

## **APPENDIX J**

### **BRT Case Studies: Land Use & Economic Development Memorandum**



## BRT Case Studies: Land Use & Economic Development Memorandum

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### Introduction

This Technical Memorandum presents a summary of key findings and lessons learned from various Bus Rapid Transit (BRT) systems in the United States related to potential land use/economic development impacts and actions that can inform and potentially support future BRT implementation on Division Street. This summary focuses on the results from interviews with system staff<sup>1</sup> and from extensive literature review. Key questions that framed the discussion presented in this memo included:

1. What activities have occurred in the land use context that support successful implementation of BRT?
2. What are the land use or socio-economic impacts experienced with implementation of BRT?
3. What kind of strategies have agencies employed to address negative side effects on land use associated with BRT?

The material presented in this memo is based on interviews that were conducted with three transit systems as well as literature review for additional services. Different BRT systems have different characteristics ranging from high end treatments such as EmX in Eugene Oregon to branded but less extensive treatments such as The Vine operated by C-TRAN in Vancouver Washington to unbranded systems that operate in rights-of-way that are largely separated from adjacent land uses such as the East Busway in Pittsburgh Pennsylvania. Specifically:

- Eugene has extensive exclusive median rights-of-way utilizing a former rail corridor, signal priority at intersections – particularly where there is no segregated right-of-way, real-time information and vibrant public art at stations, very frequent headways<sup>2</sup> (approximately ten minutes throughout much of the day), an off-board fare collection system, and buses that are clearly identifiable for BRT service.
- C-TRAN has a branded service that operates within street travel lanes but has elevated platforms and off-board fare collection to minimize station dwell time. C-TRAN also has real-time information at stations.
- The East Busway in Pittsburgh operates in a former rail corridor and interacts with surrounding land uses only at stations. The service is not branded or treated differently than any other bus transit route.

Following is a summary of information related to the three questions above. Subsequent sections of this memo provide more detailed summaries of research findings and information obtained through direct interviews with transit agency staff.

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<sup>1</sup> Phone interviews were conducted with staff from C-TRAN, City of Vancouver, WA, Lane Transit District, and the Port Authority of Allegheny County in September and October 2021. Each interviewee expressed a willingness to answer further questions as the Spokane BRT project evolves.

<sup>2</sup> Headway is the distance between vehicles in a transit system measured in time or space. The minimum headway is the shortest such distance or time achievable by a system without a reduction in the speed of vehicles. Ref: Wikipedia

## Key Land Use & Community Planning Activities

All of the systems noted in this memo, as well as many others in the United States, have relied upon thoughtful and comprehensive advanced planning activities for successful implementation. This includes not only transit infrastructure and operational planning, but also extensive land use and community development planning. Key “lessons learned” include:

- At the outset of system development, clearly articulate the goals the system is intended to accomplish. This should include not only benefits like improved ridership and more cost-effective and reliable service, but also broader community goals related to issues such as Transit Oriented Development (TOD), economic stimulus, quality of life, affordable housing, public health and safety benefits, and others that are important to the local community.
- Get plans and transit-supportive programs in place before or in conjunction with capital improvements. Without these plans and programs, success in meeting community goals may be compromised. Transit supportive programs can include zoning changes and design review for development to encourage walkable communities, reduced parking maximums, or parking incentives.
- Work closely with all affected agencies (transit, city, county, state, regional) and private institutions or businesses to realize a common vision.
- Carefully consider elements of BRT service that can be effective in stimulating land use and economic development, including a sense of permanence through capital infrastructure investment, fast and reliable service, and branding that makes BRT stand out as a premium service.
- Conduct focused station area planning and prioritized infrastructure investment to leverage public dollars in the most effective manner possible. Focus transit-supportive development in corridors and within station areas that have the greatest potential for increasing ridership and meeting broader goals. Consider first/last mile improvements to enhance access for nonmotorized modes and micro-mobility.
- Use available financing tools, seek out public/private partnerships, and actively encourage private investment through incentives such as tax benefits, land assembly, environmental clean-up, proactive outreach to developers, and corridor marketing.

## Land Use/Socio-Economic Impacts

All the systems discussed in this memo and many others in the United States have seen both intended and unintended shifts in land use patterns with the implementation of BRT. Some of the key effects include:

- BRT development has been shown to increase residential property values in many communities, and values increase over time as the system matures. Examples include:
  - All other factors being equal, the average total sales price for a single-family home in Eugene in 2005 increased by an average of \$823 for every 100-meter decrease in distance to a BRT station. The average sales price increased by \$1,056 in 2010 for the same measure of proximity, and by \$1,128 in 2016. Initial service began in 2007, so the data represents a before and after condition. The second BRT route opened in 2011, and the third in 2017.
  - Based on a 2009 study, a single-family residential property 1,000 feet away from a station along Pittsburgh’s East Busway is valued approximately \$9,745 less than a property 100 or fewer feet away, all else being equal. Average median home values in East Busway stations areas increased by 27 percent between 2013 and 2018, while average median rents increased by 19 percent. At

the first major TOD development in the corridor (East Liberty Station), housing values went up 42 percent and rents went up 26 percent. Initial service in the East Busway began in 1983.

- A study of 12 metropolitan areas with BRT service indicated that transit corridors saw a one-third increase in their share of new office space. Additionally, there was evidence of an office rent premium for locations within 0.5 miles of a BRT corridor.
- BRT stations gained employment at a faster pace than outside these areas, even attracting job growth away from non-station areas. For example, during the Great Recession (2004 to 2010), the Eugene metropolitan area lost more than 5,000 jobs but areas within 0.25 miles of BRT stations gained nearly 3,000 jobs.
- A shift to certain employment sectors was observed within 0.5 miles of BRT corridors with an increase in jobs related to information, real estate, management, administration, education, health care, lodging/food, and other similar sectors. A drop was seen in sectors such as manufacturing, construction, warehousing, transportation, and others.
- BRT stations are also associated with the largest positive shift in upper wage jobs during the economic recovery, while the share of lower wage jobs within 0.5 miles of BRT station areas fell in comparison with the remainder of the metropolitan area. Between 2013 and 2018, the East Busway in Pittsburgh saw a 23 percent increase in median income in station areas.
- BRT systems can also be effective in leveraging investments in TODs, particularly in comparison to more expensive rail investments. For example, Portland's Light Rail Transit (LRT) Blue line has spurred a lot of development including affordable housing and mixed-use development but the transit project cost 34 times more to build than Cleveland's HealthLine BRT.<sup>3</sup> As of 2013, Cleveland saw a return of \$114.54 in TOD for every dollar invested in BRT, while Portland saw a return of only \$3.74 for investment in LRT. While there is disagreement about this finding related to the comparability of the two systems, the data indicates that there is a positive relationship between providing high quality BRT and significant TOD investments.

## Strategies Employed to Address Negative Impacts

Actions taken to address land use consequences also relate to potential or anticipated negative impacts that could be associated with BRT development. Key takeaways include:

- Successful programs are proactive in anticipating and addressing their desired land use and economic development outcomes. Monitoring of development and periodic reporting of results are important in that they provide early warning of potential negative impacts to allow for a more measured response. Negative impacts could include failure to meet ridership goals, adverse effects on adjacent land use and/or businesses, and lack of consistency between market economics and the planned design parameters for station areas and their surrounding land uses.
- Many communities are beginning to address issues related to the adverse effects of “gentrification” that can come with public infrastructure and catalyst TOD development. Maintenance of affordable housing near TOD stations is a key priority and a wide variety of strategies have been implemented or are under study/consideration, including such things as tax and developer incentives. Negative impacts could also include effects of gentrification on businesses and rentals where no strategies have been implemented to reduce or minimize these effects.

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<sup>3</sup> Value of redevelopment attributable to transit in comparison to the cost of the system. From “More Development for Your Transit Dollar: An Analysis of 21 North American Transit Corridors”, Institute for Transportation and Development Policy, Hook, Lotshaw and Weinstock, November 2013.

- Close cooperation between land use and transportation planning and development is important, particularly with focused station area planning on an ongoing basis. Development demand and activity should be monitored. Prioritize station area infrastructure investments in areas where the greatest benefits can be realized, that are the most financially feasible, and have solid local support.

## Key Findings Related to Successful TOD

Based on results from individual interviews and literature search, several key takeaways were identified. These included:

- The most important factor affecting successful implementation of BRT-related TOD is the level of government support. Case study examples note government support in the form of robust TOD investment and public policy, including things like assembling land, public finance, and other financial incentives. Among the most important steps is making sure zoning near transit encourages mixed use and walkable development. Parking limitations are also seen as useful.
- Another important factor leading to successful implementation of BRT TODs is the strength of the real estate market. Emerging markets simply require higher levels of government support to overcome market barriers. In emerging real estate markets, the effect of transit and infrastructure investment on economic development is the most apparent. Strong markets will develop no matter what, weak markets require greater assistance.
- A “sense of permanence” in BRT investment is important in successful TODs, and it is important to prioritize features that impact the speed and reliability of service. However, while the quality of transit service is important, it is not as important as public policy and development (market) potential.
- Lastly (and not applicable in all instances), institutional presence such as hospitals or universities along corridors can contribute to success. Success of TODs along BRT lines in Cleveland, Eugene, and Kansas City have been attributed in a Government Accountability Office study to the presence of institutional anchors.<sup>4</sup>

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<sup>4</sup> “Bus Rapid Transit Projects Improve Transit Service and Can Contribute to Economic Development”, US Government Accountability Office, Report to the Committee on Banking, Housing and Urban Affairs, US Senate, July 2012.

## Research & Interview Notes

The following sections present interview and research notes associated with BRT services provided by the Port Authority of Allegheny County (Pittsburgh), C-TRAN in Vancouver, Lane Transit District in Eugene, and the HealthLine in Cleveland Ohio. Other, more general research notes are also included.

The three main questions asked during interviews were:

1. What activities have occurred in the land use context associated with implementation of successful BRT?
2. What are some of the land use impacts experienced with implementation of BRT?
3. What kind of strategies have agencies employed to address negative side effects on land use associated with BRT?

### Land Use Activities Associated with Implementation of Successful BRT Service

#### ***Port Authority of Allegheny County (PAAC), Pittsburgh PA***

ML King East Busway is a key component of the Pittsburgh BRT system. Service was initiated in 1983 along a separated 6.8-mile corridor adjacent to a former rail line. A total of six stations were provided. In 2003, the system was expanded to a total of 9.1 miles with an additional four stations for an average station spacing of slightly less than one mile. The service operates seven days per week with headways typically less than ten minutes on weekdays and typically 15 to 20 minutes on weekends. Travel time savings between suburban Wilkinsburg and downtown Pittsburgh was estimated at about 38 minutes per trip as service was re-routed from local streets to the segregated facility.

- There has been very extensive development of an ongoing TOD Communities program to support BRT and LRT services with a focus on station areas. Goals of this program are to:
  - Increase transit ridership and improve the rider experience.
  - Provide economic stimulus including creating employment centers and mixed income/mixed use communities.
  - Improve quality of life.
  - Support development of affordable housing.
  - Support improvements to public health and wellness by encouraging more walking and biking.
- PAAC has published a “TOD Zoning Best Practices” manual which offers guidance for working with local agencies on zoning changes to support TOD development, including specifics on improving community equity through affordable housing.<sup>5</sup>
- PAAC has worked with the City of Pittsburgh to identify transit overlays with added zoning to support higher densities and reduced parking.
- PAAC has developed a program to address First- and Last-Mile travel needs to support access to the BRT system, primarily through bike and micro-mobility improvements. The program is based on equity and potential benefits with a focus on improving safe connectivity to stations in areas likely to experience the greatest benefits from these improvements. Implementation of this program is just beginning.
- There is a funding program authorized by the State of Pennsylvania (TRID, or Transit Revitalization Investment Districts) that is just now being accessed to provide a funding stream for improvements to the East Liberty station and station access by transit, cyclists, and pedestrians. PAAC has prioritized its

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<sup>5</sup> <https://www.portauthority.org/contentassets/d1e84d83d7d9471dbd5c11dadd25e56/todguidelines.pdf>

station areas for study to identify specific improvements that should be made. There are three studies currently underway.

- The City of Pittsburgh is an active participant in the study process, with staff developing more inclusionary overlays for station area zoning that focus on support for transit and affordability in development including a percentage goal for affordable housing. Executive summaries of some of these efforts are available on the Port Authority website.<sup>6</sup>

### ***C-TRAN, Vancouver WA***

Opening in 2017, the Fourth Plain Boulevard corridor is the first BRT system in Vancouver. The corridor is six miles long with 34 stations located an average of 900-feet apart. Weekday service is typically offered on ten minute headways, while weekend service about every 15 minutes. Service is generally provided within mixed traffic but elevated platforms and off-board fare payment help to improve system efficiency and travel time. C-TRAN reports that the route saves approximately five minutes of travel time over the former local bus service.

- There was a subarea plan for the Fourth Plain corridor done in 2008 or 2009, which resulted in some up-zoning and a transit overlay. Some on-site parking requirements were eliminated, and for other sites, parking has been directed to the rear of buildings. Development standards were put in place that encourage TODs such as zero setbacks, street-facing building orientation, and other form-based considerations. Much of the corridor was zoned for multi-family uses prior to BRT implementation.
- In 2015, the corridor was re-evaluated and a more wholistic action plan was developed. It included identification of opportunities for public/private partnerships and affordable housing. The Fourth Plain Corridor Action Plan included a time-limited multi-family tax exemption.

### ***EmX, Lane Transit District (LTD), Eugene OR***

The first of three BRT routes in the Eugene urban area was the Emerald Express or EmX service which began in 2007 and operates between the cities of Eugene and Springfield. The initial route was four miles long with ten stations spaced at 0.5-mile intervals. Weekday service headways are 10 to 15 minutes, with 15 to 30 minute headways on weekends. 60 percent of service is operated within a separate right-of-way, with transit priority treatments when service is operated in mixed traffic. Research conducted for EmX shortly after service initiation indicated that only about one minute of travel time savings was realized in comparison with prior local bus service, but that finding was qualified due to the short length of the corridor.

- The development of BRT in Eugene was built upon decades of coordinated planning in the Eugene/Springfield area that addressed how to achieve the goals of sustainable land use served by a cost-effective, multimodal transportation system.
- Initial work began with identification of major transportation corridors that could benefit from enhanced transit service. Areas along these corridors where increased land use densities could be achieved were identified, including opportunities for mixed use/pedestrian friendly development.
- In the mid to late 1990's, LTD started looking at BRT as an improved way of serving the major corridors in Eugene and Springfield. By 2000, three implementation principles were identified to guide BRT corridor system development, addressing the following considerations:
  - Corridors should show potential for increasing transit ridership.
  - The system should be financially viable.
  - Selected corridors must be approved by the affected municipality.

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<sup>6</sup> <https://www.portauthority.org/inside-Port-Authority/projects-and-programs/transit-oriented-communities/station-improvement-program/>

## **HealthLine, Cleveland OH**

The HealthLine BRT system on Euclid Avenue in Cleveland began operations in 2008. Depending on location, service operates within a median-aligned, dedicated right-of-way or in mixed traffic and includes elevated platforms and off-board fare collection to reduce station dwell time. 4.5 miles of the system operates in both directions within dedicated right-of-way, while an additional 2.3 miles operates in mixed traffic. The total BRT corridor is 6.8 miles long and has 36 stations located an average of 1,000 feet apart. This represents a two-thirds reduction from the 108 stops that existed prior to service redesign. Service is operated seven days per week, 24 hours per day. During both weekdays and weekends service is provided on 15 minute headways throughout most of the day, dropping to 30 minute headways during the late night hours (June 2021 service schedule). It is estimated that travel times for the entire corridor improved by about twelve minutes with the addition of BRT in comparison to local bus service. Ridership increased significantly with the service redesign from about 9,000 passengers per day in 2008 to an estimated 16,000 riders in 2013<sup>7</sup>, with a 48 percent increase in year one<sup>8</sup>.

- Ongoing planning to establish a high-quality transportation link between downtown and University Circle began in the 1970's during an era of rapid economic decline. Study of BRT began in 1995 in the Euclid Avenue corridor – formerly a very active commercial corridor. Planning included transit services as well as updated electrical, communications, water and sewer infrastructure, and improved sidewalks, bike lanes, and public art. “Beyond 2005: A Vision for Midtown Cleveland” was adopted in 2005, calling for higher-density residential and mixed-use development with a pedestrian focus, and emphasizing health facility services. The plan also proposed zoning changes to provide more focused control to achieve the corridor vision.
- Government support for HealthLine included:
  - New zoning that laid out a set of requirements for new development, subject to design review by a board composed of architects and urban designers, providing the city more flexibility on how to apply regulations. Regulations included three-story height minimums, zero street setbacks, 80 percent lot width fill requirements, ground floor retail, and halving of parking minimums with a lid on parking maximums.
  - A 2007 plan that emphasized creation of a development corridor along Euclid Avenue and supported a transit-oriented Midtown.
  - A 2009 economic development plan whose main recommendation was to market Midtown as a “Health-Tech Corridor”. This leveraged proximity of various health-related institutions in the corridor and allowed the BRT line to be branded HealthLine.
  - Active pursuit of State and Federal competitive funding as well as funding from local institutions. Funds were used for BRT system development and for economic development activities including property acquisition, infrastructure upgrades, and build-out of speculative facilities. Cleveland was designated as a Federal Entitlement City, which allowed for low-interest loans and various tax credits. Foundations contributed some funding, but were also used as funding intermediaries.

## **Key Land Use Impacts Associated with BRT Development**

### **Port Authority of Allegheny County (PAAC), Pittsburgh PA**

- A 2009 study showed an increase in property values along the East Busway corridor related to BRT proximity. Notably, single-family residential properties at greater distances (i.e., 1,000 feet away) from a

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<sup>7</sup> <https://nacto.org/case-study/euclid-avenue-brt-cleveland-oh/>

<sup>8</sup> <http://www.riderta.com/healthline/about>



station were valued approximately \$9,745 less than properties less than 100 feet away, all else being equal.

- A five-year evaluation of a TOD Communities program published in July 2021 was prepared based on readily available socio-economic and demographic data from station areas within a 0.5-mile walkshed. Data compared conditions in 2013 with conditions in 2018. Key findings from this analysis include:
  - Station area improvements for TOD communities have been prioritized based on existing factors (such as job and population density, walkshed size, and available infrastructure), development momentum, and development potential. There is an existing TOD at the East Liberty Station (station enhancements were completed in 2015) and a developing TOD at the Negley Station. Other stations are in the planning and design process.
  - Key findings for the East Busway BRT facility include:
    - Station areas along the East Busway generally had a notable increase in population and racial mix (primarily Asian and Hispanic) with an overall 30 percent increase in minority population.
    - Demographics in most station areas are shifting to a younger age group.
    - A 23 percent increase in median income in station areas along the East Busway.
    - No major increase in the number of housing units for the East Busway as a whole, but certain station areas saw increases.
    - 2018 economic study showed that housing near high-capacity transit had higher property values than property elsewhere. Housing near East and West Busways was 6-20 percent more valuable than property not near transit.
    - Average median home values in East Busway station areas increased by 27 percent between 2013 and 2018, while average median rent increased by 19 percent. The East Liberty Station (one which has experienced substantial planning and development as a TOD community) experienced an increase of 42 percent in housing value and a 26 percent increase in rent. Different stations saw widely differing changes that might indicate the influence of factors beyond accessibility to transit.
    - The most dramatic shift in employment for all high-capacity transit corridors in Pittsburgh occurred along the East Busway, with a clear shift away from manufacturing sectors to tech-based sectors and hospitality. Different stations along the East Busway saw widely divergent changes in employment with some station areas seeing significant increase (55 percent in Negley) coupled with significant increases in wages. Other stations saw a drop in employment and wages (59 percent drop in Homewood).

### ***C-TRAN, Vancouver WA***

- C-TRAN has noted a lot of development along Fourth Plain that is attributable to BRT, most of which involved affordable housing. Six or seven housing projects have occurred in the corridor since it opened in 2017 for a total of between 500 and 600 units. Most of this development is right on the corridor, all but one is within a 0.25-mile walking distance from Fourth Plain. All units were developed as affordable, excepting one market-rate development near the east end of the corridor.

- Concern has been expressed in the community about “gentrification”, so actions taken to encourage affordability needed to align with the corridor vision to ensure an equitable distribution of housing and avoid displacements.
- Zillow housing prices show a 13-14 percent increase per year since 2017.
- BRT is seen as an important tool for the city to redevelop and infill lands in the Fourth Plain corridor. Consideration is being given to re-developable parcels, examining existing versus potential value, and how this might encourage teardowns or more affordable development. Parking incentives tied to BRT is seen as key. It is generally believed that development would be less dense/intense without BRT.
- A joint City of Vancouver and Housing Authority project for 106 units has been undertaken on a roughly one-acre site with 10,000 square feet of commercial space, a 10,000-square foot plaza, and a total of 98 parking spaces.
- A key goal of planning along the BRT corridor is to create an equitable development framework by putting things in place that allow people and businesses to stay in place. In addition to incentives to encourage development of affordable housing, efforts focused on the business community have included targeting small businesses and providing technical assistance to help them take advantage of opportunities. The Fourth Plain corridor includes largely neighborhood businesses with few large employers. It was noted that commercial development in the corridor is roughly 90 percent local and 50 percent minority owned.

#### ***EmX, Lane Transit District, Eugene OR***

- The first EmX corridor opened in 2007 and ran from downtown Springfield along Franklin Boulevard to downtown Eugene, passing the University of Oregon along the way. This is LTD’s highest route for boardings. In the first year of BRT service, LTD noted a 50 percent increase in ridership. This corridor also has the densest residential and commercial development in the region.
- The Eugene metro area is relatively small, with a population of approximately 300,000. The city has seen an explosion of off-campus housing development (privately financed) which did not exist before the 2007 start of BRT next to the university. Now there are four or five high-rise residential towers, with another under construction.

#### ***HealthLine, Cleveland OH***

- Downtown/University Circle Development – Most of the new development occurring in the HealthLine corridor has occurred in Downtown and University Circle. The City’s primary goal was to increase residential development in Downtown. There have also been seven major new hotels and residential conversions. Other notes regarding Downtown/University Circle:
  - Case Western University and University Circle, Inc. have spearheaded a \$100 million redevelopment of a retail district along Euclid Avenue into an arts and retail district.
  - Approximately \$2 billion in construction and renovation projects have occurred with \$96 million for residential and commercial development with the remainder going to university buildings and cultural institutions.
  - Additionally, there was a \$350 million renovation of the Cleveland Museum of Art and the construction of the Museum of Contemporary Art for \$27.5 million.
- MidTown – this area has struggled in comparison to downtown and University Circle. City’s Department of Economic Development has had a stronger hand in efforts to develop this area than in other areas. Notes regarding MidTown:

- Activities included land assembly, site clearing, environmental clean-up, and marketing to potential investors.
- Private foundation money was used for some of the planning efforts, totaling approximately \$14.77 million.
- The City built a new police station in the area.
- MidTown Tech Park – Opened in 2011. It was the first private redevelopment in MidTown after the opening of the HealthLine. Notes regarding MidTown Tech Park:
  - Due to concerns about demand for retail and ability to fill three-story buildings, several variances were obtained that resulted in less-than-ideal development from a TOD perspective. The Great Recession also complicated conventional financing.
  - After the Tech Park opened, the developer subsequently invested in a second and third development in MidTown, with each project becoming increasingly urban in character.

## **Strategies Employed to Help Offset Adverse Land Use Impacts & Achieve Community Goals**

### ***Port Authority of Allegheny County (PAAC), Pittsburgh PA***

To achieve community goals related to land use and economic development, PAAC is following a set of specific recommendations outlined in a five-year report on TOD progress. These actions include:

- Using the state’s TRID law (similar to tax increment financing) to provide added funding for station area catalyst development, and working with local and private partners on long-term funding strategies.
- Making infrastructure investments that emphasize transit, bikes, and pedestrians – particularly implementing first- and last-mile projects to improve access to BRT. Priorities for investment have been identified in low income, minority neighborhoods and where improvements best improve safety and connect neighborhoods, destinations, and transit.
- Adopting inclusionary housing policy for development on PAAC land, mandating a percentage of affordable housing, and exploring which PAAC properties might be the best candidates for affordable housing development.
- Encouraging employment-based TODs by seeking new opportunities to add office and commercial space near stations using incentives that encourage non-residential development, and support equity in procurement and job creation benefitting low-income and minority neighborhoods.
- Implementing the PAAC Sustainability Plan to help the environment and further transit use. A focus has been identified on improving tree cover and landscaping, particularly in low-income and minority neighborhoods, and by designing and building green infrastructure including building certification and green stormwater management. Transportation-related sustainability actions include encouraging zoning incentives that support Transportation Demand Management (TDM) as part of major developments (like transit passes or bike memberships), and improved access and equity in shared micro-mobility transportation with priority investments chosen to serve low-income and minority communities.

### ***C-TRAN, Vancouver WA***

- The Fourth Plain BRT corridor is zoned for multi-family uses. There was a subarea plan for the corridor done in 2008 or 2009 which resulted in some up-zoning and a transit overlay. Some on-site parking requirements were eliminated, and for other sites, parking was directed to the rear of buildings.

Development standards were put in place that encourage TODs such as zero setbacks, street-facing building orientation, and other form-based guidelines.

- The amount of Legally Binding Affordability-Restricted (LBAR) housing within vicinity of the BRT line is high relative to typical communities, which helps Vancouver stand out among granting agencies.
- The City has put in place:
  - Transit-supportive corridor policies including those found in regional, county, and district plans. Portions of the corridor are proposed for mixed use.
  - Transit-supportive residential zoning near stations also allows for commercial activity.
  - There is a transit overlay zone in downtown, and an incentive-based program exists that allows for a reduction in Transportation Impact Fees (TIFs) in exchange for design and mobility improvements. A multi-family tax exemption is provided in the city center and along the Fourth Plain corridor, which is expected to be extended to the Mill Plain corridor – the community’s next BRT project which will shortly go to construction.
  - Vancouver has an affordable housing fund which (as of November 2019) has awarded \$10 million to 19 projects to create or preserve 610 units of affordable housing. Impact fee waivers may be approved for up to 80 percent of park impact fees when affordable housing is provided. A waiver of school impact fees may also be provided.
- Perception of the permanence of the BRT investment is noted as important in areas with high redevelopment needs. Such investment has triggered a market response, but seems to occur at a slower pace than with an LRT investment. On the plus side, the slower pace of investment provides for a more gradual community economic and land use response.

### ***EmX, Lane Transit District, Eugene OR***

- System development has been focused along corridors with the greatest potential for densification to provide more potential transit riders.
- Available rights-of-way outside of public streets are used whenever available, and transit signal priority is provided where separate rights-of-way are not available. The EmX system is considered as having a “high end” BRT infrastructure treatment in terms of the percent of the system that runs in its own right-of-way versus in shared street right-of-way. The segregated right-of-way made use of a large median on Franklin Boulevard, so service is relatively unencumbered by traffic (with the exception of the Glenwood area on the east side of Eugene). Business Access and Transit (BAT) lanes have been developed in other locations within each block, typically built with only small increases in right-of-way (three to five feet) with transit priority at intersections. Some access control through driveway closures was also implemented.
- Close cooperation between land use and transportation agencies is seen as key.
- Clearly articulate the goals of the program, as well as key metrics used to measure success. Eugene’s EmX focuses on corridors with a potential for increasing transit ridership (other systems also assumed that was an underlying goal of BRT), financial feasibility, and local support including approval by the affected jurisdictions before implementation.
- Be responsive to political/neighborhood pressures, seeking solutions that are broadly acceptable.
- Branding BRT service as a differentiator is important (Pittsburgh noted that their service is not branded but they are working towards making it special and readily identifiable as a community asset).

### **HealthLine, Cleveland OH**

- Level of government support for TOD is seen as the most important indicator of success for leveraging TOD from a transit investment – both in terms of transit-supportive policy/zoning and funding.
- Strong institutional anchors can play a pivotal role in leveraging TOD.
- Despite strong government support, weaker market conditions can still hinder TOD investment. Nearly \$36 million of public financing went into MidTown’s first development. However, the development was far from ideal from a TOD perspective, as it was only two stories, had no ground floor retail and had a significant amount of surface parking.

### **Other Notes**

Factors that Affect the Success of BRT Systems: <sup>9</sup>

- The most important factor affecting successful implementation of a BRT-related TOD is the level of government support (Hook, et.al, 2013). These activities include:
  - Rezoning
  - Creating a comprehensive plan with a specific focus on the BRT corridor
  - Proactive outreach to developers
  - Environmental clean-up
  - Land assembly
  - Extensive marketing of the corridor
  - Range of financial incentives

Similar findings were observed in other studies including a 2012 Government Accounting Office (GAO) report on BRT and economic development prepared for the United States Senate Banking, Housing and Urban Affairs Committee, i.e., “Bus Rapid Transit and Development: Policies and Practices that Affect Development Around Transit” (Thole and Samus, 2009), and “BRT TOD: Leveraging Transit-Oriented Development with Bus Rapid Transit Investments” (Cervero and Dai, 2014).

- Another important factor leading to successful implementation of BRT TODs is the strength of the real estate market. Strong markets will develop regardless of BRT investments. Emerging markets will require a higher level of government support to overcome any market barriers.
- A sense of permanence in the BRT investment is as least as important as the provision of features that impact the speed and reliability of service.
- An institutional presence along BRT corridors, such as hospitals or universities, can be a contributor to success. The 2012 GAO study attributes success of TODs along BRT lines in Cleveland, Eugene, and Kansas City to the presence of institutional anchors.

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<sup>9</sup> “BRTOD – State of the Practice in the United States”, Andrew Degerstrom, Metro Transit, September 2018.