of support to any transit agency and transportation planning agency to advocate BRT systems.

Future amendments, resolutions, and policies could improve incentive based BRT development and truly differentiate it from LRT. As it stands today, there are no noticeable differences between the incentives offered by cities for BRTs and LRTs. The development around mass transit corridors seems to be dependent upon public support and developer interest with various factors determining the interest in the corridor development.

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